Retail Market Ready

Retail Market Ready addresses the risks faced by North Carolina's small-scale farmers as they develop new relationships with local restaurant, grocery and wholesale buyers. This manual was designed to enhance the business skills necessary to market farm products to local vendors.

carolina farm stewardship association

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Retail Ready for Local Farm Products addresses the risks faced by North and South Carolina's small-scale farmers as they develop new relationships with local restaurant, grocery and wholesale buyers. This manual was designed to enhance the business skills necessary to market farm products to local vendors.

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1. **Introduction**

Across North Carolina, the demand for local food continues to grow. Farmers markets have been the leading edge of this trend, and they provide valuable opportunities for thousands of full- and part-time farmers to realize price premiums through direct sales of crops and products. But access to farmers markets is restricted by each market's popularity, location, and management. Some markets have limited commercial capacity or require sizable investments in time and travel.

Farmers can increase their sales and reduce their risk by diversifying their marketing channels and selling to multiple markets. These marketing channels include restaurants, co-ops and specialty grocers, national grocery chains, distributors and food service suppliers.

Mint Market of Durham, an internet portal which connects farmers to restaurant chefs, notes: "No single wholesale channel is a silver bullet, but if a farm picks the right partners to work with, it can make life much easier." According to specialty distributor The Produce Box, "Organizations like ours can be vital to the survival of farmers by providing an alternative market. We are an alternative to big brokers and wholesalers. Farmers are up against so much, we can bear the risk much more than they can alone."

Buyers of local farm products are actively looking for farmers to work with. Of the 40 buyers interviewed for this project, 87% said that they are looking for more suppliers and only 13% said they already had everything they needed. Paul Lieb, President of produce-supplier Foster-Caviness of Greensboro said, "We recognize the increasing interest in locally grown for freshness and the economic benefit it provides the surrounding communities. We are committed to promoting this concept and playing an integral part in helping it succeed." National grocery chains recognize the benefits of offering locally-grown farm products. According to Barry Paul, produce development specialist of the Virginia Beach-based Farm Fresh Supermarket chain, "Locally grown is a big merchandising advantage."

Statewide, the Center for Environmental Farming System's 10% Campaign has tracked $25 million in local food purchases between the launch of its campaign to build North Carolina's local food economy in July 2010 and October 2012. But there is still much room for growth, as North Carolinians currently spend about $35 billion a year on food. It is expected that the demand for local foods will continue to grow. And this demand is building in several directions. Chris Woodring, vice president of purchasing for food service supplier Fresh Point out of Raleigh, explained, "Our biggest demand comes from white tablecloth restaurants and from universities; the last six years of generational change among college students is in favor of local sourcing." As one specialty wholesaler marketing to retailers and restaurants said, "The sky is the limit."

Developed from responses to a telephone survey, this manual has been developed to help the state's farmers sell directly to restaurants, groceries, wholesale and foodservice buyers. All of the survey respondents buy products from local farmers, and several are actively recruiting local farmers and hope to increase their local purchases in the coming year. This translates into

"an incredible opportunity," according to Jennifer Curtis, Chief Operating Officer of Durham's Farmhand Foods. Bottom line: "We need more farmers."

Marketing local farm products has come a long way since the Farmers Market was the only outlet. Ford's Produce of Raleigh has grown from a booth at the state farmers' market (advertised here in 1965) to a specialty distributor selling across the state.

Food service is another area of expansion. According to Lynn Ford, president of food service supplier Fords Produce of Raleigh, "At first, it was the elite restaurants who were most interested in local. Now there are many more interested even chain restaurants and rest homes."

California-based food service supplier Bon Appétit, a subsidiary of global Compass, has been a pioneer in the local foods movement. The company states on its website that it "now spends tens of millions of dollars per year with small local farmers and artisans. Buying 100% locally is not yet practical but the commitment we have made to Farm to Fork will help ensure that our community can eat well today and tomorrow." In Bon Appétit's Southeast region, based in Durham, more than 25% of all products are now sourced locally.

Whether you are an experienced grower or novice farmer, dreaming of selling your heirloom produce to upscale restaurants, some of the skills and knowledge you need to succeed in this market differ from those needed to sell in commodities markets. As a farmer selling to retail or wholesale outlets, you are responsible for manufacturing, marketing, packaging and delivering your product store to store.

Many of the qualities required by commodities market buyers (food safety, consistent quality, insurance, and traceability) are equally important in the local market. Others (communication, flexibility, and responsiveness to buyers' interests) are even more important. According to Jane Steigerwald of Wilmington's Feast Down East, "Farmers are learning expectations of new kinds of buyers." Developing these skills can greatly enhance your prospects for a successful venture into selling into local markets.

We hope that this manual will help guide your efforts to diversify your farm business into a broader range of markets and inform your overall business plan.

Part I. Defining the Local Foods Market

The local foods market now accounts for an estimated $5 billion, according to a 2011 USDA study. Not only is this market growing, it is also becoming more diverse. USDA notes that while farmers markets are the primary direct-to-consumer sales venue, an even larger part of the market is made up of sales by farmers to grocers, co-ops, wholesalers, distributors and restaurants. In 2008, sales of local foods through these indirect channels were three times higher than sales to consumers at farmers markets, CSAs, roadside stands and other direct routes. The USDA's research also found that the smallest farms concentrated on direct channels, while medium-to-larger farms were more likely to use a mixture of market channel types.

Now, more than ever, it's clear that there is no *single* local food market, but rather *several different* local food market channels. Together, they offer a variety of opportunities for local foods farmers.

1. Defining Local

Our research shows that buyers' definition of "locally-sourced" is highly variable. It ranges from within the county to within the state, region or bio-region. For larger organizations, supply that comes from closer than the major commercial areas of Florida and California can even be considered relatively local. The figure most often used is "within 100 miles," but the answer varies by individual buyer and by type of buyer.

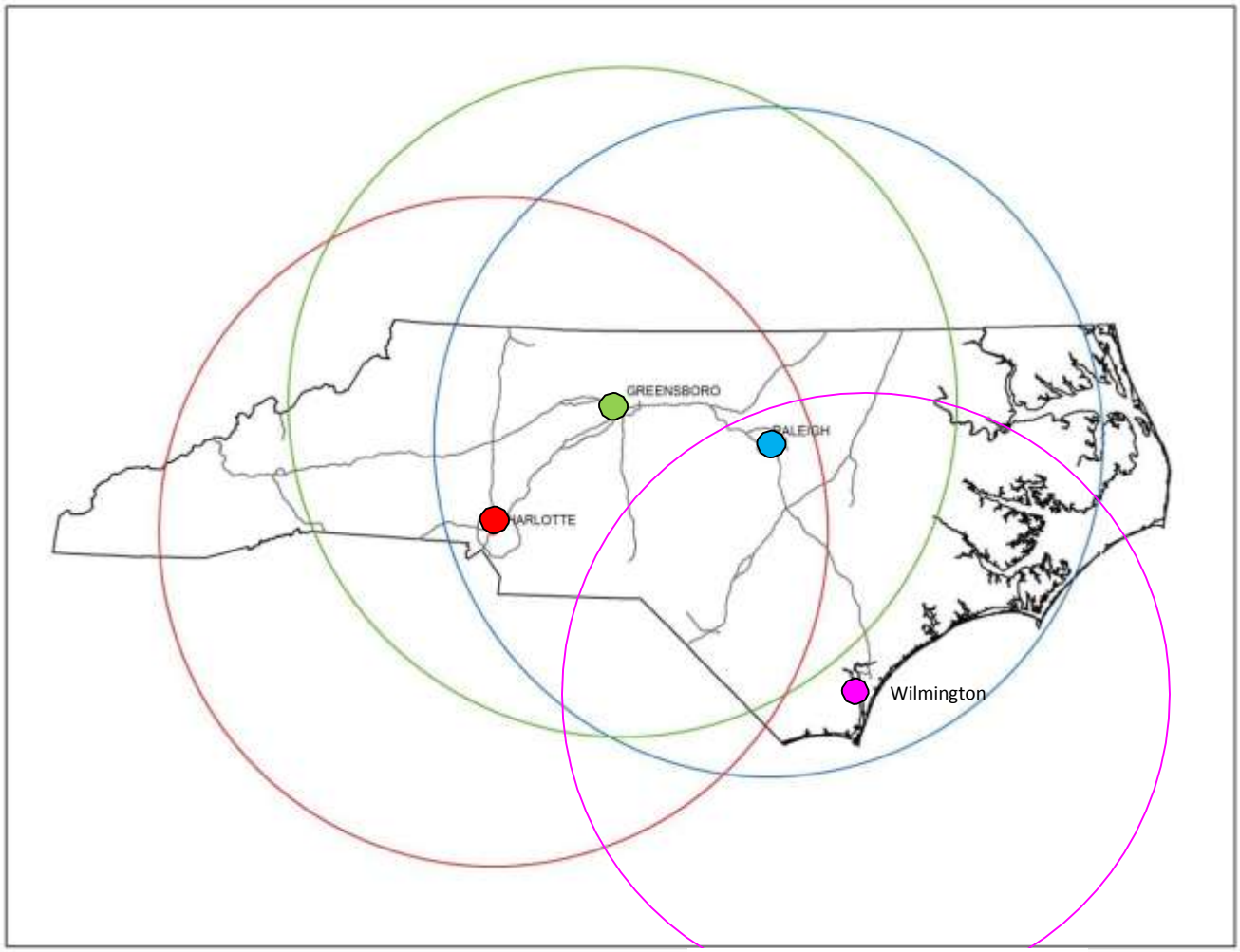
In our survey, most of the regional and national grocery chains (e.g. Whole Foods, Farm Fresh, Ingles, Lowes) defined "local" as within the state and also from adjacent states, when their store or warehouse locations are close to the state's borders. In addition, Appalachian Sustainable Agriculture Project (ASAP) certifies sellers through its "Appalachian Grown" brand which spans the states of the southern Appalachian Mountains. Ingles grocery is certified by ASAP. Co-op or specialty groceries, on the other hand, commented that "closer is better."

Small specialty distributors such as Piedmont Local Food, Feast Down East, and Bread Riot tend to define local on a smaller scale, such as within a county or a group of bordering counties. The definition of local also varies depending upon product and availability; for instance, most vendors noted that seafood from anywhere in NC is considered local. Dawn Stachler, co-owner of the Little Hen restaurant in Holly Springs, in Wake County, said that she and her husband, chef Regan Stachler, source "as close as we can, but it depends on the product: we get meat from Orange and Chatham counties." Like the Stachlers, some restaurants and other buyers where there is a high demand for local products are in a position to source nearby farmers. For example, Angelina Koulizakis, owner and chef at Angelina's Kitchen in Pittsboro, noted "We are in a unique situation to have so many farmers so close by." Ricky Spero of Mint Market, an online marketplace for local food based in Durham, NC, said the most important factor determining the farmers they work with is whether the farm is "within driving distance to our chefs."

Similarly, larger wholesaler/distributors often define local by distance to their distribution centers. This is also true when infrastructure is needed to prepare and package the product, such as in the case of meat. Jennifer Curtis of Farmhand Foods says that the farmer suppliers of the company's local, pasture-raised beef and pork farmers "must be a reasonable distance from one of the meat processors we work with across the state."

Definitions of local by wholesalers and food service suppliers vary from 150 miles to the region, and beyond. In most cases, the definition of "local" is not a limitation you will face as a farmer, as you can see from the map below.

Defining "Local" in North Carolina: Illustration of 150 miles from state's largest metro centers.



This discussion of how local products are defined is included to guide you in your quest to find vendors – not to dissuade you from approaching a vendor. If you have a product that a vendor is seeking, ask the buyer if you fit their definition.

2. How does "Local" Add Value to Farm Products?

While there are several geographic definitions of the term "local," the appeal of the concept is universal. Buyers and consumers see local products as fresher and higher in quality. Too, buying local is a way to support farmers who live nearby, farmers who are neighbors. For some buyers there is a third reason as well. Buying local allows them to support family farms who are keeping agricultural traditions alive. In addition, buyers may be interested in supporting farms which use organic production methods or other environmentally-friendly products that can be made economically sustainable by reducing transportation costs.

While consumer interest creates demand for local farm products, buyers also play an essential role. The hundreds of restaurant chefs, business owners, co-op directors, retail managers, and nonprofit leaders – by becoming local foods buyers –create the networks that make the local farm products market possible.

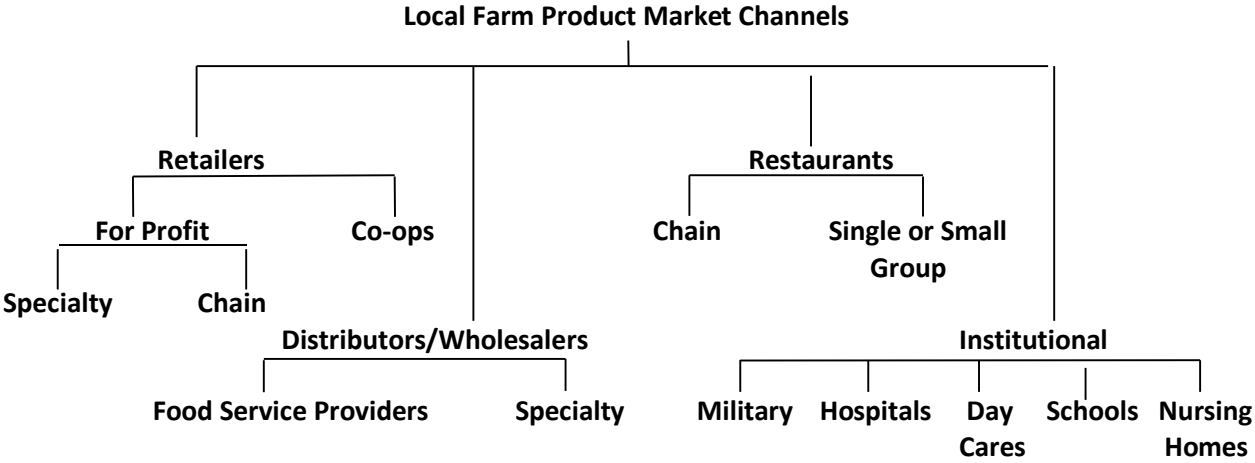
H. B. Kincaid, produce director of Carlie C's IGA in Dunn, summed up the situation:

"People want local!"

Owners Joyce and Carlie C. McLamb own a meat processing plant and 15 grocery stores that specialize in local country hams, sausage, BBQ sauce and "Green Gold" collards.

3. Market Channels for Local Foods

We surveyed buyers representing a variety of buyer types or market channels to help farmers find a good fit.



To make your efforts to branch out more rewarding, focus on one or two market channels. This marketing diversification strategy can speed up the learning curve and reduces risk.

A. Retailers

Local foods are seen more and more on store shelves. This includes national and regional supermarket chains, specialty groceries, co-op markets and natural foods stores. Retailers are responding to their customers' interest in local foods, especially on the produce aisle, but increasingly throughout their stores. The added value to the consumer is in freshness, more diverse varieties, and the satisfaction of buying good products from local farmers. While natural foods retailers and co-ops have purchased a diverse array of items for some time, larger retailers such as grocery chains are also beginning to add more local produce, as well as value-added, processed items to their local product line. For example, Lowe's Foods is now selling Charlie's Soap, a line of cleaning products made in Rockingham County.

Farmers selling to retailers of any kind must understand and supply "retail quality" – that is, products which are as appealing to consumers as those already on the shelves. As well as quality specifications, farmers should also be able to provide delivery to stores and/or warehouses. Retail buyers offer the significant advantage of purchasing in volume and a steady, predictable market during the year. Many retail buyers are nimble enough to take advantage of high value crops (such as sweet corn) and purchase large quantities during the seasonal window.

To sell to retailers, you must provide quality products that are as appealing to consumers as those already on the shelves.

For-profit groceries – whether individual stores, regional chains or national chains – can purchase in volume. Regional grocery chain Lowe's Foods, based in Winston Salem, purchased an estimated 25% of its produce within the state between May and September 2012. Ingles Markets, based in Black Mountain, purchased about 25% of its produce year-around during 2012 and also expanded its value-added items from local suppliers. Some national chains, such as Whole Foods, source locally and regionally for each store and region.

Co-ops and other community-based stores purchase the broadest range of products – produce, meat, dairy, eggs, honey, nuts, value-added goods, flowers, plants, and crafts – and are important buyers in their communities. Co-ops and other natural foods stores are also important buyers of local organic items, both certified and uncertified. In addition to buying directly from local farmers, co-ops and natural food are important customers of wholesalers who specialize in local products, such as Eastern Carolina Organics in piedmont and eastern North Carolina.

B. Restaurants

Restaurants are often seen as the most important type of local buyer, and the restaurants which participated in this project were very enthusiastic about local foods. Yet as a group,

restaurants differ widely from other market channels, and these differences are relevant to the

opportunities they provide to farmers. Differences include the restaurant's philosophy, size, menu, previous commitments with suppliers, and the formality of each restaurant's structure and relationship with each farmer.

Philosophy: Some restaurants have used local foods to create or recreate their identity. For these businesses, partnering with local farmers is a high priority, and they've taken the lead in developing the opportunities for farmers. Some of these restaurants plan their menus weekly, but changes can occur nightly based on availability of the foods being grown in their 'backyard'. Others are simply not interested, as they have other goals. Some restaurants are just beginning to realize the demand behind the "local foods" movement and would appreciate being contacted by a farmer. In such cases, it is especially important to maintain a professional relationship to "open the door" and keep it open.

Size: Restaurant size includes the number of seats, the size of the kitchen, amount of storage space, and the number of meals served per week. In general, the larger the restaurant, the larger the amount of food needed per week, which means reliance on large distributors to provide the quantities needed week in and week out; the smaller the restaurant, the more it can adapt to a combination of farmer-supplied and distributor-supplied items. Alternatively, though, a large restaurant may be more able to absorb large crops during a harvest window.

Menu: Any menu can be adapted to feature local ingredients, though the restaurant that features summer tomatoes as a stand-alone dish will buy many more tomatoes than a meat-and-potatoes place that uses tomatoes only for salads. Some chefs keep the same basic menu, with the addition of a few changing specials. Other chefs will change the menu every two or three weeks. The smallest restaurants have more ability to change with the seasons and local crops. This flexibility offers both opportunity and challenge for the farmer.

Previous Commitments: Many restaurants told us that they don't need additional suppliers, but others are always looking for products they cannot find locally or farmers who can offer "season extender" products.

Formality: While an informal purchasing system may be easier to access, it can also be unpredictable. Farmers can use this to their advantage through weekly updates of available crops to chef/buyers and through the use of written invoices.

It's important to note that restaurant chefs may purchase directly from farmers as well as from wholesale distributors who sell local food. For example, in piedmont and eastern NC, Eastern Carolina Organics has a big following among chefs who don't or can't manage the logistics of buying from many individual farmers.

Farmers who sell to restaurants will be most successful if they can supply a product that is consistently flavorful. Restaurants may offer flexibility in the amounts purchased, in delivery times and days, and in the range of products bought. They may be able to purchase smaller amounts of high-value seasonal foods (such as berries). Prices offered will be higher than

While prices paid by restaurants may be higher than wholesale, selling to restaurants requires better communication skills, more time, and more flexibility.

wholesale. The disadvantage is that farmers have to build a partnership with each restaurant buyer, making communication a higher priority. They must also be prepared to adapt to changes in time lines, and – often – to deliver less product to more buyers.

Lastly, the best-established "local foods" restaurants may already be well-supplied and not need new regular suppliers. To get a foot in the door, new local foods farmers may need to begin as back-up or part-time suppliers. It will also be advantageous to start making contacts at restaurants which are just developing an interest in local foods.

C. Wholesalers / Distributors

Wholesalers and distributors purchase items and then distribute them to retailers, restaurants, institutions (e.g. schools, hospitals, prisons) and other customers. The companies that generally supply only restaurants and institutions are called Food Service companies (see below). Wholesalers often specialize in either one type of product, such as produce, or in one type of customer, such as chain restaurants.

A successful wholesaler must deliver what is needed, where it is needed, at the expected quality and quantity, on time, seven days a week, 365 days a year. Wholesalers rely on an extensive supply chain that is intricately managed by the time of year and market demands. Wholesale scale can be very large, with crops obtained from many sources, aggregated, and distributed to many different places. North Carolina farmers are already part of the national supply chain for some crops, such as sweet potatoes, melons, cabbage, collards, berries, and other vegetables and fruits. These crops may or may not be labeled as "local," even when sold in NC, once they join the larger supply.

The key to success in selling to wholesalers is greater volume of a smaller range of crops, focusing on quantity and packaging as well as quality.

The concept of buying local – with its intrinsic seasonality, variability, and geographic limitations – runs counter to the regional and national logistics of the wholesale distribution business. Depending on the size and mission of the company, this requires locally-sourced products be kept, tracked and distributed separately. To this point, relatively few companies have initiated such a logistical shift. This is changing as the market grows and customers demand local goods. Exception sare wholesalers who source only from North Carolina – organizations such as Eastern Carolina Organics, a produce company, and Farmhand Foods, which distributes pasture-raised beef and pork.

Farmers selling to wholesalers and distributors will be more successful if they focus on greater volume of a smaller range of crops, paying special attention to consistent quality and packaging specifications. As well as providing the quantity and quality needed, farmers must also master

exacting packing requirements. Packing requirements are exacting, because the farmer is packing for the wholesalers' customers (retailers and/or restaurants). If these requirements can be met, there are advantages in being able to sell in volume steadily during a season.

Food Service Providers are distributors who sell only to restaurants and to institutions (schools and hospitals, prisons, colleges and universities). "Food service" spans the range of all food that is prepared and served in public, from elite restaurants to the hot dog stand at a baseball park to the elementary school cafeteria.

The priorities of a food service provider are determined by their clients. Food service companies supplying university dining rooms have been on the cutting edge of incorporating local foods, because university communities demand it. A broader range of food service customers are now inquiring about local foods options. One service provider based in North Carolina noted that even chain restaurants are becoming more interested in local foods. Farmers selling to food service companies must prioritize food safety, as well as on the crops and quantity needed. The timelines are exacting, and farmers will need to communicate effectively about crop status and availability.

Specialty Distributors are businesses, co-ops, or nonprofits created to distribute 100% local products direct to households and other customers. Selling to households distinguishes them from wholesalers / distributors / food service companies. Another difference is that they are usually smaller than other distributors, with revenues of less than $500,000 per year. Specialty distributors supply a diverse range of food products, primarily produce but also some cheeses, nuts, meat, and value-added goods, all packaged in a weekly box that is delivered to the home or to a pickup location, somewhat akin to the Consumer-Supported Agriculture (CSA) model. These are among the most nimble of buyers, often able to accommodate smaller volumes and a wider variety of items than others. Specialty distributors are particularly interested in fruits and other specialty items which are valued by their customers, so they welcome farmers who are "adventurous," willing to try new production systems, crops, and varieties. Some operate only during the growing season while others run year-around by adding "shoulder season" crops and value-added products for gift boxes.

Specialty distributors also include businesses and organizations which use the internet to connect farmers with buyers. Two of these are Durham-based Mint Market and PiedmontLocalFood.com (See Appendix 18), which connects farmers and chefs via an online ordering system. Another is the new Durham Locally Grown, which will launch in spring 2013 as a "virtual farmers market" with pickup similar to a CSA.
Specialty distributors are probably the most accessible types of buyers, especially for small-scale or part-time farmers, and they provide more training in business, computer, and production skills. Yet like other distributors, these organizations expect a consistent level of quality goods and a high degree of reliability on the part of their farmers. The primary disadvantage of this channel lies in the small size of some of these organizations.

D. Government: the NC Farm to School Program

The North Carolina Farm to School Program has been supplying school cafeterias across our state with the, locally-grown produce since 1997. However, it is so distinct from the other market channels that it is not discussed here at length. For more information, see Appendix 2.

Any and all of these market channels may be a good fit for farmers wishing to develop or expand into the local farm products market. The idea is to match your current interests and skills, knowing that as the farm business grows, you can access other channels and buyers.

Summary of Market Channels' Advantages and Disadvantages

Priorities	Advantages	Disadvantages
I. Retail		
Best match for farmers with experience and adequate scale	Opportunity for growth in variety of products	Variation in level of buyers' interest
Produce is primary, but also meat, dairy, eggs, value-added, etc.	Farmers spend less time marketing	Variation in ability to work with small farmers
Must be able to supply quality products that meet existing retail standards	Volume per transaction	
Must provide volume and quality that is agreed to, on time	May be reliable buyer	
Consistently high quality, appearance, sometimes grading	Potentially year-round	
I-A. Grocery Chains		
"Local" is a drawing card that can differentiate grocery chains	Will buy higher volume per transaction	Challenge to connect with the best person in large chains; be persistent
Liability insurance often required; GAP certification may be required	May be able to sell to a group of stores or entire chain	Delivery logistics (warehouse or multiple stores)
	Volume may be seasonal	
I-B. Co-ops and Natural Foods Stores		
	Buys consistently through the year	Limited number in NC
	Motivated to purchase local; accessible to farmers	Transportation

Summary of Market Channels' Advantages and Disadvantages (continued)

Priorities	Advantages	Disadvantages
II. Wholesalers / Distributors (All)		
Consistent and high quality	Higher volume per transaction	High expectations for quality
Must provide agreed-upon volume and quality	Farmers spend less time marketing	High volumes often required
Must deliver on time	Reliable buyer, year-around	
	Opportunity for growth	
II-A. Wholesalers		
Must be able to supply products to match wholesalers' customers interests	Ability to specialize in one or a few crops	Often specific production protocols
Require GAP certification and liability insurance		Exacting packaging specifications
Best match for farmers with experience & scale		
II-B. Food Service Providers		
Best match for farmers with experience and adequate scale	Sell to a variety of buyers	Complex and diverse market channel
Food safety is a priority, so require GAP certification and liability insurance	Increasingly interested in local food	Can be difficult to access
	Ability to specialize in one or a few crops	
II-C. Specialty Distributors		
Sell only local crops/products, and have lots of demand, so easy access for local farmers	Provide hands-on training for farmers	Computer skills often needed; training is provided
Value diverse & unusual products, including value-added products	Variety in volume/crop/product	
Work with novice farmers & small/medium scale		

Summary of Market Channels' Advantages and Disadvantages (continued)

Priorities	Advantages	Disadvantages
III. Restaurants		
Seek foods that to show off their menu and reputation as a restaurant	May buy smaller quantities	Farmers must initiate contact and build a partnership with each buyer
Consistent taste, premium quality	May have informal requirements and schedules	Depending on the number of buyers, requires more time & travel
Some chefs really enjoy partnership with small farmers	Interested in specialty and experimental crops and varieties; open to working with farmers in partnership	Restaurants may change ownership, focus, chefs, menu and needs for the products
Consistent flavor more important than appearance	Prices closer to farmers market	Larger number of individual transactions and buyers
		More record keeping

Part II. How to Sell to the Local Foods Market

Whether selling to retail buyers is new to you or you're already involved and want to expand your sales to retail buyers, it is critical to do your homework. That includes considering your answers to the questions below, and conducting a best-practices audit of your production and marketing plan.

Key: Do Your Homework.

1) Assess Yourself

Assess your farming practices. Preparing a description of your farm and your farming experiences can help you to select a crop or product to sell locally, and to choose the right market channel for that crop or product. You can also use this to assess whether you are a good match for a vendor and to "sell" yourself to that vendor. Some buyers of local farm products are interested in your farming practices. For instance, Pittsboro co-op grocer Chatham

Marketplace asks for specific information such as: How long you have farmed; Size of farm; Size of production area (in acres or square feet); Distance from market; Soil conservation practices; Irrigation practices; Current inspections, licenses or certifications (USDA organic and/or GAP); and Practices or characteristics unique to your farm that you believe add value to what you produce. See Appendix 3 for the entire form.

Many buyers look for "sustainable" business practices; Some will visit your farm.

Some of these are tough questions, but they can help you think through your strengths and your options.

Assess your interests. What crops/varieties can you grow well? What do you enjoy growing the most? What crops have market value? Are you interested in experimental or niche crops? Are you already or are you planning to become a full-time, professional farmer? Buyers want to support professional farmers, those who are farming for a living.

Assess your personal and business skills, resources and time available to decide what market channel is best for you**.**

- Do you enjoy face-to-face communication? Selling local differs from selling commodities in that it requires personal and in-person relationships. This is minimized through selling through a distributor.

- Are you flexible? Then you might be most suited for selling to restaurants and dealing with chefs, where needs might change weekly and communication is paramount. If you

prefer to have a buyer tell you what crops/products are needed for a longer term to be delivered on a regular basis, then you might be better suited working through a wholesaler.

- Are you dependable? Buyers must be able to count on you to deliver the type, quality, and quantity of product agreed upon. If there are any changes, you must apprise your buyers promptly.

- Are you courteous and professional? Buyers want farmers who meet their needs regarding product, handling, delivery, boxes, etc., and who have an appreciation of their business and availability. They appreciate farmers who are nice and yet persistent at staying in touch.

- Do you have a fairly high tolerance for risk? And are you persistent? Selling in this market is essentially different from growing a commodities crop, as there is no ready market to sell through at the last minute. You have to create relationships with buyers and commitments from those buyers up front. This requires persistence, as does finding a replacement, should any of your buyers go out of business or simply end the relationship.

- Do you have farming experience and the ability to plan ahead? Deep knowledge of the product will help impress buyers to establish initial relationships, as well as contribute to your long-term success. The ability to plan ahead and know crop timing and yield is critical. Asked about obstacles to working with local farmers, one vendor said "Estimating crop volume and getting commitments; our menu is posted three days before items are picked, so we rely on this skill."

- Communication and responsiveness are essential. What buyers need and want is regular updates on crop status, expected quality, expected quantity, and timing (beginning and ending of crop availability). In-person updates are sufficient for many buyers but written communication is often preferred; it is easier to keep track of emails than phone messages especially in a busy restaurant. Written invoices protect both the farmer and the buyer.

Pay attention to how you will present yourself to buyers. Think about how to provide information about yourself to prospective buyers. This can be simple with a one-page introduction sheet with your name, contact information, crops which can be provided, other interests, or just a business card. Have something to hand to buyers so they will remember you. Be clean and professional-looking when you first approach buyers (and later when you deliver your products).

Assess your capital needs. Will you need access to capital for additions to farm infrastructure (such as greenhouses, fencing, and irrigation) or for operating costs? Create a business pro forma and talk to farm credit agencies.

Obtain references. Ask current or past customers for references. This can be a folder of letters from several individuals, or a collection of quotes on a single page, but be sure to have contact information for each reference.

2) Identify local buyers.

Finding local foods buyers can be a challenge. The market is decentralized and fluid. The best way to start is to look for indications of the presence of local products and talk to the buyers who actively market local products about how they acquire their products. Buyers identify local products in a variety of ways. Vendors as diverse as Tidal Creek Cooperative Food Market and wholesale/distributor Eastern Carolina Organics label their products as local and identify the individual farm sources. In restaurants such as The Marketplace in Asheville, local dishes are marked with a diamond on the menu.

Talk with other farmers who share your interests. You may also get ideas from the Cooperative Extension Service. Each Extension Center has an agent designated to work with local foods projects and some are highly engaged with the local foods community and local foods organizations. Several of the Specialty Distributor organizations, including Piedmont Local Food, Madison Farms, and Pilot Mountain Pride have been developed through partnerships with Extension and with local economic development agencies. The new Toe River Aggregation Center and Training Organization (TRACTOR) is partnering with Extension centers in Mitchell and Yancey counties.

Contact the managers of any local farmers markets nearby. Manager may know of restaurant chefs or other local foods buyers. And, friendly restaurant chefs who are not able to buy from you may still give you some ideas of other chefs who share an interest in local foods.

Visit community kitchens for creating value-added products to find potential buyers and products to create from your crops (see Appendix 4).

Search the Web for directories of local food buyers, such as those listed in Appendix 5. For example, see the Got to be NC program, the marketing partner for Goodness Grows in North Carolina (http://www.gottobenc.com/) or Local Harvest (http://www.localharvest.org/).. NCSU's Center for Environmental Farming has a list of organizations participating in the 10% Campaign, who have committed to spending 10% of their food dollars on products from North Carolina (see http://www.ncsu.edu/project/nc10percent/partners.php). Many of these list local foods sellers as well as local foods buyers, so they are potentially useful as a marketing venue when you are ready to market. The web is also useful for obtaining background information on buyers of interest, prior to approaching them.

Use the internet and social media to find buyers and then to connect with clients. An excellent "how to" on this subject is available online on YouTube (for example, http://www.youtube.com/watch?v=nY7eTcVZGOQ).

Summary: Finding Local Buyers

Market Channel	How to Find	Who / How to Contact?	Best Time
Retail			
Grocery, Co-op or Natural Foods Stores	Visit stores in your area; look for items labeled 'Local.' Find website and the contact information for target stores. Check level of interest in local.	PHONE (or visit) produce manager or store manager (value-added or other). Can also start with customer service for general inquiries. Ask for general instructions or make a phone or in person appointment. Find the person most interested in local farm product. Be nice but persistent.	Tues, Wed, Thurs, late morning or early afternoons. Mornings are often delivery times.
Wholesale, Distribution, Food Service			
Wholesale	1) Ask retailer for suggestions; 2) Visit wholesalers' offices, often at state farmers' markets & ask for appointment; OR 3) Online directory of local foods providers. Read websites of specific companies.	PHONE best for initial contact. Ask who handles local farmer accounts (usually VP, account manager or owner). Make appointment. Be persistent but patient. These professionals stay busy.	Tues, Wed, Thurs 2pm or later; avoid the mornings
Specialty Distributor	There are at least 10 of these in N.C. Ask Extension office or use online directories. Then go to the website and gather all the information that you can, including the work / delivery schedule.	EMAIL is usually the best way to make initial contact. These organizations have limited staff and hours. Ask for the Crop or Farmer Coordinator for an appointment.	Many have a set delivery day for farmers (Tues/Wed). Best to ask.
Food Service	1) Ask restaurants for food service companies interested in local foods; 2) Check state farmers' market for offices & make appointment; or 3) Try online directory of local foods providers. Read websites of specific companies.	PHONE to ask who works with local farmers. If no designated employee, seek most interested in local farm products. Be persistent but patient. These professionals stay busy.	Tues, Wed, Thurs 2 p.m. or later afternoon.

Finding Local Buyers (continued)

Market Channel	*How to Find*	*Who / How to Contact?*	*Best Time*
Restaurant			
Restaurant	Ask Extension agents or farmers market managers. Look for advertising in local papers or restaurant guides. Ask other farmers or friends to identify likely restaurants. Visit their websites to learn more about their interest in local foods, meal times, name or chef and owner, and farms they currently work with.	PHONE is usually the best way to contact restaurants. Speak to the chef or to the owner. Expect to leave a message and have that person call you back or make an appointment to stop by the restaurant. Timing of contact is especially important with restaurants.	Tuesday, Wednesday or Thursday early afternoons, but it depends on meals served. For breakfast and lunch restaurants, try mid to late afternoon. For dinner-only restaurants, try late mornings through early afternoons. For lunch and dinner restaurants, try 2-4 p.m.

3) Identify products buyers are already buying locally.

The answers to this question may surprise you, and it's best to be surprised *before* you've grown a crop or raised a generation of piglets. Talk to potential buyers BEFORE you choose your crop/product and market channel (restaurant, grocery store, foodservice, etc.). Buyers can be very specific about what they are looking for, and the more specific the answers you get, the better. For instance, you may be accustomed to thinking in terms of "Big Boy" tomatoes, but Jim Ray, Vice President of Ingles Markets, is also looking for heirloom varieties.

There are two schools of thought when choosing a crop or product: take on something rare or be the best at a major crop. Martha Campagna of Down East Connect, said they "need products not often grown," and are looking for local suppliers who are "flexible and able to take some risks." Specialty distributor Pilot Mountain Pride is looking for farmers "who are entrepreneurial and open to new ideas." Asked about difficulties working with local farmers, buyers specifically referred to "the limited number of products available." "We want more variation in crop supply. We want growers to choose more unusual crop;" "finding non-traditional and unusual crops which may be difficult to grow." Addressing this need helps farmers and buyers avoid another obstacle several mentioned: seasonality and "a glut of all the same thing at the same time."

Either way, the guidance offered by Dick McKellogg of Lowes Foods holds: "My advice is to pick something and do it well. Quality is the way to make more money." Once you move beyond the farmer's market to other retail venues, quality can be defined more strictly. One

vendor mentioned this issue as the largest obstacle to selling local farm products: “Growers have to get used to quality standards for retail.” Buyers need “a more polished product than the farmers market.”

Ninety-five percent of respondents said they currently buy fresh produce from local farms – both fruits and vegetables. Fruits include those normally-associated with North Carolina (such as apples, berries, figs, watermelons, cantaloupe, peaches, and tomatoes - both field-grown and hot house) to the more exotic (such as Kiwi fruit). Vegetables currently purchased locally range from cold-weather crops (such as greens, broccoli, root vegetables, cabbage and collards) to warm-weather crops (such as squash, sweet corn, cucumbers, squash, peppers and green beans).

Fresh “produce” also includes plants such as mums and other bedding plants, as well as poinsettias and Christmas trees. When considering new product, don’t be afraid to “think big” (or small, as the case may be). Manna restaurant in Wilmington estimates about 75% of its food sales are locally-sourced, and notes that this includes “a lot of herbs.”

Two-thirds of respondents currently purchase animal products from local farms. This includes meat, eggs, seafood and fish (such as catfish, trout and roe). Such products – which are often featured in the “center of the plate” at a restaurant – are highly valued.

In addition to produce and meats/seafood, consider processed foods such as baked goods, cheese, noodles, jellies, processed fresh vegetables, seafood, and snack foods. Fifty percent of respondents report buying processed items from local farms. Specialty groceries and chains such as Whole Foods, Ingles and Lowes currently sell locally-produced cheeses, as do most food co-ops. Be creative. Many restaurants and coops offer beer made from local hops and locally roasted coffee.

Consider value-added products. Thirteen percent of respondents reported purchasing non-food items (such as gifts, flowers, and soap) from local farms. Buyers looking for value-added farm products range from food service management company Bon Appetit to specialty groceries to wholesale/ distributors. In addition to its sales of produce, meat and processed foods, Down East Connect sells craft items such as bonnets.

4) Identify products buyers are seeking.

What locally-farmed products are buyers looking for that they are not already able to buy or buy in sufficient quantity? While some respondents cited a need for more of “anything,” and “everything,” others specifically listed items they would like to buy. Fresh produce listed included fruits such as melons, heirloom apples, plums, pears, figs, nectarines, raspberries and other berries, as well as vegetables such as green beans and red and yellow bell peppers.

Buyers are looking for more specialty crops: mushrooms, truffles, celery, garlic, herbs (such as fennel, dandelion and anise), mushrooms (such as shitake) and pecans.

As the local foods market matures, buyers are emphasizing the need for local farm products year-round, called "shoulder-season" or "season-extending" crops. Cool-weather crops needed include asparagus, broccoli, cauliflower, carrots, Brussels sprouts, cabbage, cauliflower, spinach and other greens, salad mix, "baby vegetables," carrots, celery, onions, fingerling and russet potatoes. Other such crops which grow well in North Carolina include asparagus, lettuce, frisee, greens (New Zealand spinach, kale, endive, kohlrabi), root vegetables (onions and leeks) and gourds. Some buyers are offering farmers support for extending their seasons: "We are going to sell year round for the first time," said Jane Steigerwald of Wilmington's Feast Down East, "and will be working with farmers on season-extending practices."

Animal products of interest include eggs, cheese (especially goat cheese) and dairy in general. Poultry (chicken and turkey) is in high demand. Chicken was listed as needed by 20% of respondents, but was noted as problematic for both farmers and buyers, according to several respondents. Chefs noted that their diners think of chicken as an inexpensive food, yet local small-scale processing is very expensive. Moreover, the supply of local poultry and meat is limited by processing capacity and infrastructure. (For a list of meat processors in North Carolina, see http://www.ncchoices.com/content/6413 . Beef and pork are more available and more economically promising. Farmhand Foods of Durham buys cattle and pigs and sells local, humanely raised beef and pork and is looking for more beef farmers. Restaurants are interested in beef with caveats – they want grass-fed beef that is affordable.

Buyers are looking for value-added products.

Leila Nesson Woolfrum, Operations Manager for Co-op Grocery Company Shops Market of Burlington, NC, is looking for locally-made "real-meal foods," such as frozen vegetables, processed potatoes, and granola. Bare Essentials Market mentioned a "greens chips" product line that has done well for their market. A spokesperson for specialty distributor Piedmont Local Foods of Reidsville said that value-added items such as artisan breads and products for gift baskets are especially welcome in fall and winter, a time when local produce is limited and difficult to obtain.

Buyers are interested in products grown by alternative process or with alternative ingredients, such as organically or GMO-free (those that do not contain genetically-modified foods). Gluten-free was also mentioned as desirable.

Part III. Advice from Buyers

1) Build a partnership with buyers.

When producing products to be sold through the local market, it is important to build long-term personal relationships with buyers. While more than half of interviewed respondents also bought local farm products from distributors, *all* respondents – from single specialty markets to grocery chains, from restaurants to wholesale/distributors – purchase products *directly* from farmers. The number of farmers each vendor bought from ranged from 8 to over 100, with an average of 30. The logistics involved with working with this many farmers makes it imperative that relationships are good and that communication is strong.

Working with someone else's timeline is a key difference between these market channels and selling at farmers markets. From the farmers' point-of-view, this is a practical matter, but it is equally important to buyers. Asked about communication, several chefs responded in terms of timeliness. One vendor mentioned this as one of his largest obstacles in working with local farmers: "Our company orders produce 7 days ahead so farmers can't show up that day and expect me to buy." For the same reason, another vendor asked for information on when a supply of a crop will be ending, saying, "We need communication on when crops will end and often don't get that; we need a long lead time to plan."

Other buyers see timeliness as an opportunity to move more local farm product: "We like to tell people what is coming up so they will get excited." "I like to tease about what is coming." Chefs may plan menus as much as ten days ahead. Companies who sell farmers' products through websites "expect farmers to keep their lists current. If it's on the website, it must be available for purchase."

Bottom Line

To sell locally beyond the farmer's market, you must be flexible enough to produce what buyers are looking for and grow it in a manner that fits buyers' requirements. However, the WHAT is the first part of the equation for success. According to Terry Mattingly, General Manager of Ward's Fruit and Produce, a wholesale/ distributor out of Raleigh, "It's not just that farmers grow an item that we want to sell, it's how much ownership they have of the quality and how much passion they have for the product." Once you have selected your product(s) and have samples in-hand, you must demonstrate that passion through building long-term relationships with buyers and through quality assurance. These factors, and others which will help you succeed, are discussed below.

Successful farmers need a flexibility that goes beyond growing the specific products that are in demand. Martha Campagna of Down East Connect described this as "a willingness to learn and be committed to a new organization, to work together for a common goal." Similarly, Capri

Brixey, Board Chair of Rowan County's Bread Riot said simply that they were looking for a "willingness to work with the mission and organization." Moreover, several buyers reported that it is imperative that farmers learn each buyer's system. Lowe's Foods noted that working with local farmers requires extra logistics for the company, but said, in the same way, "small producers have to learn a complex system."

But buyers can be flexible too, as noted by Billy Mellon, owner of restaurant Manna in Wilmington: "We are a small restaurant with a flexible menu and can accommodate a surge of any crop" – once a good relationship is established.

> Flexibility, a good relationship and frequent communication can turn failure into success and success into greater opportunity.

This concept is well illustrated by a story told in The University of Kentucky's Market Ready Training Manual:

> "David Cleverdon, whose Caledonia, IL, Kinnikinnick Farm specializes in Italian produce varieties for the Chicago market, tells how a relationship and communication with a chef led to what is now one of his farm's signature products.
>
> "'*One week we were having a crop failure—we were growing a salad mix. So we began separating out the lettuces from arugula from Asian mustards that we were growing. And I got a call from Mary Ellen Diaz (the chef) saying, 'Hey—the plates are coming back clean.' She used to watch the plates coming back in from the dining room to see what people were eating. And the salad plates were coming back clean—and all we had on them were now just lettuces, a mix of lettuces.*
>
> *"'That's when it hit us. This is Chicago—it has a milder palate—and we weren't putting the hot greens in the mix. And so all of a sudden we had a product which is just a mix of baby lettuces which has been our mainstay product ever since… all because of the conversation and relationship with the chef.'*
>
> "For Cleverdon, whose business selling to chefs increased fourfold between 2006 and 2009, building those relationships with good communication was foundational to growing the farm's market. '*We knew we had to build our business in our market based on relationships,*' he says."

Initial Contact and Follow-up

For an initial contact, only 18% of buyers prefer an in-person contact, and most of these were grocers who have produce managers. Buyers largely prefer contact through telephone (74%) and email (54%). In-person updates also work for those organizations which have a weekly delivery system; this is a good time for crop managers to get updates from their farmer suppliers.

While 1/3 of respondents listed multiple venues for preferred contact, another third listed only email, underscoring the importance of having access to the internet. Not surprisingly, an online-only distributor requires initial application through its website. However, email access is also is critical to working with many other vendors. Piedmont Local Food mentioned farmer's lack of access to computer as a major obstacle to dealing with local farmers. Sandhills Farm to Table requires email access of all its suppliers. A restaurant buyer noted, "We are busy and having things in writing [such as via email] is much preferred."

Contact: Bottom Line

1) Plan ahead.
2) Call or email first
3) Be persistent.

For the first contact, most buyers with multiple outlets (for example, grocers) recommended contacting the local store manager or the store's produce manager. Several distributors said they were planning to assign a specific individual as their local foods contact.

After the initial contact, buyers often schedule a face-to-face appointment to assess samples, price list, and descriptions of the farm and its growing practices. Michal Aquaro, district manager of food service provider Bon Appétit, said "a number of ways will work, but farmers must build a relationship with the chef."

Timing is also important. When possible, it is best to contact buyers in winter, when they are making plans for the coming year.

Trial Period and On-going Commitment

While some buyers maintain only a week-to-week relationship with individual farms, most prefer an on-going commitment. Three respondents said they have a formal trial period prior to assuming a long-term commitment, but the definition of the trial period varies. One buyer defined the trial simply as "one year" while another said "new farmers start as backup suppliers and provide niche products" and the third explained "We start with one crop in one season, make more formal plans if successful."

Many buyers don't have a formal trial period, but said that farmers definitely have to prove themselves, starting small and gradually getting more opportunities. The trial model adopted by grocery chain Whole Foods and others allows farmers to work with one or two stores and demonstrate quality and delivery before scaling up.

Asked about the largest obstacle in working with local farmers, one respondent said "Farmers have to be able to sustain a long term commitment." Some buyers are willing to give farmers a lot of support to obtain that commitment. Specialty distributors and locally-based organizations and distributors like Down East Connect and Feast Down East (both of Wilmington), Piedmont Local Food (out of Reidsville), Sandhills Farm to Table Cooperative (Whispering Pines), Eastern Carolina Organics (now in Durham)), Madison Farms (Madison County) and the Produce Box of Raleigh exist to help local farmers enter this market. The same is generally true of co-op and natural foods stores. Steve Wyatt, store manager of Bare Essentials Natural Market in Boone, said, "We give lots of guidance; lots of give and take."

As Jay Pierce, chef of Lucky 32 Southern Kitchen in Greensboro, said, "I can provide a service to local farmers; they have so many variables to contend with. It's all about relationships." Chefs, restaurant managers, and distributors know "it takes time to nurture relationships with farmers." They are willing to give that time, but farmers need to keep in mind that their buyers are busy and respect that.

Smaller buyers, too, note the pressures of time constraints. Dawn Stachler, owner of Holly Springs' Little Hen restaurant, said, "We work with many small farmers and as small businesses we have similar challenges such as time pressures… We are learning together." When approaching buyers for the first time, be honest about your qualifications as well as your aspirations. Are you or have you been a full-time farmer? Do you engage in sustainable farming practices such as soil conservation and/or organic farming? Ask buyers what makes a good fit for them. Kathryn Waple, Produce and Meat Manager of specialty grocer Tidal Creek Cooperative Food Market of Wilmington said, "We want to support full-time farmers. When farms are not certified organic, we look for knowledge and practice of National Organic Program standards as well as a demonstrated stewardship of the land."

For Long-Term Success

Build a strong relationship with each vendor.

Buyers may partner with farmers to market their products, employing articles and videos about local suppliers on buyers' websites, vendor advertising featuring individual farms, in-store events and vendor-supplied signs for retailers. Thirty-three percent of respondents – primarily restaurants and specialty distributors – feature individual farms on the websites. Almost ¼ of respondents (primarily grocers and smaller distributors) sponsor in-store events, including demonstrations of products. The North Carolina Farm to School Program and specialty

distributor the Produce Box of Raleigh feature individual farms and their products in their newsletters and through other educational materials.

Buyers are also beginning to partner with farmers to plan production of specific crops that will be beneficial for both parties. "Local farmers are doing a good job of working with us and meeting our requirements," said Darren Stroupe, produce manager for Asheville's French Broad Food Co-op. "We are starting to work with a couple of farmers planning further ahead on specific crops and varieties."

Frequency of contact is important to buyers. Kevin O'Connell, produce coordinator for specialty distributor The Produce Box, said that his organization appreciates farmers keeping him updated on crop status. Matt Felling, produce manager of Deep Roots Market, said he needs communication about when items will be available and at what volume.

Asked how often buyers wanted their regular local farm suppliers to contact them, 80% responded "as needed," and all but one of the rest said "weekly or bi-weekly." Only the NC Farm to School program, which operates strictly on a bid system, required quarterly contact.

"Make it easy for us to order, be persistent. Stay in touch. I love weekly emails with updates."
- Tony Smith, manager of Asheville's Green Sage Restaurant

Professionalism

Developing a good long-term relationship can be summed up in one word: Professionalism. Buyers want farmers who are serious about farming; not gardeners: not hobby farmers, not backyard gardeners, but *professional* farmers. They want long-term relationships with farmers who understand which are your "primary" or most important accounts and make serving those accounts their priority. For example, if your retail buyer is expecting a delivery from you, don't leave that buyer short to take extra goods to the farmers market for a higher price. As expressed by Dick McKellogg, Produce Director of Lowes Foods, "I am looking for a commitment to farming as a profession rather than a hobby."

Building a professional relationship benefits both buyer and farmer. Bon Appetit's Michael Aquaro tells this story on the company's website (http://www.bamco.com/people/name/mike-aquaro):

> *"When we first started working with Patrick at Harris-Robinette Farms [Pinetops, NC], he was raising and processing his grass fed beef full time, while also working part time to help take care of his family. The relationship began with a handshake and the understanding that we wanted to work with him and we were fully aware that there may be supply hiccups related to sourcing from a small farm and that we were perfectly willing to continue to work through the bumpy parts. With our support, he was able to expand the farm with confidence*

and no longer has to work off the farm. We take care of each other. If he needs some chef volunteers for an event, the staff is always willing to jump in. If we need him to adjust our order, he's happy to comply."

This must be reflected in dealings with buyers as well as on the farm. Several respondents complained that some farmers would not honor their commitment to the vendor when they could get a better price at the farmers market.

When asked about their expectations, buyers listed:

- **Integrity**: Ethical, honest and transparent. Without these attributes, the farmer/vendor relationship won't last long. "Farmers must grow what they are selling." "I had some imposters early on, but it was easy to spot because everything was too uniform."

- **Reliability, dependability**: "Farmers willing to deal with quality problems" and "who are willing to make corrections."

- **Consistency**: "Consistent quality and consistent grading brings the best price." "Farmers must produce a quality and quantity for us to get a consistent supply." "I need a regular supply from farmers who can guarantee a certain amount for a certain number of weeks." "Consistent meat products are hard to get."

- **Timeliness and Predictability**: "Farmers must deliver the items ordered, in the quantities they promise, on time." This is especially important for chefs and for the distributors who serve them. Several chefs underlined this: "I need to know when a crop is coming in 4 weeks before it is available so I can get it onto the menu. Most farmers are not used to this time line." "We plan our menu 10 days ahead; we like to tell people what is coming up so they will get excited." "I like to tease about what is coming."

For a case study of a successful farm selling locally, see Appendix 12. For a checklist of best business practices, see Appendix 15.

KEY: "People who learn how to work together will last. Be nice!"
-Tony Smith, manager of Asheville's Green Sage Restaurant

Quality and Quality Assurance

Asked which characteristics are most valued in local farm suppliers, "quality" was the second-most listed factor (after communication). Buyers defined quality as "flavor or taste," "product

consistency," field ripe" and "grown to specifications." Buyers characterized quality required as "must be top-notch" and "better than a home garden." Asked about the challenges of working with local farmers, ten percent of buyers mentioned consistency of quality. One retail buyer noted "Growers have to get used to quality standards for retail," while another said "understanding of quality needs is improving." When problems involving quality do occur, farmers must be willing to deal with them. It is essential to understand each buyer's individual quality requirements – for consistency of appearance, size and flavor.

While only one respondent characterized its quality assurance requirements as a "guarantee" provided by farmers, most produce is inspected upon delivery. According to Heather Barnes, NCDA Marketing Specialist for NC Farm to School Program, school child nutrition directors have 24 hours after receipt to complain. If a complaint is made, farmer may replace or forfeit payment. Similarly, specialty distributor Pilot Mountain Pride explained that after produce is washed, graded and packed at the facility, records are adjusted if it doesn't meet standards. As one respondent noted, vendor inspection at delivery helps farmers understand expectations over time.

Safety

Consumer safety is an important factor in quality assurance, and one that is not sufficiently understood or emphasized by farmers, according to one specialty distributor, who said "Farmers don't understand good growing practices and food safety." While it is not possible to eliminate all potential food safety hazards associated with fresh produce (which may be eaten raw), risk reduction is essential.

For processed foods, many buyers require the use of a certified commercial kitchen or have a certified kitchen at home. If you are new to selling produce and or meat/eggs through retail channels, or have workers who are not accustom to selling to this market, basic food safety education is critical. Meat must be processed in a federal or state inspected slaughterhouse. Farmers wanting to sell value-added meat products will need a meat handler's license from the state.

Thirty percent of respondents require certification in Good Agricultural Practices (GAP) or Good Manufacturing Practices (GMP). GAP auditing and certification covers food safety programs at the farm level. As one respondent noted, "Food safety is paramount. There are several ways to get this done." Organic products must be certified or – for one vendor – attested to by an affidavit stating that the farm "follows organic standards." Some buyers require farmers to show they are moving toward GAP or organic certification. Others require "the same attention to detail," but don't require GAP certification.

The North Carolina Farm to School Program noted that it can use any auditors required by major retailers and that it also requires a point of sale (OS) audit before produce leaves the

farm. Several other buyers responded that they visit the farms of their supplies, looking for sustainable production practices, producer and product safety practices and packing conditions.

According to the USDA, the GAP/GHP program utilizes federal and state Departments of Agriculture auditors to verify that a participant has implemented a documented food safety program that meets the FDA's guidelines. The audit process begins when a grower contacts a 3rd party auditor, like the North Carolina Department of Agriculture, to request GAPs certification. Cooperative Extension describes the process:

> *"On the day of the auditor's visit, the auditor will review the grower's food safety plan before the inspection begins. The auditor will assess whether the grower has implemented all items outlined in the food safety plan. The auditor then uses a "matrix" where areas of potential concern are assigned a value and points are awarded for compliance. GAPs certification requires that 80 percent of the possible points are awarded. The inspection includes the physical assessment of each field or facility being considered for certification. The auditor will observe harvesting operations and may question the harvest crew to ensure that they have a working knowledge of the food safety plan."*

NCSU and NC Cooperative Extension created a video of a mock GAP audit conducted in Wilson, available for viewing online at http://ncfreshproducesafety.ncsu.edu/featured-resources/mock-third-party-audit-for-gaps-certification. For additional information on GAP practices for producers of produce, see Appendices 19-22.

While not all buyers require audits and certification, many are considering the requirement for the future, and all encourage farmers to have a food safety system clearly in place and to make their qualifications and certifications clear. Several respondents stated that the cost of certification was a concern. Said one, "We worry that this is cost prohibitive to small, diverse farms." Pilot Mountain Pride has helped area farmers obtain GAP certification, and now has 130 GAP-certified farmers. The cost was covered by a grant from North Carolina's Tobacco Trust fund via Surrey Community College. Some of the farmers working with Down East Connect out of Wilmington have received training through the NC Cooperative Extension.

North Carolina's "Fresh Produce Safety" offers a training curriculum in GAP (http://ncfreshproducesafety.ncsu.edu/). The tiered educational program consists of nine training modules. The section for Growers contains information on Farmers Market Resources, Production Considerations, Worker Health and Safety, Water Safety and Testing, and a wide range of Reference Materials. These include many articles on safe handling and packaging of produce, as well as an article by NC Cooperative Extension agent Debbie Roos which describes laws relevant to any farmers who sell meat, poultry or eggs in the state. Many materials are available in both English and Spanish.

The site also offers two online videos which are also available as DVDs (in English and Spanish). The first, "Bridging the Gaps from the Farm to the Table,**"** provides an overview of fresh

produce safety handling guidelines, highlighting some N.C. production areas. The 10-minute NCSU/NCDA video can be purchased for group viewing for $15 at http://www.cals.ncsu.edu/agcomm/video_sales.html viewed which can be viewed online at http://ncfreshproducesafety.ncsu.edu/trainers/training-manuals. Another video is available to educate farm workers and children on hand-washing hygiene.

While not all respondents require food safety certifications such as GAP, most displayed a strong interest in the practices being used at local farms, inquiring into water sources, soil conservation, and chemical use. This includes how soil and water are handled and protected. For example, buyers may want to see or be assured that farmers' practices do not inadvertently increase other risks to the food supply or the environment, such as improper use and disposal of pesticides, antimicrobials, antibiotics, hormones, etc. As explained by Martha Campagna, Project Manager of Down East Connect, one of the most important things is to "be transparent and clear about practices - especially pesticide use." Pest control was mentioned by several respondents, who stated they prefer "low spray or no spray." While few respondents required certified organic products, 30% said that sustainable and organic principles were a priority when selecting suppliers of local farm products. One chef admitted, "I visit farms and know exactly the production methods."

Some buyers state these expectations when asked, while others lay out such requirements up front. According to its website, food service management company Bon Appetit works with farmers who:

- Buy directly from farmers who use sustainable farming practices;
- Support farmers who do not use pesticides, hormones and antibiotics; and
- Support farmers who grow heirloom vegetables, rather than genetically modified produce.

Buyers of locally-raised meats had particular concerns, from how the livestock is raised to how the meat is handled and processed. Farmhand Foods, for example, distributes pasture-raised beef and pork grown by NC farmers. There is a precise protocol for how the animals are raised and how the pastures are managed. Says Jennifer Curtis, "Farmers must follow a pasture management protocol exactly. Pasture management creates the quality meat we sell: consistent weight gain without fat." Farmhand is also interested in humane practices and requires Animal Welfare Approved certification for its pork farmers.

Meat and other processed foods must be certified appropriately. Meat must be processed in a USDA or state-inspected facility. Meat sellers must have a meat handler's certificate. Value-added items, such as jellies and jams, juices, and baked goods must be made in an inspected/ certified kitchen." See Appendix 4 for the list of these kitchens.

2) Getting the Details Right

Instructions and Training

While most buyers don't have written instructions for farmers who want to sell their products in the local market, approximately 25% of respondents (of all types) do provide this invaluable aid. See samples in Appendices 7-13.

Piedmont Local Food and others provide in-person training. Once again, internet access is important, because most buyers who provide instructions do so via the World Wide Web and/or email. Thirty percent of respondents say they work with farmers individually. As Bryan Cave of specialty distributor Pilot Mountain Pride noted, "Some folks work better one on one than with written instructions."

Packaging and Labeling

Packaging is the best way to maintain the highest quality and to preserve the integrity of the product.

Wholesalers and distributors listed "getting the packaging correct" as a challenge when working with local farmers. Packaging should be selected to fit the needs of buyers: box sizes, amounts per box and amounts per bunch. Consider how the package relates to the use of your products. For restaurants – where food will be cleaned and prepared on site – a variety of strategies will work.

Packaging should be selected to fit the needs of buyers. Consider how the package relates to the use of your products.

For specialty distributors, who will be repackaging items, it may be important to have the same size, stackable boxes. For wholesalers – who will be delivering the farmers' packages directly to their own retail or restaurant buyers – the packaging requirements must be precisely met, since those packages will be used by the distributors' own customers.

Packaging and labeling both affect quality control, lot traceability, ease of handling and sales volume. The bottom line with both labeling and packaging is to consult the individual vendors to meet their specific preferences and requirements. Cleaning, labeling and packaging to specifications may involve extra time and this should be factored in when pricing products.

For all buyers, containers should be labeled with product and farm name to ensure traceability. Otherwise, requirements often vary by type of vendor. Most respondents representing restaurants and those who serve restaurants said they negotiate packaging between the chef and the farmer. More specifically, one respondent commented, "Farmers should use bags approved by the health department," while another said "I like efficient use of boxes."

Requirements by wholesalers are more specific. Packaging and labeling are worked out relative to each crop, but the over-riding theme is "suppliers must be able to pack to commercial specifications. Buyers are looking for packages appropriate to the crops, clean and stackable, in standard weights and equal bunch sizes. Several noted that they help farmers with this and a grocer noted, "We show farmers the way produce looks in the store." Many vendors provide training in packaging and some offer materials.

For retailers, "presentation and appearance of produce is very important, but it's *not* like the farmers market." One co-op manager told a story about a new farmer who brought in a box of sweet corn. She noticed the number of corn worms which were in the corn and said that the store could not accept it. The farmer said that the presence of corn worms was considered a plus at the farmers market, as proof that his corn was not sprayed.

For all circumstances, either follow the specifications or choose appropriate packaging. Excessive packing is both expensive (reducing your profit margin or the affordability of your product) and environmentally harmful.

Pricing

Asked about the main obstacle in working with local farmers, grocers listed pricing: "Farmers expect to be paid the price they see on the shelf, they don't understand wholesale versus retail pricing." While farmers often realize a price premium through selling products locally, understanding that there is a difference between the farmers' and buyers' sales price is important. "The main issue is understanding pricing and the wholesale relationship; I offer a guaranteed sale paid at delivery; farmers complain that it's lower than the restaurant and don't understand the advantage." The price of meat was specifically mentioned.

Cooperatives may offer a middle road: As one co-op manager said, "We adjust wholesale price to give farmers more than distributers and to give local organic farmers a higher price." Retailers, both grocers and co-ops, talk about the importance that farmers realize the value that is inherent in this market relationship, the value that is reflected in the predictable wholesale price. A sample price list is included in Appendix 16.

Supply and Storage

Supply is a matter of *scale* and *consistency* of both quantity and quality. Large-scale buyers, including restaurants, have to have a steady supply of quality goods. For instance, Green Sage Restaurant of Asheville uses 60 pounds of sweet potatoes per week year round, so it needs a supplier who can provide this. Other buyers who choose local make it a priority when local supplies are available and then shift back to reliance on major distributors and wholesalers when local items are not accessible.

Providing a consistent supply of the same product throughout the year may require larger-scale production or simply additional storage, depending upon the product/crop. Some buyers seek a product year-round but don't have storage capacity on-site, requiring the farmer to store the supply.

Fewer than 10 percent of respondents require a minimum quantity of a specific product. However, that requirement is defined in many different ways, from specifying "one acre" of a crop to "20 head of beef per year." The most important factor is to deliver what's been agreed upon. As one respondent put it, "I want something in writing ahead of time – especially for fruits."

Small-scale farmers face special challenges. While some respondents do not specify minimum product quantities, they did note that they tend to work with larger-scale farmers who can provide a steady stream of products. Several buyers noted that smaller scale suppliers are more affected by weather problems and damage to crops and products: "Any delays or breaks in the schedule are a problem," noted Barry Paul, produce development specialist of Farm Fresh Supermarkets.

On the other hand, some buyers - restaurants featuring local foods, specialty distributors and on-line farmers' markets - are designed to work with small-scale farmers. "We work with what we get," explained Dawn Stachler of Little Hen Restaurant. Specialty distributors such as Sandhills Farm To Table Cooperative, Farm Fresh Supermarkets and Down East Connect are more willing to work with smaller-scale farmers. "Many of our farmers are very small; we work with any amount." Grocers Whole Foods and Ingles stated that their suppliers of local foods/products can supply from just one store up to the whole chain. "We want to help local farmers grow," said Ingles Market Vice President Jim Ray.

Key: Deliver what's been agreed upon.

Supply is also a function of shelf-life and several buyers mentioned the problem of fresh food spoilage. While one respondent stated, "We accept the fact that organic has a shorter shelf life," several noted that it is vital that farmers help to ensure shelf-life by harvesting produce using cool-packing or hydro-cooling to avoid field heat. Careful handling is especially important when the product is heirloom varieties of vegetables, as these were developed for flavor rather than how well they stand up to rough handling and longer harvest-to-shelf times.

Delivery

Retailers (restaurants and groceries) and wholesale/distributors require delivery. Factor in the cost of delivering small amounts to fairly far-flung buyers when budgeting prices, costs and time. Some restaurants will pick up or coordinate delivery according to the farmers' market schedule if arrangement was made ahead of time. At-store delivery requirements range from "any time" to a specific time on a specific day. Distributors and wholesalers generally require delivery to a warehouse, with most buyers willing to work with farmers to suit the farmer's schedule, as long as they knew when to expect a delivery and delivery is *reliable*.

Bidding, Invoicing and Payment Terms

Only one respondent has a bid process for suppliers: "NC Farm to School program submits a bid that covers all the crops we need; bids are open quarterly." See Appendix 2 for more information on this program. Most buyers prefer to pay from an invoice, but for smaller orders, 25% of respondents will pay COD, especially on smaller orders. These tend to be smaller buyers, such restaurants and food cooperatives. Over 50% of buyers require an invoice (at least for larger orders) and all but two of these pay in less than 30 days (many in 7 to 14).

A sample of an invoice and a bill of lading is included in Appendix 16.

When making a delivery, bring two copies of your invoice, including the following information: Your name, business name, contact information, date of delivery, product and quantity delivered, price and payment terms. If you are paid on the spot, write "Paid," your initials and the date next to it on both copies. Leave one copy with the buyer and keep one copy for your records. If you are not paid at that time, leave one copy with the buyer and note the expected time of payment on your copy.

Insurance

Liability insurance is a key to protecting a farm-based business. While half of our survey respondents do not require farmers supplying local products to carry insurance, those that do not said that they presume that most of their suppliers do carry their own insurance and/or that they (the buyers) carry insurance themselves. Those who do require that their local farm suppliers carry insurance require liability insurance; several buyers gave a figure of $1-to-2 million in coverage. This depends upon the scale of the farmer and also the crops which are being purchased. Certain crops, such as mushrooms and juices, may require a higher level of insurance. Buyers who require supplier liability coverage fell into every category of our study, from small restaurants to grocers and distributors.

For a more thorough discussion of Insurance Coverage Options for Fresh Produce Growers, see Appendix 17. For a sample insurance certificate, see Appendix 16.

Other Requirements

Some buyers, such as Sandhills Farm to Table Cooperative and Piedmont Local Food have membership requirements. Bon Appetit suppliers must qualify with its Farm to Fork program (see http://bamco.com/sustainable-food-service/farm-to-fork). Piedmont Local Food requires its farmer/suppliers to attend food coalition meetings every two months, while Farmhand Foods requires attendance on an annual basis. Others (French Broad Food Co-op) require assurances or certificates of organic practices, or – like Whole Foods - require organic certification if the food is represented as organic.

Part IV. Marketing: Strategies to Increase Your Sales

Once you have selected your product, given it a trial run, created a relationship with a buyer or buyers, and gotten the details of production and deliver down, it is time to turn your attention to enhance your marketing and sales. Conducting your own farm/brand marketing campaign (independently of buyers) and coordinating with others can increase sales and make you more attractive to vendors. According to Matt Felling of Greensboro's co-op Deep Roots Market, "when farmers can do their own marketing, it helps them sell through us and through multiple channels." This can be accomplished in a number of ways, including partnering with your buyer.

Strategies to increase your market include:

- Work with your media outlets (for example, newspaper, magazines, television, websites, and blogs) to tell your story. "Profiles of area farmers can further help rebuild the

connection between consumers and the people who grow their food; and a seasonal produce chart, regional calendar of events, and area map can help maintain that connection throughout the year." (ASAP)

- Use social media (Facebook, etc.) to promote your brand and products.

- Provide buyers and potential buyers with information about your farm and products.

- Team up with a cooperative or distributor who will represent you to the public and market your products. For example, one specialty distributor sold $425,000 to its subscribers in 2011, with farmers receiving 70% of food dollars spent.

- Attend a retailers' open house event to introduce your products.

- Contact your local cooperative extension agents to identify produce auctions, independent food distributors, Farm To School activities, organized farmer groups, and other types of assistance.

- Seek newly-developing food businesses that are looking for crops and products to purchase. For example, herb growers may sell to bakers, salsa popsicle makers.

- Develop value-added products based on your crops. Many buyers require these items be prepared in a certified commercial kitchen and there are now several such facilities now open across the state (See Appendix 4). These organizations are often called "business incubators" as they provide space and equipment for farmers and for others developing food products and businesses. Each of these facilities charges a fee for use and requires training to use the facility and equipment.

Community Kitchens

Visit community kitchens to find potential buyers and value-added products to create from your crops.

- Find out about resources provided by business incubators (for example, Greensboro's Nussbaum Center for Entrepreneurship Inc., and Orange County's two farm to fork related incubators: the PLANT @ Breeze Farm Enterprise Incubator, a new farmer training program, and the Piedmont Food & Ag Processing Center, a food business incubator).

- Working in the larger community to increase the market for local foods will also help increase your sales in the long run. A list of suggestions is provided in Appendix 14.

Appendix 1. Acronyms

AWA - Animal Welfare Approval
CSA – Consumer Supported Agriculture
FDA – U.S. Food and Drug Administration
GAP - Good Agricultural Practices
GHP - Good Handling Practices
GMO – Genetically-modified
GMP - Good Manufacturing Practices
NCSU – North Carolina State University
POS – point of sale

Appendix 2. The NCDA North Carolina Farm to School Program

The NCDA North Carolina Farm to School Program is a collaboration of the state's Marketing and Food Distribution Divisions to invite groups of farmers to supply school districts with fresh produce. The NCDA works with an Advisory Board to select crops that schools would like to purchase during the school year (August to June) and select trial products for the year. NCDA then facilitates the bidding process to supply each quarter's crop needs, and the Advisory Council selects the bid winner (generally the bid with the lowest price).

The farmer group that wins the bid will work together to pack and prepare the orders to be picked up at three sites, trucked to NCDA warehouses, and then sorted into orders which are then delivered on a 23-week schedule using NCDA Food Distribution trucks. To assure quality, there is now a point of sale inspection at the farms before the produce is picked up.

Participating school districts can then order as they wish during the school year. Districts vary in how their bid processes work and what their bid thresholds are; for example, schools may be able to purchase blueberries directly from a farmer if the value is below a threshold. In 2012, 85 school districts participated in the program.

Heather Barnes, NCDA Marketing Specialist, said, "smaller farmers may not find it financially worthwhile" to work with the NC Farm to School Program, which requires farmers who participate to be GAP-certified (USDA Good Agricultural Practices) and have $2 million of liability insurance. They must also be members of the NC Farm to School Cooperative, which is a group of farmers who join together to submit bids that will cover all the crops of interest.

There are some built-in limitations to the program: (1) Funding levels for child nutrition programs may be too low to support purchase of fresh produce; (2) Federal requirements now increase the fruit and vegetable amounts for each meal and specify appropriate methods of preparation (such as no sweet potato fries); and (3) School kitchen capacity and staff may not be sufficient to deal with fresh produce, including refrigeration, storage, and preparation areas and time.

For more information about grower participation, contact Tommy Fleetwood in NCDA Marketing at 252-331-5773. For more information about the NCDA-Child Nutrition partnership, contact Heather Barnes, also in Marketing, at 919-707-3127.

Appendix 3. Chatham Marketplace Co-op: Become a Supplier

Producer Name (required)

Date questionnaire completed (required)

Farm or Business name

Address

County

Phone

Email (required)

Zip Code

Fax

Farm address (if different from above)

Size of Farm

Size of current production area, in acres or square feet

How long have you farmed there?

Distance from Pittsboro

What products would you like to sell to the co-op? Please check all that apply

☐ produce (fresh fruits, vegetables, flowers, mushrooms) ☐ dairy/eggs (cheese, milk, yogurt) ☐ Meats (processed, frozen or fresh) ☐ Processed goods (baked, jams, jellies, salsas, teas, etc.) ☐ Other

If other, please specify

Is your farm certified USDA Organic?

○ yes ○ no

If yes, please provide copy of your application for Organic certification. Although it may seem redundant, we would still request that you complete this questionnaire as is will help Chatham Marketplace get to know you better than we could by merely reading your certification application.

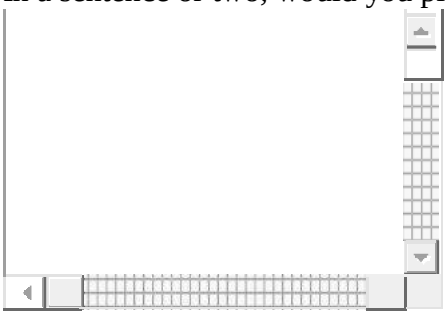
When would you be able to begin providing your products to CM?

Employees: What percentage of work (approximately) is done by others than family members?

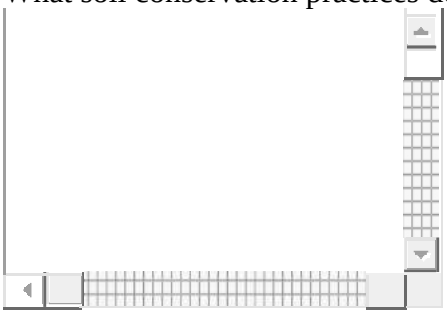
Are your employees (please check all that apply)

☐ full time ☐ part time ☐ seasonal ☐ migrant ☐ interns

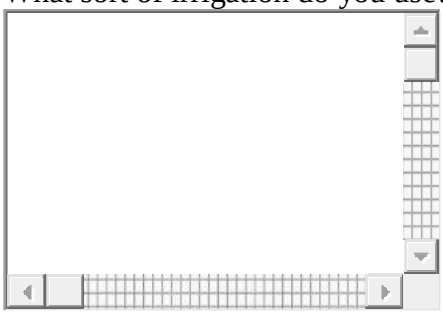
In a sentence or two, would you please describe working conditions for your employees?



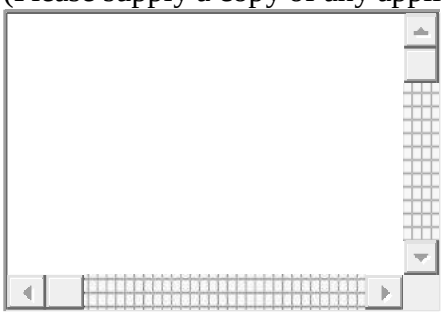
What soil conservation practices do you use?



What sort of irrigation do you use?



Please list any inspections, licenses or certifications that you do have with expiration dates. (Please supply a copy of any application documents listed.)



Describe any practices or characteristics unique to your farm that you believe add value to what you produce.

Are there any things you want us to know about your farm?

Source: http://chathammarketplace.coop/departments/become-a-supplier [accessed 11/8/12]

Appendix 4. Commercial Kitchens List (2011)

Name and Date Opened	Description	Location and Contact	Website
Anson Kitchen (2010)	Commercial processing for community	514 N Washington St. Wadesboro, Anson Co. (704) 272-5457	ansonkitchen.org; http://www.nvbdi.org/kitchen.htm
Blue Ridge Food Ventures (2005) LLC Advantage West	Regional value-added food processing center	Asheville, Buncombe Co. Mary Lou Surgi 828-348-0128	http://www.advantagewest.com/content.cfm/content_id/144/section/food
Burgaw Incubator Kitchen at the Historic Depot (2009, 2011)	Commercial community kitchen aggregation facility	Burgaw, Pender Co. (910)259-2151 or 910-547-0669 Gailyn Gagliardi	http://townofburgaw.com/historic-depot/incubator-kitchen/
Eastern Carolina Food Ventures Ag Processing Center (2010)	Aggregation & regional value-added processing center	Warsaw, Duplin Co. Lynn Davis 910-290-0525; Teresa Davis 910-271-1750; or (910) 293-2001	www.jamessprunt.edu/kitchen.html
Madison County Cooperative Extension Community Kitchen (2006)	Commercial processing and aggregation kitchen for community	Marshall, Madison Co. (828) 649-2411	http://www.madisonfarms.org/
Piedmont Food & Agriculture Processing Center (2011)	Regional value-added food processing center	Hillsborough, Orange Co. (919) 245-2336	http://www.orangecountyfarms.org/pfap/index.asp
Rockingham Community Kitchen (2006)	Commercial processing kitchen for community	Madison, Wentworth, Rockingham Co. (336) 342-7853 Rockingham County Extension	www.rockinghamkitchen.org
Stecoah Valley Food Ventures (2005)	Commercial processing kitchen for community	Robbinsville, Graham Co. (828) 479-1466	http://www.stecoahvalleycenter.com/
The Cookery (2011)	Commercial processing kitchen - membership required	Durham, Durham Co. (919) 908-8974	http://www.durhamcookery.com/

Appendix 5. Directories of Local Foods Buyers and Sellers

The following is a list of web-based directories of companies that sell local foods, are possible buyers for local foods farmers, and are opportunities for farmers to list their own crops and products. Please note that they are not necessarily complete or up-to-date.

1. Appalachian Sustainable Agriculture Project (ASAP) provides a listing for western North Carolina and bordering counties in other states. http://www.buyappalachian.org/

2. Carolina Farm Stewardship Association (CFSA) has just completed a new "Local Foods Finder" for North and South Carolina. http://localfood.carolinafarmstewards.org/browse.php

3. The Center for Environmental Farming at NC State University, the home of the 10% Campaign, lists Campaign partners. http://www.ncsu.edu/project/nc10percent/partners.php

4. Goodness Grows in North Carolina - the General Store - lists items by county and crop/agricultural sector, and includes information on member farms, businesses, and retailers. http://www.ncagr.gov/markets/gginc/store/index.htm

5. Got to Be NC www.gottobenc.com is a rich listing of food companies in North Carolina.

6. NC Specialty Foods: http://www.ncagr.gov/markets/specfoods/index.html

National

1. Eat Well Guide has about 25,000 listings including almost 1,500 in NC. (607 farmers, 211 farmers markets, 196 restaurants, 149 stores, etc). The default is alphabetic by town, but there are advanced search options that can more closely link categories with a location. This site can also give a list based on a trip, with starting and ending addresses. www.eatwellguide.org

2. Local Harvest by Slow Food is easy to use, has a clear map function and links to online stores. www.localharvest.org

Appendix 6. Web Resources

For further information on specific subjects/geographies, we recommend the following:

Communication & Relationship Building

- **Think like a chef or restaurant manager**

Chefs Collaborative http://chefscollaborative.org

NC Restaurant & Lodging Association www.ncrla.biz

National Restaurant Association www.restaurant.org

Growing Small Farms http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-marketingrestaurants/

- **Think like a wholesale food buyer**

Sysco www.sysco.com

U.S. Food Service http://usfoodservice.com

Gordon Food Service www.gfs.com

- **Think like a grocer**

NC Retail Grocers Association www.retailfoodsafety.org/state/nc/rail-grocers-association/

Growing Small Farms http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-marketingretailers/

National Grocers Association www.nationalgrocers.org

Supermarket News http://supermarketnews.com

IGA (Independent Grocers Alliance) www.iga.com

National Cooperative Grocers Association www.ncga.coop

Marketing

Feast Down East http://www.feastdowneast.org/findachef.html

Growing Small Farms http://growingsmallfarms.ces.ncsu.edu/

Growing Small Farms http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-marketing/

Appalachian Sustainable Agriculture Project http://www.asapconnections.org/index.php

Packaging

The Packer www.thepacker.com

Produce Market Guidewww.producemarketguide.com

ServSafe Essentials- FDA trainings available www.servsafe.com

Center for Innovative Food Technology http://ciftinnovation.org

Cold Chain Technologies www.coldchaintech.com

Packaging Digest: Materials, Equipment & News www.packagingdigest.com

NC Dept of Health and Human Services http://publichealth.nc.org

Labeling

U.S. Food Labeling Guide III www.foodinstitute.com/labeling.cfm

Resource for labels, table tents, etc www.usalabelexpress.com and www.onlinelabels.com

USDA http://www.ers.usda.gov/topics/food-safety/labeling-information-policy.aspx

UPC Codes (see next page for more information) www.gs1us.org

Business Printing

Business cards www.vistaprint.com and www.123print.com

GAP Auditing and Certification

Harvest Crew Audit Guidelines [full length], Primus Labs, July 2007.
http://www.primuslabs.com/docs/guidelines/v0704Harvestcrewauditguidelines.pdf

Ranch Audit Guidelines [full length], Primus Labs, April 2007.
http://www.primuslabs.com/docs/guidelines/v0704ranchauditguidelines050107.pdf

Guidance for Industry Guide to Minimize Microbial Food Safety Hazards For Fresh Fruits And Vegetables, US Food and Drug Administration, 1998.
http://www.fda.gov/ohrms/dockets/98fr/97n0451.pdf

Appendix 7. What to Expect As A Farmer

Source: Feast Down East

Commit – Be reliable and consistent in your selling relationships. Deliver what you say you will deliver; show them why buying local is so superior.

Maintain communication – Tell them what is going on at your farm, follow up on deliveries and find out what was appreciated or what can be improved. Some farmers find it's best to call every week [see timing below] and update chefs on what is currently available. It's all about building a relationship so that your clients call on you consistently!

Schedule – Find a delivery time that is efficient for you, but also works for the chef. Know their busy times and plan your visits and calls around them. Developing a schedule will ensure your chefs stay well stocked; it's important that they have a steady stream of fresh products during the week.

Sell what you can deliver – Know the kitchen's needs and plan accordingly. Chefs expect a certain quantity. Look at past invoices, if available, so you can reliably predict what you will be able to offer through the season. And if your product changes, call and ask if they still want it. Never assume.

Sell your product – Market yourself. Make personal visits to the kitchen and attend farmers' markets. Free samples are always a great opportunity for you to sell yourself and remain top of mind. Make suggestions to help chefs better use your product, especially if you offer something special or unusual; help them plan a menu around your produce. The easier you make their job, the more likely they will call on you again.

Know your customers and their customers – Eat at the restaurants and find out how your product is used. Ask to see a menu, or sample seasonal menus if available, and find ways to fit your products into them. (Many restaurants list menus on their website, if they have one.) To put it simply, when a need doesn't exist, it's your job to create one.

Be professional – It seems to be common sense but often goes unpracticed: be patient, diligent, on time, courteous, prepared, and call if you will be late.

Billing – Establish an account with your clients. It's more efficient for everyone involved.

Specialize and Diversify – Why should they buy from you? Determine your competitive advantage and tell your chefs about it. Talk with chefs, find out what they need in particular, then tell them how you can fill that void. Some growers find it works best to concentrate on one or two strong crops, others find it's better to offer a variety and be able to cover most of a chef's produce needs for a week.

http://www.feastdowneast.org/findachef.html Feast Down East accessed 10/2012

Appendix 8. Prospective Growers Protocol
for
Producers Interested in Joining Sandhills Farm to Table Cooperative

Thanks for your interest in the Co-op.

Regional food systems are an idea whose time has come again and, given spikes in fuel worldwide, likely to become "the new normal."

Sandhills Farm to Table Co-op is looking to make connections and solve problems on a regional scale. We expect our market share to expand over the years. We seek community solutions . Our mottoes are "Neighbors Feeding Neighbors" and "We're All in This Together." Are you interested in working together to find community and regional solutions for our area's food needs and issues?

Products that can be offered through SF2T:

- Product Categories include: Food, Pet Food and HABA [health and beauty aids]
- Ag products must be "local" meaning:
    - Ag products are grown in Moore County or the 8 contiguous counties
    - Ag products not grown in 9 counties, then a County contiguous to them
    - Ag products not available in either of the above (seafood), then closest source within NC
- Value added products
    a. Made in the "local" area as defined for Ag products
    b. Made by a vendor who agrees in writing to using local ingredients to the extent possible, and demonstrates this commitment in their actions.
    c. Made from local ingredients, to the extent possible - recognized exceptions where ingredient cannot be local (coffee roasted locally), or is not currently available locally.

"How can I market my products through Sandhills Farms to Table Cooperative?"

There are several ways: fresh produce through the Produce Boxes; through our mobile market (coming Spring/Summer '12); through our new online store.

- **Our signature Produce Boxes**: New producers usually start as a fill-in and backup, and may grow into principal suppliers over time. Niche or unusual items of sufficient quantity are also a good way to start. The farmers that built us the first year, of course, will be given some preference, but as we grow we see areas for expansion - several current niches exist now. For example, members would like some organic produce, and we'd like to highlight anyone transitioning to USDA certification. Or, there are crops we'd love to include in the box that no one is currently growing like plums, pears, fingerling potatoes.

- **Mobile Market:** Our new distribution system for meats, dairy, eggs & fragile goods will be our pre-order Mobile Market which is launching this season once appropriate licensure & logistics are in place. Much like the online store, the Co-op gathers orders from members, does all the paperwork and payments, and farmers/vendor will deliver to our Packing Facility. From there, we'll make rounds to gathering sites delivering these cold trail items ensuring rotation between as many sites as possible on a weekly basis over the season.
- **Online Store**: An offering of a wide variety of value-added products and produce unsuited for the Produce Box because they are too expensive or their quantities are too small. Also an outlet for flowers, soaps, transportable baked goods, jams, honeys, salsas, pickles and other value-added products. Members order from items listed in the Online Store, and the products are delivered along with the weekly Produce Boxes. Examples include bulk sales of product for consumer-member canning and preserving, or extra jars of jam, flowers or bread.

  To take advantage of any or all three of these options, the first step is to become a member. You will own a share in the Co-op, and have representatives on the Board.

To become a producer member of SF2T, the best steps to follow are this simple protocol.

1) First and foremost, read our extensive **Frequently Asked Questions** on the Produce Box subscription program: click here. There will be a test! (Just kidding of course, but it is surprising to us how few farmers and vendors approach us without a fundamental understanding of what we're trying to achieve here - on one hand, it simply looks like just another market, but on the other, it is actually a community "coming-together" over food needs, to solve problems and make connections on a small, regional scale. Farmers own a stake in their markets - and consumers do too, making it a "dynamic accommodation" - with, frankly, a tremendous amount of good will from both sides. The principle that informs our actions is "We're all in this together." It's a different model.)

2) It's important that farmer/producers have email, particularly those outside Moore County. Much communication happens that way. It's pretty hard to get everything done that needs doing without computer access and an email account.

3) If you like what you read online, the first step is to join online as grower member-owners ($25). Click here and follow the link for New Members. Be sure to click the "I want to be a vendor box". **Do this at least four weeks minimum before you anticipate having product ready;** The earlier the better, even pre-harvest, given the furious rush of produce season.

4) * Once you have joined as a member, send me an email: Jan@sandhillsfarm2table.com letting me know that you've joined and what you would like to provide. That will help me look out for your membership among the hundreds. I will contact you directly, and we'll figure out where there might be possibilities. This is a collaborative effort. We work together. We want

you to succeed, and will do our part within the limits of our structures. Our Co-op endeavors to be as farmer-friendly as possible.

5) You can download our simple Grower's Form by clicking here and Producer's Policies by clicking here . These must be filled in and in my hand before any product can be scheduled to be sold. We will create on online profile of your farm using this info, so be sure to detail what makes your farm and products unique; ie, multigenerational/historical farm, sustainable practices like crop rotation, covers crops, compost, etc,, IPM, USDA organic certification, heritage breeds, pastured or grassfed, etc.

6) The Co-op also needs proof of liability insurance, in the minimum amount of one million dollars, with the Co-op named as “additional insured,” verification to be provided to the Cooperative either by fax or regular postal mail. This too must be in hand before any product can be scheduled to be sold.

7) The farmer/producer member needs to then contact our bookkeeper to set up payment information such as billing address, farm/ taxID number, etc. We pay very promptly, usually the week after produce is delivered (for the Produce Box) and soon after for Market Days. We endeavor to set an industry standard for being farmer-friendly in invoicing. This too must be in hand before any product can be scheduled to be sold. We will connect you when you join.

8) We want to help you - *and* we have some inflexible deadlines. Once your produce/product approaches readiness, prompt and accessible communication with me will be critical. Several farmers missed out on orders when critical inquiries were not returned by the time decisions needed to be made. Please help us help you by returning calls promptly.

9) Produce and product quality must be top notch. Our mission statement says "to sell quality food at a quality price." Our consumer-members expect highest quality - not that there can't be a special place for smallish seconds or "canners," but they must be advertised as such, and it's not a good idea to surprise either me or the Produce Manager. Again, good communication can allow me time to educate members over an unexpected turn of events via the newsletter. No surprises! And it’s always better to underestimate quantities than overestimate.

10) The Co-op includes produce in the weekly boxes at the previously agreed, quality retail prices (Fresh Market, Farmers Market, Harris Teeter.) Farmers generally receive 70% of the food value in the box. We will work out a price in advance of including it in the Produce Box. In the Online Store, farmers and vendors can set whatever price they like, just as with a Farmer’s Market, with other often offering similar seasonal items at their own prices. The Co-op charges a percentage for generating orders from members, billing, handling, bookkeeping, as well as packing and delivery.

11) Produce will need to be delivered to our loading docks at the time specified. Again, when individuals are chronically late and hold up the entire packing line (including volunteers), this creates an understandable reluctance to reorder. Accurate counts are also needed.

12) With delivery, the farmer/producer will include an invoice from which our Produce Manager checks off deliveries and produce quality, and from which the farmer/producer gets paid. Again, we are farmer-friendly, and strive to pay by the next week after delivery. Often, there might be some discussion right there on the dock about what products might be offered in the future.

Jan Leitschuh - Farmer Relations
Kelly Pritchard - Market Day and Online Store Coordinator
Sandhills Farm to Table Cooperative.

If you have questions after reviewing this information, you may contact me at:
jan@sandhillsfarm2table.com

Source: https://coop.sandhillsfarm2table.com/get_involved/prospective_growers.php
accessed 2/11/2013

Appendix 9. PiedmontLocalFood.com Farmer's Agreement

Farmers wishing to sell their products through PiedmontLocalFood.com must adhere to the following:

- NO RESELLING OF PRODUCTS. Farmers must grow what the farm lists to sell. No exceptions. Value-added products must be produced in an appropriately certified kitchen within a county where the PiedmontLocalFood.com offers services to the farmer community.

- Farmers must have access to a computer. Email must be checked daily in order to participate in this program. This is a crucial link between you and the chef/consumer.

- Farmers/Growers must present a copy of farm certification form from their Agriculture Extension Agent that lists all products you are growing on your farm.

- Prior to your first listing on PiedmontLocalFood.com, you must present, to have on file with Rockingham County Local Food Coalition, Inc. (hereinafter referred to as "Coalition"), a copy, if applicable, of your Organic Certification, Meat Handlers Certificate, Kitchen Certification for prepared foods, a signed W-9 form or any other necessary certifications. The products must meet all local, state and federal guidelines.

- It is highly recommended that all growers receive GAP (Good Agriculture Practices) training and certificate. *This will be noted on website if farmer has training.

- Farmers/growers must arrive on time at the distribution sites with their products ready for shipment.

- Random farm visits will occur each season. The farm could be visited at anytime by the Coalition staff and/or board members. If questions arise concerning the authenticity of products grown, a farm visit will occur.

- Coalition board members have the right to pull products not deemed suitable to Coalition's objectives and signed agreements.

- Any farmer/grower may be removed from Coalition and PiedmontLocalFood.com if there are any infractions of rules/recommendations. In such instance, annual dues and other fees will be forfeited.

- Farmer/Growers will make efforts to raise food in the most sustainable manner.

- Amendments to this document may be made at anytime at the Board of Directors discretion.

I agree to abide by the guidelines above.

Print Farm Name_____ Signature_____

Print Name_____ Date_____

Appendix 10. Eastern Carolina Organics "Grow With ECO"

Interested in becoming an ECO grower? We're always looking to speak with and possibly partner with new farms in our quest to build the local organic food movement. In particular, ECO is interested in building relations with Carolina growers who:

- Are certified organic or are willing to get certified
- Have experience in farming and can produce at least 1 acre of vegetables
- Have crop appropriate infrastructure, such as
    - Computer/Internet access
    - Irrigation
    - Post harvest washing, packing, and refrigeration
    - Transportation
    - Greenhouse

ECO's core growers work closely with our Production Coordinator to set crop plans for the year, based on market demand and farm resources. Our goal in coordinating production is to create a year-round supply of fresh local produce and reduce the overproduction of items that everyone grows. We have the unique opportunity to produce a year-round supply because of the multiple climates represented in North Carolina. We can often use products from any region at any time during the year, but we are very interested in establishing relationships based on mutual production goals. For more information, contact Trace.

Source: http://www.easterncarolinaorganics.com/grow.php Accessed on 10/18/12.

Appendix 11. Eco Growers Marketing Agreement as of September 2012

Eastern Carolina Organics (ECO) markets and distributes wholesale organic produce to retailers, restaurants and buying clubs as well as other produce wholesalers. ECO is farmer and employee owned with eighty percent of its sales returned directly to the growers. Customers get fresh organic veggies and fruits, along with the knowledge that they are enabling farmers to protect their family land, and farmers get access to wider distribution and marketing.

As a cooperatively-minded marketing and distribution service, ECO's success depends on each grower's commitment to superb quality, dependability, honesty and integrity in all of our associations and transactions.

General Policies

1. In most cases, 80% of the final sales price is paid to the grower, while 20% is retained by ECO for all operating expenses. Growers are encouraged to provide information and feedback to ECO staff about setting prices for their products. ECO relies on this information plus market conditions to get the very best price back to the grower. Prices will vary depending on many factors including crop variety, available volume, harvest window and product quality.
2. ECO only works directly with individual producers of any given product. No farm can attempt to represent produce to ECO that is not grown on their own individual farm (i.e. neighbors' produce). An exception would be a farm that also has certification for organic handling. All cases of representing produce through an organic handling permit must be made plain before ECO markets the product. ECO may decide not to market the product for any reason.

Responsibilities of ECO Growers

1. Growers are expected to follow the sales schedule and call or email their availability prior to the advertising of product. The schedule is as follows:
    a. For the lists generated on Monday afternoon (for product delivered to the ECO warehouse on Wednesday and distributed Thursday/Friday) growers must call in or email their availability before noon on Monday.
    b. For the lists generated on Friday morning (for product delivered to the ECO warehouse Monday and distributed Tuesday) growers must call in or email their availability before 9:00 Friday morning.
2. Growers are expected to understand how to pack produce for wholesale. This includes understanding the grading specifications for each product as well as using the correct or appropriate new box, bag, clamshell or other container for that particular product.
3. Growers are expected to pay for all additional costs associated with packaging and labeling including boxes and PLU stickers as determined by the grower and ECO staff, depending on particular customer & product needs. Growers may elect to purchase ECO branded PLU and box stickers directly from ECO or they may buy or make their own. When ordering their own PLU stickers the growers are responsible for determining the correct PLU number in advance.
    a. PLU stickers *must* contain the following information – The correct PLU number, the name of the product preceded by the word "Organic" and the term "Produce

of USA". Additionally the PLU sticker *may* include the name of the farm and the name of the farm's organic certifier.

   b. For growers making their own box labels, the label *must* contain the following information – Farm name, product (preceded by the word "Organic"), product pack size (ex. 12 count, 20 pounds, etc.), name of organic certifier and lot number.
   c. For labels on individual retail clamshells or bags, the term "Produce of USA", volume or weight of the individual pack *must* also appear.

4. Growers should follow post-harvest, packing, USDA grading and storage standards relating to appearance, freshness and handling. Any questions regarding these standards should be directed to the Quality Manager. ECO cannot sell product of a compromised quality, as it impedes ECO's ability to continue to sell that product in future weeks for other farms. Therefore ECO staff reserve the right to reject any product that comes in that is judged unacceptable by these standards or for lack of communication prior to shipment. ECO is not responsible for any payment of such product and in most cases will send the product back to the farm, donate or compost the item(s), as agreed upon with the grower. Any expenses associated with grading or disposing of such product will be charged to the grower.
5. ECO only pays growers for product that is sold and does not attempt to keep a running inventory of produce. However, depending on the season and the product, ECO may allow growers to deliver more product than is needed for one delivery for greater efficiency and profitability for the grower. If any of these consignment products develop quality problems that are not due to ECO mishandling, ECO is not responsible for payment of this product to growers. The grower always has the option of taking the product back for regarding at the time of their next delivery.
6. Growers agree that ECO is not responsible to pay growers for free samples that they distribute in small quantities to customers, as this is important marketing for their products.
7. ECO growers are responsible for maintaining their organic certificate (for certified organic growers) and providing annually updated documentation to ECO. If any discrepancies or changes arise regarding a farm's organic certification, farmers are responsible for notifying ECO immediately to prevent misrepresentation of their product.
8. ECO growers should make every effort to produce and deliver all farm products signed up for with the Production Manager after the various production planning sessions. Although a grower is not responsible for problems beyond their control, each grower's production has an effect on the other growers and ECO's relationship with customers as a whole.
9. Growers should communicate regularly with ECO staff concerning the progress of crops and any issues relating to production. This includes a minimum three-week notice before harvest begins and a weekly (or bi-weekly) projection for dates and volumes of harvest and delivery. ECO cannot market items and volumes that are not included on the sales availability sheets, and therefore needs all growers to comply with the schedules of availability notification.
10. ECO cannot guarantee production results or profit and therefore, growers must agree to release ECO from any and all liability for any issues that occur as a result of ECO's advice or requirements regarding production.

ECO Commitments and Services

1. ECO will provide a central warehouse, refrigerated storage, and marketing and distribution services for quality organic produce grown by its members and other Carolina organic farmers.
2. ECO has a priority to serve its owner-investors first. Through annual production planning during the winter and close communication throughout the seasons, ECO will work to emphasize and optimize sales of owner-product. Although ECO makes every effort to maintain an open, democratic system for selling fresh produce and in most cases ECO can sell non-planned available produce, non-owner growers understand that the annual production planning is tailored to meet regional market demand by serving owner-growers first.
3. ECO uses its best effort through relationships and marketing to get the highest overall price for produce and uses sound business practices to keep ECO's expenses as low as possible.
4. ECO accepts financial responsibility for any mistakes regarding handling of produce after growers' delivery and delivery to customers.
5. When requested, ECO seeks to serve growers by recommending sources for and varieties of seeds, plants and certified organic amendments as well as to share production recommendations and quality standards among the network of growers.
6. When requested, ECO will provide growers with support/resources in dealing with individual organic certification issues and support growers in dealing with various certification agencies.
7. Through Purchase Orders and sales records, ECO performs financial accounting for all transactions between growers and ECO, between buyers and ECO, etc.
8. ECO strives to pay growers within 4-6 weeks of product delivery, minus all packaging charges and retained earnings.

Response Protocol to Violations

1. As approved by the Board of Managers in 2012, any violation to these agreements will result in a swift meeting of the Board, and a corresponding probationary period wherein the grower might be required to end their marketing relationship with ECO (depending on the seriousness of the situation), as determined by the Board.

ECO is committed to serving the needs of its growers to the best of its ability and in the spirit of cooperation & sustainability.

Unanimously approved by ECO's owners, this agreement is to be signed by all growers marketing produce through ECO.

_____

Name Farm Date

Appendix 12. Case Study

More grocers looking for local flavor

Friday, April 27, 2012,*The Business Journal*

Cathy Dunn had enjoyed plenty of success with a recipe for homemade biscuits she's used to supply her chain of Lexington restaurants.

So Dunn set her eyes on a new goal — getting her products onto the shelves of one of the nation's largest health foods grocers: Whole Foods Market. "The goal was to get into Whole Foods from Day 1," said Dunn, owner of the Biscuit King restaurants.

After creating a "healthier" version of her biscuits, using unbleached flour and hormone-free buttermilk, Dunn walked into the Winston-Salem Whole Foods store on Miller Street with a cooler full of the 169-calorie product and made her pitch.

"I talked to their frozen food manager," Dunn said. "He said 'we've been looking for something like this. He called me back the next day."

About six months after initial conversations — and adding aluminum-free baking powder per Whole Foods' request — Dunn signed a vendor agreement to deliver dozens of "Cathy's Homemade Biscuits," to the Winston-Salem store. Today, she delivers the biscuits about twice a week to eight Whole Foods stores across North Carolina and is set to launch the product throughout the chain's South region in the coming months.

Dunn's six-month odyssey — filled with paperwork, persistence and patience — is indicative of a trend in which Triad entrepreneurs are increasingly placing their products on the shelves of niche and mainstream grocery store chains. They are being aided by the chains' own growing desire to seek out greater selections of local foods, ranging from barbecue sauce to baked goods to locally grown produce. Many chains aren't just open to the prospect of local vendors; they are encouraging them by dedicating staff to working with them and, in some cases, even offering financial assistance.

During the past year alone, at least five local entrepreneurs have landed their products on the shelves of Matthews-based Harris Teeter; Austin, Texas-based Whole Foods Inc.; Greensboro-based The Fresh Market Inc.; and Lowes Foods of Winston-Salem.

Demand for local foods is certainly nothing new, but the trend has grown thanks to consumers who want to reinvest in local businesses and are willing to pay a premium for fresher, healthier products as concerns over everything from food safety to the obesity epidemic rise.

"The average American wants to support local communities and local businesses," said Phil Lempert, editor of the Supermarket Guru publication in Santa Monica, Calif. "We want to get away from the factory farming situation."

For grocers, it's increasingly a way to differentiate themselves in local markets, said David Livingston, a Wisconsin-based supermarket analyst. Companies recognize the psychological connection that consumers have with a product made by a person they know (or could know) as opposed to random company "XYZ," he said.

Local entrepreneurs' ease of entry into the market is aided further by the emergence of social media tools they can use to promote their brand and resources provided by business incubators such as the Nussbaum Center for Entrepreneurship Inc.

That said, the process of becoming a local vendor can be a laborious undertaking.

Vendors face the responsibility of manufacturing, marketing, packaging and delivering their product store to store. For example, Dunn's crew delivers biscuits by truck about two days a week to the Whole Foods stores and three Fresh Market stores and replenishes orders based on demand. Dunn said zigzagging across North Carolina to make deliveries is challenging and expensive due to higher gas prices, but "in business you've just got to do what it takes."

Even after all that effort, there's no guarantee for success: If there is demand, the product gets to stay. If there isn't, the store will stop carrying it.

"Everybody thinks that they can take their grandma's recipe for something, go into business and be a huge success," Lempert said. "The food industry is a much more complicated business than people realize. This is a full-time job; this is not a hobby."

Opening the doors

To be clear, grocery store chains including Whole Foods, The Fresh Market and Lowes Foods have always worked with small local vendors, ranging from biscuit or salsa makers to local farmers, but company officials say there has been a concerted effort in recent years to actively search for local brands and make the process of getting on the shelves faster and easier.

Grocers are reaching out to vendors by holding open houses and hiring dedicated staff members to assist entrepreneurs with everything from pricing to product development.

"We used to have local vendors come to us, and they'd say 'hey, I have a great product,'" said Christopher van't Wout, local marketing coordinator for The Fresh Market. "Now we actively pursue and go out into communities and look for products that we can bring into our stores."

For example, The Fresh Market held a vendor open house last month at the O. Henry Hotel in Greensboro. Of the 100 local businesses that showed up, 10 have been signed on as vendors, van't Wout said.

"Two have immediately gone national," he said.

The Fresh Market is seeking out these local products because customers are demanding them.

“I think people like to buy local products; they want to reinvest in their community,” van’t Wout said. “If you spend a dollar in your home community, how much of that stays in that community against buying a big national brand?”

The effort to find local products is especially important for The Fresh Market, which is expanding with 16 stores this year.

“It’s easy to find great local products in North Carolina, but let’s find those great products in Rockville, Md., or in New Orleans or South Florida,” said Marc Jones, The Fresh Market’s senior vice president of marketing and merchandising.

Like The Fresh Market, Whole Foods has also increasingly reached out to vendors by assigning specific staff members to hold office hours, review products and guide potential vendors through the process.

“There is a single person that they can communicate with,” Stephen Corradini, Whole Foods’ vice president of purchasing, merchandising and distribution for the South region. “Stores are the vanguard of where we do our best local work.”

Additionally, Whole Foods has a program that provides producers with low-interest loans ranging from $1,000 to $100,000 for capital expenses such as equipment. Providing financial assistance has been critically important for vendors in the aftermath of the financial crisis that froze access to credit.

Though Whole Foods is approaching the $10 million mark in terms of loans assigned to producers, Corradini expects the program to continue moving forward.

Even more mainstream grocery stores are increasingly offering support to local vendors. Heather George, senior vice president of sales and merchandising for Lowes Foods, said in an email statement that the company “is investing more time in educating growers and producers” on ways that they can better prepare themselves for selling to Lowes Foods.

“We’ve held several meetings in different areas across the state this spring in preparation for the growing season,” she said. “We’ve identified growers who were sending all of their produce out of state, but we could sell it right here in North Carolina.”

Reach Katie Arcieri at (336) 370-2913 or karcieri@bizjournals.com.

Becoming **"retail ready"**

Each grocery store company has a specific way of selecting vendors, but the following are some common guidelines.

Step. 1: Initial contact. Vendors are free to walk into a store and pitch products to a manager on duty, but many grocery chains have assigned specific buyers and staff members to handle various product categories for perishable and nonperishable items. Some companies have dedicated staff members who hold office hours for vendors. After some initial feedback, entrepreneurs should be prepared to alter or eliminate an ingredient and in some cases change a concept altogether. Vendors can potentially expect a site visit from a grocery store representative and/or the local health department to assess risk factors related to production.

Step 2. Legal paperwork. Paperwork will generally require vendors to include legal information about liability insurance and how they handle recalls and price increases. Vendors with organic products must back up claims of organic certification. In some cases, vendor applications can be more than 30 pages long. Some local vendors recommend hiring a food consultant to assist with the paperwork.

Step 3. Food product labels. To get an item on the shelf, a vendor will need to obtain a bar code and list nutritional information, ingredients, a "best before" date and net weight on their product. The N.C. Department of Agriculture has assistance available for food label requirements. G.W. Stanley, domestic marketing manager with the state Department of Agriculture, can be reached at (919) 707-3148.

Step 4: Vendor agreements. Grocery store companies say finalizing a vendor agreement can range from two or three weeks to six months or more. If product packaging, marketing and labeling are already in place, a vendor has a greater chance of quickly moving through the process.

Step 5. Deliveries. Generally, a vendor is responsible for handling deliveries of their products to a single store. If a product garners enough demand, it has the potential to be carried in several stores. At that point, a grocery chain may recommend a preferred carrier to distribute the product to a central distribution hub. For example, Whole Foods has a distribution center in Morrisville, while Harris Teeter has distribution centers in Greensboro, Indian Trail, and a dairy facility in High Point.

Source: http://www.bizjournals.com/triad/print-edition/2012/04/27/more-grocers-looking-for-local-flavor.html?page=all

Appendix 13

Down East Connect Farmer Packet:

Best Practices and Protocol

Farmer Packet

Best Practices and Protocol

This packet is designed to outline the Farmers Fresh Market operating protocol and best practices for farmer profiles, inventory, and delivery. Further questions or clarifications should be forwarded to Project Manager Martha Campagna by email or phone.

Martha Campagna
910-375-9672
Martha@downeastconnect.com

I. Website

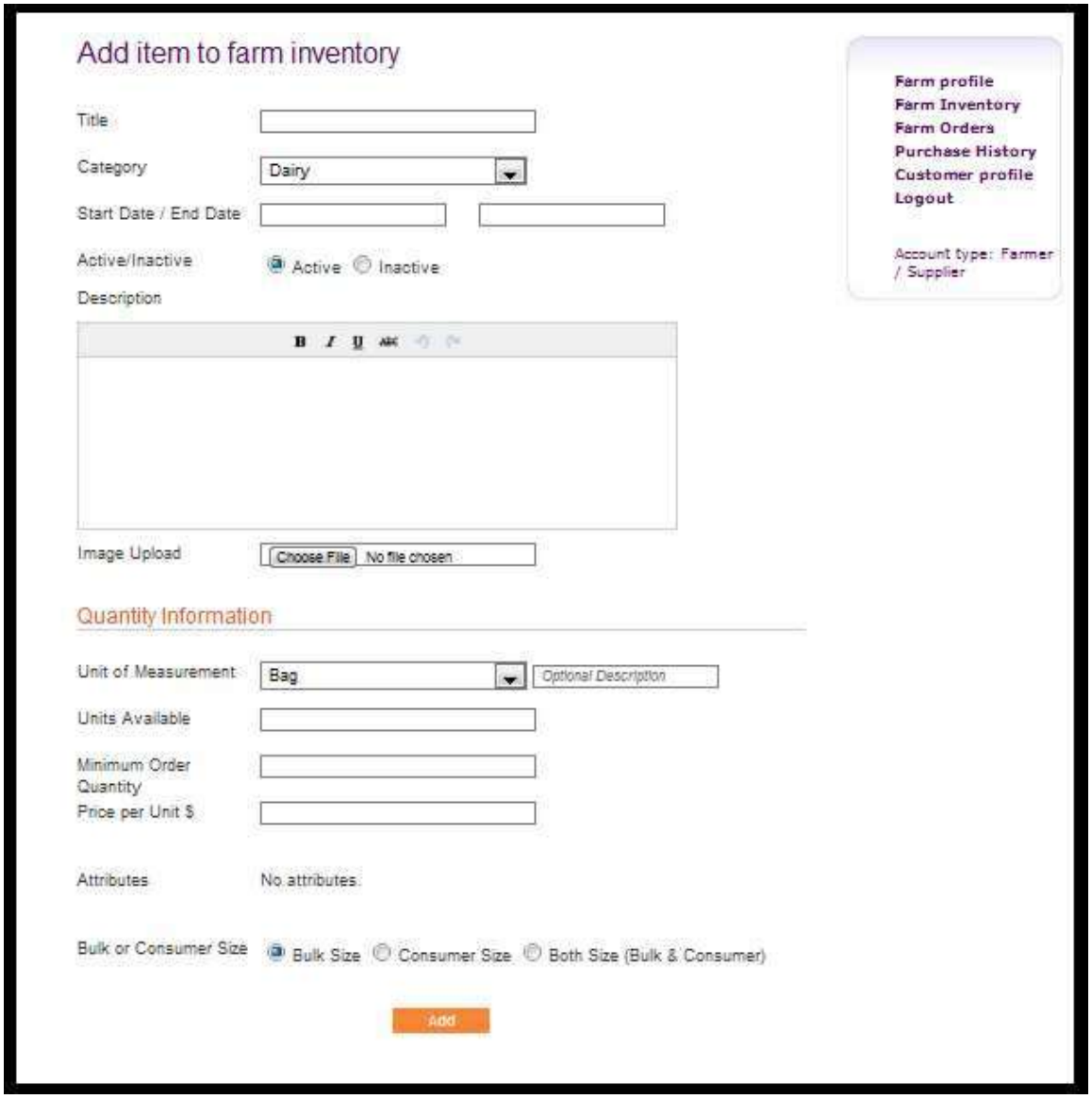
You are responsible for managing your profile, pictures, descriptions and inventory. All is done online.

Farm Profile: Every farmer must create a profile before they can update their inventory and start selling products.

Your profile MUST include the following:

- Farm Name
- Farm Location
- What products you sell
- Growing practices
- Use of pesticides/herbicides
- Treatment of animals/livestock
- Contact Information
- Atleast ONE picture

Inventory: When adding an item you are responsible for including the following details as depicted on form in picture below.



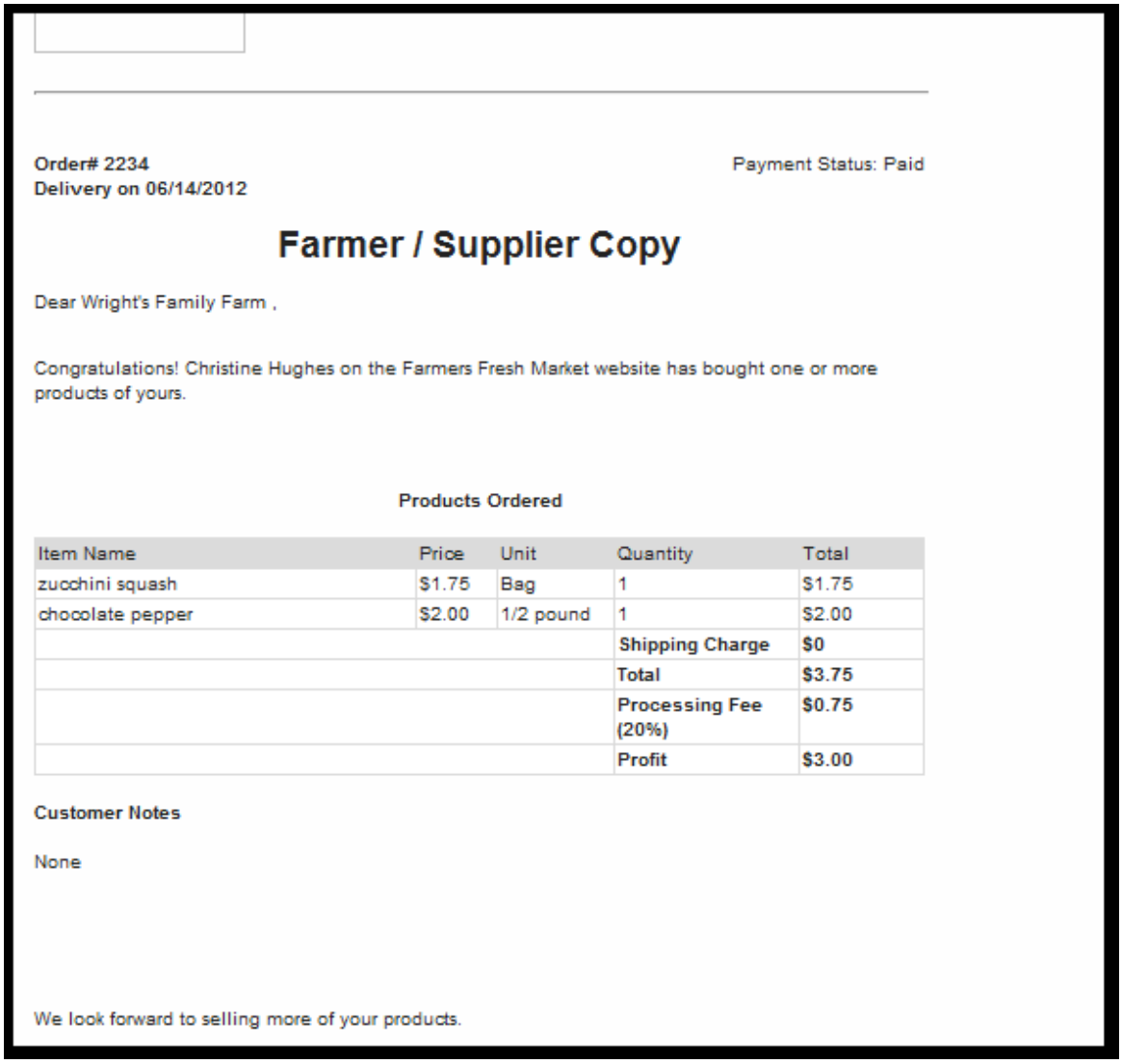
Your item description MUST include how your item was grown. List any herbicides or pesticides if any or specify if none were used. Describe treatment of animals and livestock (i.e. free range, grass fed, nightly cuddles). You MUST upload an item picture. Pictures too large in size will NOT upload and may cause site to freeze. Resize pictures taken from digital camera before uploading. If you need assistance in uploading or taking pictures, please contact Project Manager.

Why are pictures are so important? We have found that items without pictures do not sell as well as those who do. People are used to being able to hand pick their vegetables from the shelf at the grocery and they are relying on YOU to be as transparent as possible with your product to ensure they know what they are buying. You are responsible for getting the best product possible to the customer.

II. Orders:

We currently operate on a twice a week delivery schedule. Selling through DEC commits you to both delivery days.

All orders are processed electronically. When a customer has placed an order for one or more of your products you will receive an email that looks like the sample one below. It will include the date of delivery, the order number, the name of the customer, the items ordered, quantity, price, processing fee and your total profit. Attached to the email will be a barcode in pdf form that you must download, print and attach to your items.



Order# 2234
Delivery on 06/14/2012

Payment Status: Paid

Farmer / Supplier Copy

Dear Wright's Family Farm ,

Congratulations! Christine Hughes on the Farmers Fresh Market website has bought one or more products of yours.

Products Ordered

Item Name	Price	Unit	Quantity	Total
zucchini squash	$1.75	Bag	1	$1.75
chocolate pepper	$2.00	1/2 pound	1	$2.00
			Shipping Charge	**$0**
			Total	**$3.75**
			Processing Fee (20%)	**$0.75**
			Profit	**$3.00**

Customer Notes

None

We look forward to selling more of your products.

All items MUST be prepared and packaged according to our best practices with barcode attached (see section III) and delivered to the Cooperative Extension Office in Whiteville NO LATER than 10:30 AM on the morning of each delivery day.

Customers are required to place their orders before 12PM noon the day before each delivery day (Monday at 12PM for Tuesday deliveries and Wednesday at 12PM for Thursday deliveries). You will receive a reminder email each Monday and Wednesday afternoon listing which orders you will be responsible for delivering each day.

III. Payment: You keep 80% of every dollar sold. Down East Connect takes 20% to cover marketing, delivery, and website maintenance.

Checks are mailed weekly on a Friday to Thursday basis – all orders placed within the time frame will be included regardless of delivery day. A list of items included on each check will be sent via email

IV. Best Practices for Packaging/Delivery

Barcodes – must be attached in xyz fashion
Lettuces/Greens
- In CLOSED bags, no staples, washed and properly dried

Vegetables sold by the pound (squash, broccoli, etc)
- In CLOSED bags, no staples

Fruits/delicates
- In CLOSED containers – if product is at risk for smushing in bags, must be secured in protective container

Baked goods
- Must be baked in certified kitchen – we must have copy of certification
- Must be baked by YOU locally

Jam/pickles
- Must be prepared in certified kitchen only by those who took acidified foods course

Meats
- Must be inspected, properly labeled, brought in frozen

No Alcohol
Crafts/retail/handmade
- Must be made locally by YOU !

Appendix 14. Growing the Market for Local Foods

Working in the larger community to increase the market for local foods will also help increase your sales in the long run. We suggest:

1) Spread the word about the 10% Campaign, a statewide effort to encourage North Carolina's residents, restaurants and other outlets to purchase 10% of their foods from local sources.

2) Work with your local chamber of commerce and/or economic development office to identify and address the primary barriers to developing markets for local food.

3) Work with other local farmers and retailers of local food to create a local foods guide. This can be as simple as a single-page center-fold brochure to a glossy magazine such as Edible Piedmont (http://www.ediblecommunities.com/piedmont/). It can be print-only or online as well (see ApSustainable AP's Local Food Guide for Western NC http://www.asapconnections.org/localfoodguide.html).

4) Engaging chefs and restaurants in a local food campaign provides visibility for locally grown food, allows chefs to participate in community education efforts (especially through cooking demonstrations in schools), and helps brand the participating restaurants, which can drive sales

5) Understand your local market. Consider conducting a local food assessment, as described in Growing a Local Food Economy: A Guide to Getting Started.

6) Join a cooperative which supports local foods. For example, Sandhills Farm to Table (https://coop.sandhillsfarm2table.com/) provides resources to engage consumers, including recipes, a cooking school, nutrition assessments, and seminars on preserving foods. In 2011, Sandhills Farm to Table served 1250 subscribing households.

7) Support Slow Food USA in North Carolina. The 9 chapters in NC have local food events and offer directories to restaurants that feature locally sourced food. http://www.slowfoodusa.org/index.php/local_chapters/#North%20Carolina

8) Check out and share the state's 2010 From Farm to Fork: A Guide to Building North Carolin a's Su st ain ab le Local Fo o d Economy. http://www.cefs.ncsu.edu/resources/stateactionguide2010.pdf

Appendix 15

Retail Ready Checklist for Sales to Grocers, Wholesalers and Food Distributors

Best Practice Summary

Source: University of Kentucky Cooperative Extension

UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Retail Ready Checklist for Sales to Grocers, Wholesalers & Food Distributors
Business Practice Summary

Dr. Tim Woods and Jim Mansfield
Department of Agricultural Economics
University of Kentucky

January 2010

Retail Ready Checklist for Sales to Grocers, Wholesalers & Food Distributors

This list of best practices summarizes interviews with over 70 chefs, retailers, and experienced growers. It examines a series of basic business-to-business functions, outlining ideal starting points grocer, wholesale, and foodservice buyers would like to see regarding grower preparedness. Specifics will vary across firms. Some will have well-developed standards and protocol for their suppliers. Others will be less formal. At the very least, these practices will help the grower/supplier communicate with potential buyers regarding their expectations for each business function.

Invoicing

- ✓ I can provide a numbered invoice form with farm name, address, phone number, email address, and other contact information printed on it.
- ✓ The invoice form will have the date, product description, weight or quantity, price per unit and total price
- ✓ I understand the invoicing procedures and have discussed them with the buyer. I have made sure that my invoice statement or system meets their requirements, including electronic delivery if required.
- ✓ I am prepared to accept payment as agreed upon with the buyer (usually 14 days)
- ✓ For produce sales, I understand the applicable PACA and COOL rules
- ✓ I understand and can supply a Bill of Lading if using a third party to deliver the product to the retailer.

Pricing

- ✓ I have researched current market prices for my product and am aware of the transportation costs I will incur to deliver my product(s).
- ✓ I have worked out the packing and packaging costs and any other post-harvest costs associated with producing my product(s) long term.
- ✓ I can discuss and provide a written description of my products attributes, benefits and label claims.
- ✓ I can give and estimate of how much volume of product I can provide and for how long I can provide it.
- ✓ I can quote the buyer a delivered price for the product.
- ✓ If appropriate I am prepared to quote a price per pound for each size, grade or cut of my product the buyer may be interested in.
- ✓ I have priced the product at a level where I can make a profit and be a stable supplier.

Marketing

- ✓ I can provide a brief farm history and production description and well as photos if requested for promotional purposes.
- ✓ I am willing to host on farm visits to show my farming practices to current and prospective customers and their agents as requested for promotional and quality assurances purposes.
- ✓ I am available to promote my product(s) at food tradeshows and in-store product demonstrations.
- ✓ I can help with or provide literature that accurately describes farm production practices, my products attributes and the potential benefits to consumers.

Packaging

- ✓ I understand the industry standard packaging for the product and am prepared to deliver that kind of package
- ✓ I have asked the buyer how he or she wants my product packaged.
- ✓ My product will be packaged appropriately to protect it's integrity, temperature and freedom from contamination
- ✓ My product will be packaged in a manner that allows storage on pallets, in racks
- ✓ I have access to industry standard packaging materials
- ✓ I have relationships developed with processors that a can produce the desired cuts or products from my meat or dairy production.
- ✓ I can produce and provide a product that consistently meets USDA or industry grading, sizing and quality standards

Supply

- ✓ I am prepared to discuss all the potential products and forms of products that the buyer may be interested in purchasing from me.
- ✓ I can supply a consistent volume of product in the quantities acceptable to the buyer for a specified period of time.
- ✓ I understand the importance of advanced notice to the buyer about my products availability and any changes in quantity or quality.
- ✓ I have a plan to accomplish a steady production of my product.
- ✓ I have the buyers contact information such as direct phone numbers, email and understand the best way to reach them.

Labeling

- ✓ I understand that labeling can help build my farm's identity and improve product presentation, therefore I have made an effort to provide an attractive label
- ✓ I understand the legal regulations for labeling my products including Country of Origin labeling, USDA inspection seals, label claims, weights and my business contact information
- ✓ I can PLU sticker or UPC label my products as required by the customer
- ✓ My packaging and labeling allows for product traceability or I can work with the buyer on product traceability procedures if requested
- ✓ I can verify all the label claims on my products label
- ✓ I have taken the opportunity to explain to buyers what terms like "grass-fed", "pasture raised", "natural", "anti-biotic free", and other phrases mean if I use those terms on my labels, literature or product packaging

Delivery

- ✓ I understand the cost in time and fuel, etc. that is involved with product delivery
- ✓ I can arrange affordable transportation of my product(s) to the buyers requested delivery location(s) at an acceptable frequency
- ✓ I have asked the buyer about delivery procedures and can accommodate
- ✓ I have an invoicing system that allows me to leave an invoice with each delivery or provide a bill of laden and send an invoice via mail or e-mail
- ✓ I am willing to investigate delivery services in new areas to gain new clients

Insurance

- ✓ I have verified with the buyer their company's vendor requirements for product liability, worker's compensation and other insurance policies and can show proof of proper coverage.
- ✓ I also have liability insurance coverage for my farm business activities

Quality Assurance

- ✓ I can maintain the products integrity through out the production and distribution process in order to deliver a quality safe product with acceptable shelf life to the customer.
- ✓ I have procedures in place to verify the cold chain has not been broken and that proper temperatures for the product have been maintained.
- ✓ I have educated myself about safe food handling, proper temperatures and storage of our products including GAP certification.
- ✓ I am able to explain to my customers how our handling practices help to maximize the shelf life and the quality of the products they will receive from our farm.

Communication

- ✓ I understand the importance of advanced notice to the buyer about my products availability and any changes in quantity or quality.
- ✓ I have the buyers contact information such as direct phone numbers, email and understand the best way to reach them.
- ✓ I understand wholesale food buyers have many demands on their time, therefore I make appointments in advance in order to meet with the buyer about my products
- ✓ I present a professional and clean personal appearance when making business calls to potential customers.

Satisfaction Guarantee

- ✓ I have explained to the buyer how my product will be delivered and packaged, and have heard any concerns that they have with my product
- ✓ I am working on a relationship with the buyer that allows for honest dialogue about my product quality, and I am able to make production adjustments to improve final product quality if necessary
- ✓ I am prepared to stand by our products 100% including providing additional product in the event that I need to compensate a customer for a poor quality incident.

Consolidation

- ✓ I am aware that some buyers may want to purchase my products from an independent wholesaler in order to improve their logistics and quality assurance procedures.
- ✓ I am building good relationships with my customers so that, if deliveries are delayed or mixed up, we can have an honest conversation about their concerns.

Summary
These practices are offered as guidelines on expectations summarized over many firms. They are intended as reference points for self-examination of the farmers business practices to evaluate readiness for commercial markets and as a checklist for communicating on expectations held by specific buyers.

Expanded presentation, supporting resources, specific quotes and comments are available in individual Powerpoint modules from the authors at: **http://www.ca.uky.edu/agecon/**

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Appendix 16

Sample Documents:

Price List, Bill of Lading, Certificate of Insurance and Invoice

Source:

MarketReady©, Cooperative Extension Service, University of Kentucky College of Agriculture

Sample Price List

Sparrow Arc Farm Produce List for September 15 2009

207 948 6105 - sparrowarcfarm@gmail.com

So coming up next week we're going to be harvesting all our winter squash. 2S different varieties, mostly heirlooms, about 3 acres. So get excited about squash cause they look beautiful. Please email or call in your orders before midnight Tuesday. Email is sparrowarcfarm@gmail.com, phone is 207 948 6105.

____NEW! Lucious Pear $2.00 alb CASE$ $1.50 alb-Small pear,similar to Seckle, not fully ripe
____NEW! Clapp's Favorite Pear $2.00 alb- Big,juicey,heirloom, zero grit pear, ready to go
____NEW! Yuri Asian Pear $2.00 alb or CASE$ $1.50 alb- Baby pear of exceptional flavor, ripe
Mesclun $12.00 a lb
____Cooking Grade Arugula $6.00 a lb- Really nice, just big
____Mustard Braising Mix $6.00 alb
____Osaka Purple Mustard $3.00 a bunch
____Mustard Braising Mix $6.00 alb
____Baby Pac Choi Mix $6.00 a lb
____Collard Greens $6.00 alb- Really tender young collards
____Toscano Kale $6.00 a lb
____Siberian Kale $6.00 a lb
____Winterbor Kale $6.00 a lb
____Sea Kale $6.00 a lb
____Purple Thai Peppers $18.00 alb- Pea sized super hot
____Pedrone Peppers $12.00 a lb- The spanish roulette pepper
____Biscayne Peppercini $7.00 alb
____Prairie Fire Baby Chile $16.00 alb
____Cherry Bomb Peppers $6.00 alb- Mostly green ones
____Cono di Taro Sweet Peppers $4.00 a lb
____Green Bell Peppers $3.00 a lb
____Fairy Tale Eggplant $5.00 a lb
____Black Bell Eggplant $3.50 alb
____Mixed Eggplant $4.00 a lb
____Cornichons $ 12.00 alb- The real deal ultra-baby Parisienne pickle
____Boothby Blonde Heirloom Cucumber $3.00 a lb
Mixed Picklers $2.50 a lb
____Purple Sprouting Broccoli $4.00 alb or CASE$ $3.50 alb -Italian heirloom
____Arrowhead Cabbage $1.50 a lb or CASE$ $1.25 a lb- Sweet & tender
____Red Semi-Savoy Cabbage $1.50 or CASE$ $1.25 a lb
____Samantha Savoy Cabbage $1.SO alb
____Baby Fennel $6.50 a lb or CASE$ $5.00 a lb
____Fennel $3.00 a lb or CASE$ $2.50 a lb- Full size & wicked pretty
____Celery $4.00 alb- My first try at it, lii' small but intense flavor
____NEW! Leeks $4.00 alb

Sample Bill of Lading

Smith Farm, LLC
2471 Farmville Rd Prosperity, KY 00021
875-462-1234 office
875-222-1234 cell phone, Ralph
875-222-1233 cell phone, Sam

Bill of Lading # 703

Buyer: ...-
(Name) John. i3rowf\. Shipping Date 'ir-1-0<f Ship to (Name): f.Y"L Sfore:..ii...
AddressXYZ. co. l.<>«•>ir,1/, Delivery Time l.f_,,foAM Address 7). flo'< (.,.r+
Phone '?6o-).).).- /).:Jl./ **Delivery Date** a--J.-o<f Lovi.wl/1,, I<Y 'jo51

p.0. #c___Ll.L1'J-'"-!{,"---- Phone 1-&o(;-777-/").Y-{

Item liD#	Unit	**Price per Unit**	Total per Item
y,bu. Squash	!50 bu		
Slicer Cucumber	50bu		
Green Bell Pepper	100 bu		
		Total	

Trucking Co.· 1\a.p:J. TrvcK.i"'2 Cc· Receiver (Company)_____
Trailer Tag# Kf 17'13 " **Signature**
Produce temperature 5 8" "f **Time &** D,-a-te----------
Temperature to be maintained at 3'i'° F
Drivers Signatnre ;)-_____
Timeout: d.. PM

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER

XYZ INSURANCE AGENCY

THIS CERTIFICATION IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE	NAIC#
INSURER A: ACCEPTABLE INSURANCE COMPANY	
INSURERS:	
INSURER C:	
INSURER D:	
INSURER E:	

INSURED

SUPPLIER NAME
SUPPLIER ADDRESS

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER			LIMITS	
	GENERAL LIABILITY	XXXXXXXXX	XXXXXX	XXXXXX	EACH OCCURRENCE	$ 2000000
	COMMERCIAL GENERAL LIABILITY				FIRE (Any one fire)	$ 50000
	CLAIMS MADE [8] OCCUR				MED EXP (Any one person)	$ 5000
					PERSONAL & ADV INJURY	$ 1000000
					GENERAL AGGREGATE	$ 4000000
	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$ 4000000
	POLICY [n:&] [n] LOC					$
	AUTOMOBILE LIABILITY	XXXXXXXXX	XXXXXX	XXXXXX	COMBINED SINGLE LIMIT	
X	ANY AUTO				(Ea accident)	$ 1000000
	ALL OWNED AUTOS				BODILY INJURY (Per person)	$
	SCHEDULED AUTOS				BODILY INJURY (Per accident)	$
	HIRED AUTOS				PROPERTY DAMAGE (Per accident)	$
	NON-OWNED AUTOS					
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
					AGG	$
	EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$
	OCCUR [D] CLAIMS MADE				AGGREGATE	$
	[R] DEDUCTIBLE					$
						$
	RETENTION $					$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				X WC STATU-TORY LIMITS / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE				E.L. EACH ACCIDENT	$ 500000
	OFFICER/MEMBER EXCLUDED?				E.L. DISEASE - EA EMPLOYEE	$ 500000
	If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - POLICY LIMIT	$ 500000
	OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

SYSCO CORPORATION, ITS AFFILIATES, SUBSIDIARIES AND DIVISIONS ARE NAMED ADDITIONAL INSURED AS PER WRITTEN CONTRACT. WAIVER OF SUBROGATION IS PROVIDED IN FAVOR OF CERTIFICATE HOLDER

CERTIFICATE HOLDER

SYSCO CORPORATION, ITS AFFLIATES, SUBSIDIARIES AND DIVISIONS
1390 Enclave Parkway, Houston TX, 77077-2099

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

XYZ Farms

.vyz Fam1s

Invoice

. CE Barnhart
<xington, KY 40546

(859)257-7270
tim.woods@uky.edu

DATE	INVOICE #
03/06/2010	1002
TERMS	DUE DATE
Net 30	04/05/2010

BILL TO
Buy Local Restaurant Jim Bobb, Chef 123 Main St. Columbus, OH 43001

j$.@[t4j .,-]iillftifl)jijl, F(!J :80JI

$40.9s

Please detach top portion and return with your payment.

Activity	Amount
• 3 boxes lettuce	21.00
• 2 boxes tomatoes	18.00
• tax	1.95

Thanks fu;r-y-ou_r.:b:-u-s. in"e··-,·s

TOTAL	$40.95

Appendix 17

Insurance Coverage Options
for
Fresh Produce Growers

Source: North Carolina State University Cooperative Extension 1/09

Insurance Coverage Options for Fresh Produce Growers

Fresh produce growers today face several risks associated with foodborne illness outbreaks. First, consumers affected by these outbreaks can take legal action against growers to claim monetary damages due to illness (also called liability risk). Second, regulators can issue a product recall or warning because of the outbreak, causing a catastrophic drop in sales and damaging the farm's or product's reputation. As foodborne illness outbreaks increase, so does the risk of economic loss. Insurance against economic loss from foodborne illness helps growers safeguard their business operations. With the variety of insurance coverage or policies available, fresh produce growers should understand what policies best cover their farms.

General Farm Liability Insurance Policy General farm liability insurance typically pro- tects against claims for bodily injury and prop- erty damage that occur on the farm premises or as a result of farm operations (IRMI, 2008). These policies cover accidents that affect farmers, employees, guests, and customers.[1] Outlaw (2007) and the New England Small Farm Institute (2008) suggest that these general commercial or farm liability policies are appropriate for growers with pick-your-own operations and on-farm stands. The New England Small Farm Institute (2008) further explains that farm liability insurance covers lawsuits only from activities considered "farming," which is usually defined to include only agricultural production activities and on-farm roadside stands. These policies also typically cover the sale of produce in its raw, unprocessed state, whether sold on-farm or at a farmers' market. The sale of produce grown by another farmer, even if the produce is sold "raw and unprocessed," is not covered under a general farm liability policy.

Commercial Business Liability Insurance

Commercial business liability insurance may be necessary if the grower also undertakes activities that are not considered "agricultural" or "farming" (New England Small Farm Institute, 2008). It works essentially the same way as general farm liability insurance. The insurance is appropriate for growers who have fresh-produce processing facilities. This insurance is also appropriate for growers that sell in farmers' markets or sell more than a certain percentage of products that originate off-farm (New England Small Farm Institute, 2008).

Product Liability Insurance Policy

Many fresh produce growers mistakenly believe that their general farm liability policy protects against claims of injury from contaminated fresh produce that causes foodborne illness. But as Hamilton (1999) explains, this is not generally the case, because the injury usually happens off the farm premises. In this case, a product liability insurance policy is appropriate, as it protects against consumer claims of injury caused by a defective or hazardous product such as contaminated fresh produce. (Holland, 2007). A growing number of retail stores require that food products they carry have a minimum level of product liability coverage (normally a $1 million policy or more). It is important to understand, however, that food product liability insurance strictly covers claims of injured parties and not recall costs.

The cost of food product liability coverage is difficult to estimate. Insurance providers are often reluctant to provide quotes because there is no "standard" premium rate for food products, and the industry is very competitive. Instead, most insurance companies that offer this coverage provide an estimate only when growers submit a detailed description of their product and business operations (production, distribution, and marketing plans). However, an approximate rule of thumb in the industry is around $1,000 per year for a $1 million policy.

Based on an informal survey of insurance providers undertaken in May 1998, Holland (2007) indicates that the annual premiums for food product liability insurance ranged from $500 to $20,000 for a $1 million policy. The average food product liability premium was found to be $3,000 for a $1 million policy. The most significant factors contributing to the premium charged are: level of gross sales or annual payroll, prior claims (claims history), level of coverage, type of product, type of market, and recall plan.

Product Recall Insurance Policy

A product recall insurance policy typically covers only the actual or direct costs of a product recall, such as costs associated with getting the contami-

[1] *Note, however, that this policy does not replace Worker's Compensation insurance and only typically covers activities considered "farming."*

NC State University A&T State University COOPERATIVE EXTENSION
Empowering People • Providing Solutions

nated product off the shelf and destroyed, cost of replacing contaminated products, and transportation costs. It does not cover other indirect costs or losses due to the product recall or an outbreak warning, such as third party expenses, loss of profit, and business interruption losses. Third-party expenses refer to those costs that occur when a downstream retailer loses business as a result of the contamination.[2] Loss of profit refers to instances when the product recall or warning damages consumer confidence in the grower, negatively affecting revenues in the current or next business cycle. Business interruption losses are those losses resulting from a period where the growers' operations shut down.

An important issue to consider in the purchase of product recall insurance is that it covers recall costs only for growers responsible for contamination or outbreak. For those growers that were not a source of contamination but whose products were also taken off the shelf as a precaution, recall losses may not be covered. This can be a problem if, for example, no government entity officially traced or narrowed the source of the contamination (Odza, 2008).

Accidental or Product Contamination Policy

A more comprehensive policy that covers both the direct and indirect costs of product recall is the accidental or product contamination policy. It also insures growers against claims resulting from their own unintentional distribution of a product deemed unsafe. However, as with the product recall policy above, this coverage applies only to those growers whose product was contaminated. Those growers who suffered loss of profit or business interruption losses but were not contaminated (their product was rejected as a precaution or due to a market scare) typically will not be covered under this policy.

Malicious Tampering Insurance

Malicious tampering insurance is a more comprehensive insurance policy that covers losses from criminal actions of sabotage against the grower, as well as the losses covered in the accidental or product contamination policy (the indirect and direct recall costs). An example of a private company that sells this type of comprehensive coverage is MRM MacDougall Risk Management (Skees et al., 2001).[3] Damages due to malicious product tampering are indemnified for up to $75 million, while damages due to accidental product contamination are indemnified for up to $50 million. Under the accidental contamination provision of the policy, losses are categorized into four areas: (1) recall expenses, (2) lost gross profit, (3) rehabilitation expenses, and (4) crisis response. The second category covers loss for "12 months following discovery" or lost profit during a shorter period when the sales revenue remains lower that would have been reasonably projected had the product contamination not occurred. Indemnities are even paid to rebuild the lost market share. Table 1 (see back cover) provides examples of other companies that offer product recall insurance, accidental contamination insurance, malicious tampering insurance, and combinations thereof. Again, the shortcoming of this product, as with the product recall and accidental contamination, is that it applies only to growers whose product was contaminated.

Combination Policies

Some insurance companies offer combination or package policies. For example, the general farm liability policy and commercial business coverage can be combined with a homeowner's policy. A combination policy makes sense for growers whose farms have both residential and commercial characteristics. Such policies are especially appropriate for family- and individually-operated farms (rather than large corporate farming operations). Combination policies generally offer the additional advantage of a lower premium than for two policies purchased separately.

Excess/Umbrella/Surplus Lines of Insurance

Excess/Umbrella/Surplus lines of insurance are the terms used to describe insurance coverage that provides catastrophic loss protection when the underlying insurance is inadequate. For example, there are some risks that North Carolina-licensed insurance companies may not cover. The excess or surplus lines market is an insurance marketplace for unique or hard-to-place risks. For fresh produce growers, these excess or surplus lines provide additional protection above and beyond the losses covered under other policies. An excess or surplus insurance policy can be tailored to protect against losses from foodborne illness outbreaks even when the grower's product is not contaminated. The disadvantage of these types of policies is that premium rates are not regulated under state laws, and the Insurance Guaranty Association offers no protection for companies that sell these lines. Therefore, if the surplus lines insurer has financial difficulties, claims against the policy might not be paid. Note that product liability insurance in North Carolina sometimes falls under excess or surplus lines of insurance.

Adjusted Gross Revenue (AGR) or Adjusted Gross Revenue-Lite (AGR-Lite) Crop Insurance

All of the insurance policy options discussed so far are private-industry provided (and underwritten), and these policies are not a part of the government-supported Federal Crop Insurance (FCI) program.[4] Except for the excess/surplus lines, these privately provided insurance options cover only losses related to food-

[2] *Third party expenses may also include the liability the grower faces from downstream retailers whose brand names may be tarnished as a result of the contaminated fresh produce supplied to them.*

[3] *This policy is underwritten by Lloyd's of London.*

[4] *The FCI program is overseen by the United States (US) Dept. of Agriculture Risk Management Agency (USDA-RMA). This is a publicly supported, privately delivered program that provides insurance products that help protect farmers from yield/revenue losses due to natural perils (such as drought or flood.). AGR and AGR-Lite are offered under this program. AGR-Lite is currently available in North Carolina.*

borne illness outbreaks if the particular grower's fresh produce was contaminated. The insurance options previously discussed (except for the excess/surplus lines) do not cover growers that were not contaminated, even if they suffered product recall expenses such as loss of profit or business-interruption losses.

The Adjusted Gross Revenue (AGR) or the Adjusted Gross Revenue-Lite (AGR-Lite) insurance products offered under the FCI program may cover some of the lost profits or revenues due to a foodborne illness outbreak even if the grower's product is not contaminated. AGR and AGR-Lite are whole-farm revenue protection plans. They protect against low farm revenues due to unavoidable natural disasters or market fluctuations that affect income during the insurance year. This coverage extends to fresh produce, as well as to most farm-raised crops and animals (any source of non-value-added agricultural revenue in the farm). The plans can partially cover a catastrophic drop in fresh produce revenues due to a foodborne illness outbreak. The revenue loss can either be from a precipitous price drop or a substantially low (or zero) demand for the fresh produce due to the outbreak.[5]

AGR and AGR-Lite use a grower's five-year historical farm average revenue as reported on the IRS tax return form (Schedule F or equivalent) and an annual farm report as a basis to provide a level of guaranteed revenue for the insurance period. If actual revenue for the period falls under the revenue guarantee chosen by the grower, then the AGR or AGR-Lite policy will provide indemnity payments. Note, however, that there are limits to the amount of revenue that can be insured, depending on the coverage and payment rates chosen. Large corporate farms with revenues above these limits may not qualify. For more details on AGR and AGR-Lite, see the RMA factsheets about them (RMA, 2007).

For more details about which insurance may apply to their particular operation, growers should contact their *insurance agents.*

[5] *Note that this is the authors' interpretation of the policy. However, there is a clause in the AGR-Lite policy where losses from the following may not be covered: "inability to market the agricultural commodities due to quarantines, boycotts, or refusal of any person to accept your agricultural commodities." We have contacted RMA for clarification of this issue and were told that a product warning that causes a revenue reduction (due to an industry wide drop in prices, for example) would be covered under AGR-Lite. The warning that caused low prices is a "market fluctuation" and should be covered. However, we were unable to get a definitive interpretation of whether revenue losses from a direct, government-announced product recall falls under this clause.*

References and Further Information:

Hamilton, N. 1999. The Legal Guide for Direct Farm Marketing. Drake University Press: Des Moines, IA.

Holland, R. 2007. "Food Product Liability Insurance." Center for Profitable Agriculture Info. # 11, University of Tennessee, Knowxville, TN.

International Risk Management Institute (IRMI). 2008. "Glossary of Terms" In http://www.irmi.com (Last Accessed: June 20, 2008).

Long, J. 2008. *Guide to Insurance for Your Business.* North Carolina Department of Insurance, Raleigh, NC.

New England Small Farm Institute. 2008. "Risky Business" In http://www.smallfarm.org/nesfi_library/virtual/virtual/riskybusiness (Last Accessed: June 20, 2008).

North Carolina Dept. of Insurance. 2008."A Consumer's Guide to Surplus Lines of Insurance." NC Dept. of Insurance, Raleigh, NC.

Odza, K. 2008. "Tomato Fallout – Recall Insurance Coverage Disputes." In the Food Liability Law Blog. http://www.foodliabilitylaw.com (Last Accessed: June 20, 2008).

Outlaw, S. 2007. "Getting the Right Liability Insurance Coverage." Paper presentation in the workshop titled: Profitable Produce: A Workshop on Legal Liability and Handling Food Safety, Roxboro, NC (May, 15, 2007).

Risk Management Agency (RMA). 2007. "2007 Adjusted Gross Revenue Lite" Factsheet that can be downloaded from http://www.rma.usda.gov/pubs/rme/fctsht.html.

Skees, J.R., A. Botts, and K.A. Zeuli. 2001. "The Potential for Recall Insurance to Improve Food Safety." *International Food and Agribusiness Review.* 4(1):99-111.

For Assistance in Finding Authorized Insurance Services in North Carolina:
N.C. Department of Insurance

For assistance finding insurance, regularly licensed companies and surplus lines:

MAP (919) 733-9811
For help with unauthorized insurance
1-800-546-5664 consumer services
(919) 733-7487 agent services

Table 1. Examples of Product Recall, Contamination, and Malicious Tampering Policies offered by Private Companies (From Skees et al., 2001).

Company	Product	Description
AIG Insurance	Recall Plus	Includes First Party Recall, Third Party Product Recall Expenses, and Third Party Impaired Property Expenses. The First Party Recall covers the traditional recall expenses and also has a "rehabilitation coverage option that covers the cost of restoring the company's sales or market share to the level expected prior to the product recall."[a]
Fireman's Fund	Liability insurance and product withdrawal expense coverage	Covers expenses for recalls, including communications, office supplies, additional labor costs, shipping, and the costs to dispose withdrawn products. "If a defective product is discovered, you can act quickly and confidently by initiating a withdrawal without obtaining prior approval." Also offers business interruption coverage.[b]
Liberty Mutual	Product recall expense insurance	Covers expenses for recalls, including communications, overtime compensation, and product disposal. Included as a general liability endorsement.[c]
Triple S. Inc: Subsidiary of National Food Processors Assoc.	Product Contamination Insurance	Covers expenses to inspect, withdraw, and destroy product; value of product itself; and "extra expenses to rehabilitate and re-establish the product in the marketplace." For members of the National Food Processors Assoc. only.[d]
Chubb Group	Reputational damages liability insurance	Protects against claims for financial damages made by a customer or franchisee alleging that a foodborne illness harmed its reputation and resulted in a loss of income.[e]
Zurich, U.S.	Brand protection insurance	Covers recall expenses, including those of third party. Also covers "loss of profit relating to recall incident and costs to rehabilitate or re-establish processor's reputation and product's market share."[f]
IBS (Insurance Brokers Service)	Total recall plus	"Provide up to $25 million in protection from the unexpected costs of recall management and gross profit loss" and brand protection.[g]
CAN Commercial Insurance	FOOD program	Allows food companies to "take preventative action by getting products off the shelves quickly if there is any question of food safety."[g]
MRM MacDougall	Recall insurance	Offers up to $50 million in protection for a recall and $75 million for malicious tampering with food products. Insures recovery expenses as well as damage to sales and reputation.

[a] Source: Company Web site is: http://firemansfund.com/spd/cfm? spi=liability and Mancini, L. 1997. "Before disaster strikes:property and product liability insurance for food companies." Chilton's Food Engineering. 69(4): 95-98.

[c] Source: Company Web site is: http://www/libertymutual.com/business/specialp.html and Demetrakakes, P. 1999. "Backlash." Food Processing. 60(8): 16-21.

[d] Source: Company Web site is: http://www.nfpa-food.org/triplesbrochure and Mancini, L. 1997. "Before disaster strikes:property and product liability insurance for food companies." Chilton's Food Engineering. 69(4): 95-98.

[e] Source: by Goch "Chubb liability insurance designed for food industry," Best's Review – Property-Casualty Insurance Edition, November 1998, p. 86 and Company Press Release, Aug. 24, 1998 "Chubb protects food processors and suppliers from losses when customers and franchisees sue for 'reputational damages' stemming from foodborne illness."

[f] Source: Demetrakakes, P. 1999. "Backlash." Food Processing. 60(8): 16-21.

[g] Source: Dwyer, S. 1999. "Is your brand bulletproof?" Prepared Foods. 168(6): 29-30.

Produced by
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Appendix 18

Registering Your Farm for On-line Sales

Source: PiedmontLocalFood.com, April 2012

Registering Your Farm

April 2012

Contents:

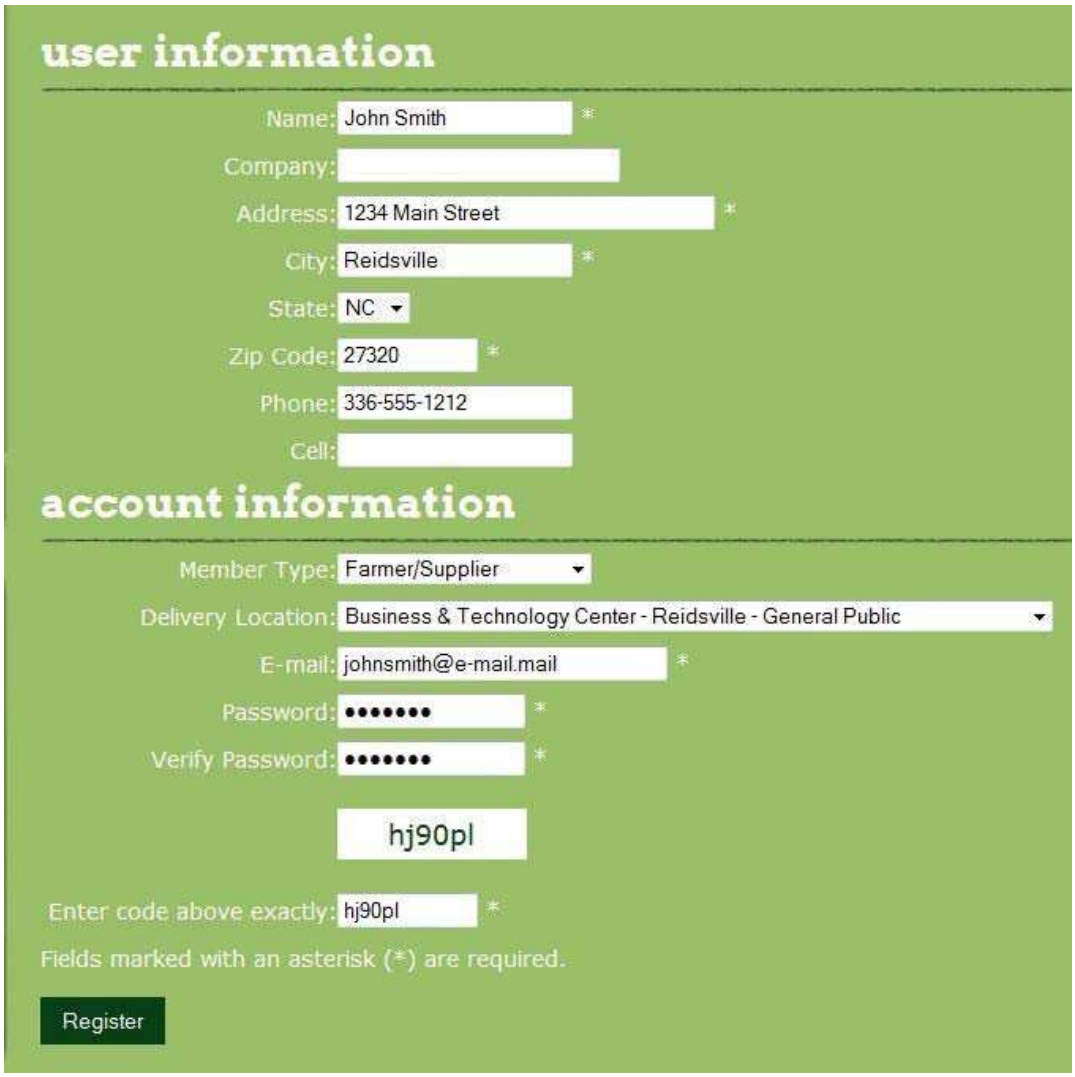
Registering on the Site

Registering Your Farm

1. Go to www.piedmontlocalfood.com

2. Click on the "Register Today" button.

3. Fill out your personal information. If your farm has a different address than your residence, put in your RESIDENCE information here and add the FARM information later!



4. Once you have filled out the information and entered the CAPTCHA code, click "Register" to complete the registration. You will receive an e-mail letting you know that your registration has been received.

5. ALL farms must be approved before you are allowed to sell your products online. Once approved, you will receive an e-mail informing you that you have been approved to sell!

Farm Information

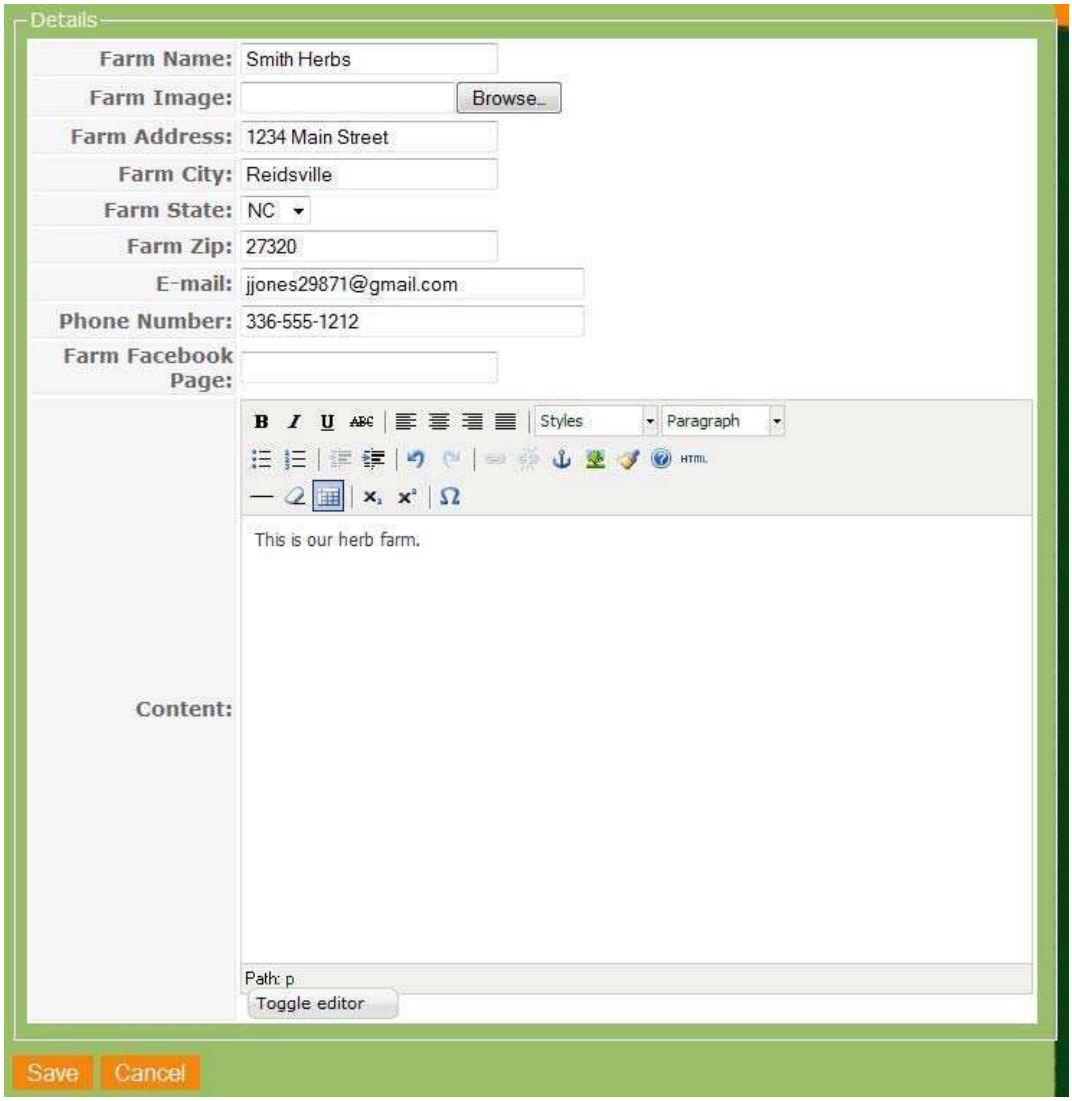
Creating a Farm Profile

1. After approval is received, you should log into the site to begin adding your farm profile information. This is also where you will ALWAYS log in to check orders and to manage your inventory. Type in your e-mail address used in the registration process and the password you chose for your account.

2. Once logged in, click on the "My Farm" button in orange.

3. The next screen will be blank, as you haven't entered any information in yet! Click the "create farm profile" button to proceed to the profile page.

4. The Farm Profile page is where you enter information about your farm, including any pictures you may want to show, Facebook page links, etc.. You should think about WHAT you want to say about your farm as this is what buyers will see when they want to know about you and what you grow. Once done, click on the "Save" button.

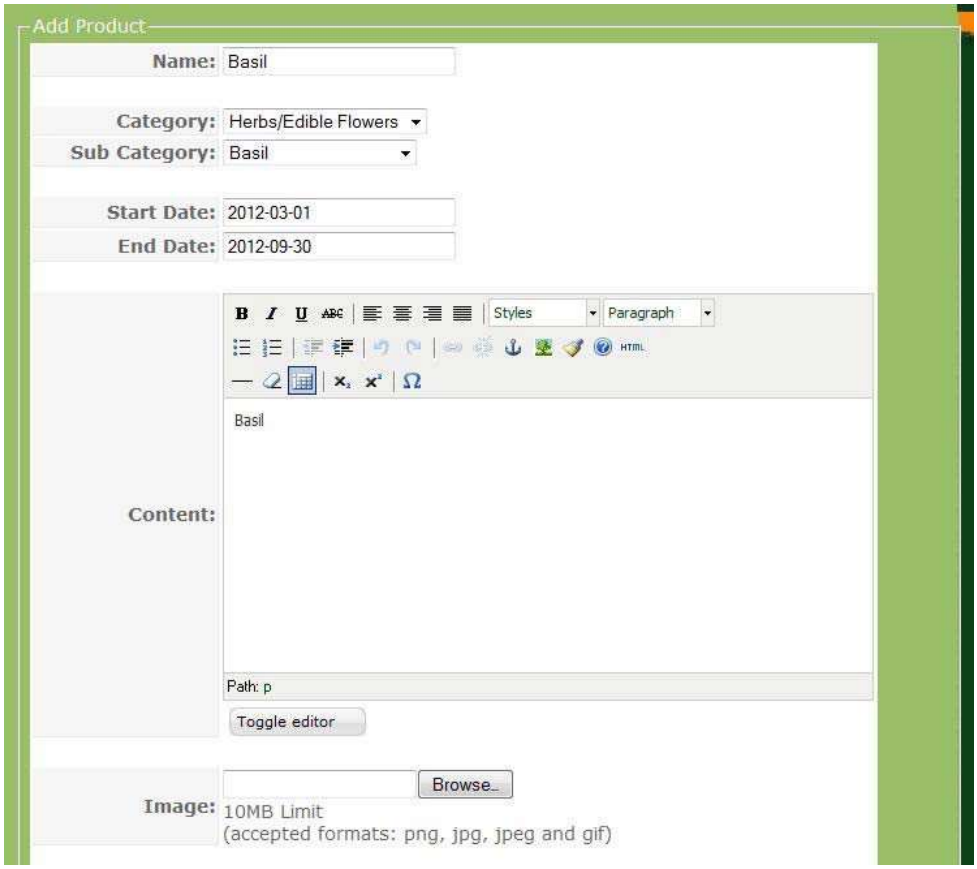


5. The next page that comes up is the farm profile page as buyers will see it. You will also notice a map with a marker showing where your farm is located. If you need to edit anything in your farm profile or

want to add pictures or additional information, simply click on the "edit farm" button. You can do this any time you log into the site.

Adding Products

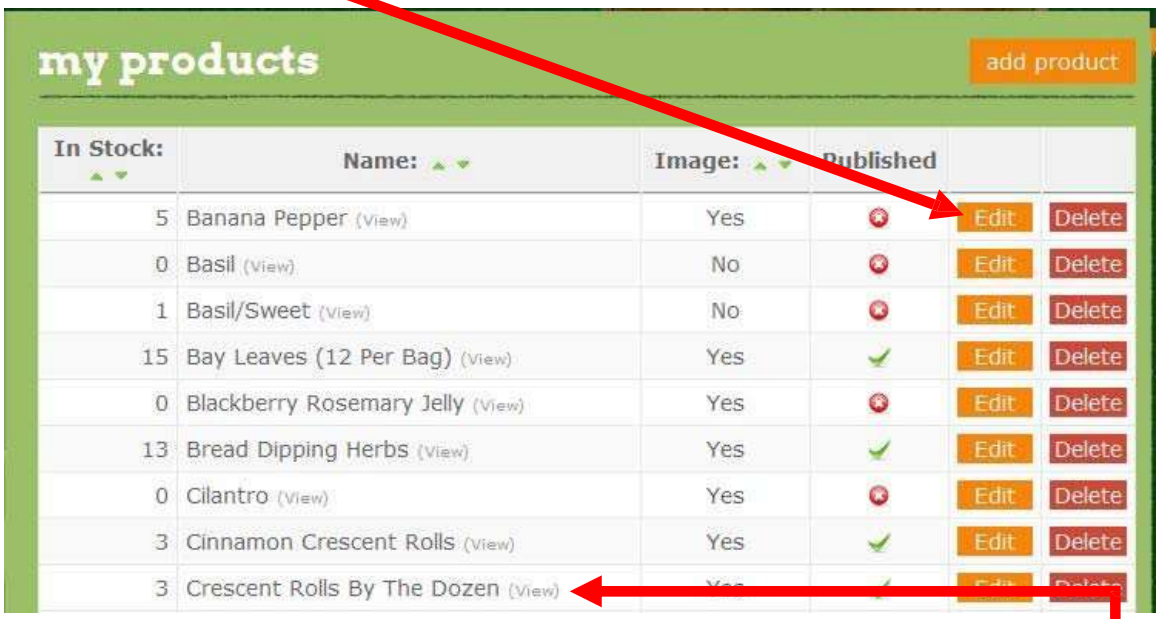
1. Select the "Farm Inventory" option from your menu on the right.
2. Click the orange "Create Item" button. You will see the following page come up:



3. Here you will be able to enter the details about your product, images for your product and the pricing information.
4. One NEW feature of the new site is the ability to set pricing for both consumer and bulk orders once, along with the minimum needed to be ordered to get bulk pricing. The site will calculate the price according to the quantity ordered. You will see this part of the product information at the lower part of the product information screen. When you are done with your product information, click "Save" and you can add more products.

Editing / Deleting Items

1. When you need to make a change to an item, you simply click on the "Edit" button beside the product and you can edit the details accordingly.



2. If you need to remove an item from the inventory for whatever reason, but don't want to delete it forever, simply click on the "Edit" button beside the item and scroll down to the bottom of the item details page and click on the "No" button beside "Published". This will allow you to save the item, but have it no longer show up on the site until you are ready to make it available again. The list above shows you which items are "Published" and which are not, as well as the quantity you have left and if it has a picture or pictures associated with it. You may also view an items picture by clicking the "(view)" link beside the item. This will ONLY show you a quick image of items that are "Published".

**NOTE – One feature of the NEW site that was requested by farmers was to have products that were sold but whose quantity was depleted still show up but show none available at that time. This was to allows buyers to see items they may want to purchase that are "out of stock" and entice them to come back to the site later to check on availability and purchase when the farmer has more available.

3. If you need to completely delete an item, such as a one-time product you no longer plan to offer, you can simply click the red "Delete" button beside the item. This will remove the item from your list PERMANENTLY, so if you decide to offer this item again later, you would have to reenter ALL of the information for the item again.

Orders

E-mail Notification of New Orders

When a customer purchases one or several of your products, you will immediately receive an e-mail notification letting you know. This e-mail will look like this:

New Order - #132 - Piedmont Local Food

From: **Piedmont Local Food** (manager@piedmontlocalfood.com)
Sent: Mon 2/13/12 8:15 AM
To:

Piedmont Local Food
525 NC Hwy 65, Suite 200
Reidsville, NC 27320
United States
Call Us: 336-347-8278
Fax: 336-342-8242
E-Mail: manager@piedmontlocalfood.com

Order #132
Customer Name: Jonathan Jones
Delivery Date: 02/15/2012 (Wednesday 12:00PM)

Payment Status: Not Paid - Collect on Delivery

Farmer/Supplier Copy (Test Farm)

Products Ordered

Item Name	Price	Unit	Quantity	Total
Strawberries	$10.00	Gallon	1	$10.00

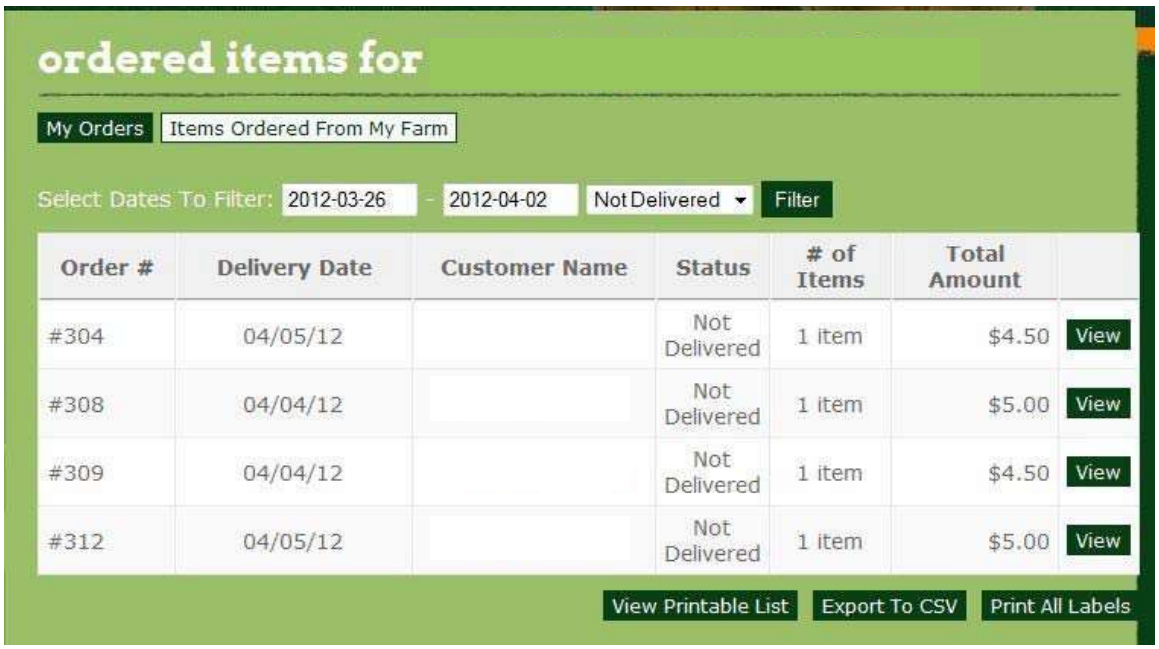
We look forward to selling more of your products.

This e-mail notification only lets you know an order has been placed for your product. There are other steps required for you to process your orders that are different than the way orders were processed on the old site.

Viewing Orders

Orders on the site are handled a little differently than they were on the old site, but the process now should make it easier for farmers to handle. First, as a farmer, you are also registered as a buyer and so ALL orders, whether something ordered FROM your farm or something you have ordered as a buyer, are shown in your order details page:

If you haven't PLACED any orders, you won't see anything on the "My Orders" page, which is the default page that comes up each time. To see orders for your products by other buyers, click on the "Items Ordered From My Farm".



This gives you details about the orders placed to your farm. This is the place where critical steps and information are handled. There are a few things you MUST do each week from this page in order to process orders.

Checking and Processing Orders

1. Each week that your farm receives orders, you must get the items ordered ready to bring to the warehouse. All orders must be placed before 2:00 on Tuesdays, so in order to make sure you have the correct items to bring to the warehouse, we recommend you follow some procedures to make sure everything is correct.
2. The first step in this process is to get labels onto the packaged items. You do this by first clicking in the "Dates to Filter" boxes and set the begin date to the MONDAY of the previous week and the end date to the Tuesday orders are to be completed by. If you check your orders after 2:00 on each Tuesday, this will already be set by default and you won't have to do anything. Notice also that default setting is to show only those items that have NOT been delivered. This ensures you won't package and label an item that was delivered previously. The order area also have other valuable tools for you to use that will be covered later, but for now we focus on getting items ready for delivery.

Printing Labels *

1. Once you have your list of items displayed, you can begin to print the labels. You should have received a label printer when you registered through Cooperative Extension and this is the printer to use for printing labels. The EASIEST way to print your labels is to simply click on the "Print All Labels" button at the bottom of the current list of orders. This will print all labels for every item ordered. You then place the correct label onto the package for that item and it is ready to bring to the warehouse.
2. If you need to reprint a single label or labels for one order, click on the "View" button for that order and the details for that order are displayed. You can then either print individual labels for each item by clicking the "Print Label" button next to each item or the "Print All Labels" button at the bottom of the screen to print all labels for that particular order.
3. Once labels have been placed on the items, bring them to the warehouse on Wednesday morning and the workers there will check them in.

Additional Order Tools

We have added some helpful tools to the order page that you can use to make the process easier and to help your farm "business". One of the best tools on the main order page is the "View Printable List" option. When you are viewing the orders placed to your farm for the week, you can view and print a list of the items to use as a check list for making sure everything is ready to bring to the warehouse. Simply follow the procedures to view current orders in the previous steps above and click the "View Printable List" button. This will bring up a screen with a checklist for you to print using the print feature of the browser you use. (Different browsers have different ways for printing, so this manual will not give instructions for specific browser printing)

Another tool at your disposal is the "Export to CSV" option. For those who have Microsoft Excel or anther spreadsheet program, you can export all order information you choose and view this as a Comma-Separated-Value file (CSV) for figuring sales information for your farm. Here you would set the date range as described above to the desired range (such as the previous month, quarter or year), orders delivered and/or not delivered and click the "Filter" button to pull up those orders. Once they are visible, you simply click on the "Export to CSV" button and it will give you all pertinent sales information for those orders. You can use this data for your book keeping or other business needs.

Product Delivery & Payment

Delivery Schedule

Please contact your site administrator for information on your nearest produce drop-off location, and your weekly delivery schedule.

Payment

Payments are deposited directly into the farmer's bank account once the order has been received by the customer and the paperwork has been processed.

A retainer fee of 30% of the sales price of each product helps pay for the administrative, marketing, and shipping costs of the program. Please price your products accordingly.

**** Farmers who use Microsoft Internet Explorer 9 as their web browser may need to change a default setting in the settings to avoid printing problems. Detailed instructions on changing this setting can be found on the FAQ section of the website.***

Appendix 19. Vendor Letter Requiring Gap Coverage

Dear Sir or Madam:

The purpose of this document is to ensure that the produce you sell to FreshPoint is grown, harvested, packed, processed and handled in a manner compatible with the FDA/USDA's ***"Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables"***. The guide directs growers to use its recommendations to develop appropriate best management practices for their individual operations. Such practices have come to be known as "GAPs".

By signing this form, your company hereby guarantees that you and any suppliers you may utilize to provide your company with Agricultural commodities or products, foreign or domestic, which may then be sold to SYSCO and its affiliates, have implemented GAP's as described by the aforementioned document as appropriate for the commodities or products provided.

Further, your signature implies that your company has implemented control strategies that monitor and verify your supply sources compliance with aforementioned GAP Guidelines and affords SYSCO QA the access to both your suppliers operations for GAP auditing purposes as well as access to audit your GAP monitoring and verification documentation.

Please note that the Guidelines encompass such areas of importance to Food Safety as:

1. Prevention of microbial contamination.
2. Management of risk and land use.
3. Harvesting operations.
4. Water quality and safety.
5. Pesticide usage and pesticide residual compliance.
6. Employee hygiene and sanitation practices.
7. Management of soil amendments.
8. Monitoring and documentation of all the above.

Company Name: _____

Authorized Contact: _____

(Please Print)

Authorized Signature: _____

Date: _____

Appendix 20

The [GAP] Guide at a Glance

The *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* In Brief

Source: U.S. Food and Drug Administration

U. S. Food and Drug Administration
Center for Food Safety and Applied Nutrition

The Guide at a Glance

The *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* In Brief

This *Guide* provides general, broad-based voluntary guidance that may be applied, as appropriate, to individual operations

The *Guide*

Is intended to assist domestic and foreign growers, packers, and shippers of unprocessed or minimally processed (raw) fresh fruits and vegetables by increasing awareness of potential hazards and providing suggestions for practices to minimize these hazards

Covers agricultural and postharvest water uses, manure and biosolids, worker health and hygiene, field and facility sanitation, transportation, and traceback

Does not impose any new requirements or supercede existing laws or regulations

Will be most effective when used to evaluate individual operations and to institute good agricultural and good manufacturing practices (GAPs and GMPs) appropriate to the individual operations

Basic Principles include

Prevention of microbial contamination of fresh produce is favored over reliance on corrective actions once contamination has occurred

Accountability at all levels of the agricultural and packing environments is important to a successful food safety program

Water

Wherever water comes into contact with fresh produce, its quality dictates the potential for pathogen contamination

Agricultural Water

Identify source and distribution of water used

Be aware of current and historical use of land

Review existing practices and conditions to identify potential sources of contamination. Consider practices that will protect water quality

Maintain wells in good working condition

Consider practices to minimize contact of the edible portion of fresh produce with contaminated irrigation water. Where water quality is good, risk is low regardless of irrigation method

Processing Water

Follow GMPs to ensure water quality is adequate at the start of and throughout all processes

Maintain water quality, such as by periodic testing for microbial contamination, changing water regularly, and cleaning and sanitizing water contact surfaces

Antimicrobial chemicals may help minimize the potential for microbial contamination to be spread by processing water; levels of antimicrobial chemicals should be routinely monitored and recorded to ensure they are maintained at appropriate levels

As organic material and microbial load increase, the effectiveness of many antimicrobial chemicals will decrease. Filtering recirculating water or scooping organic material from tanks may help reduce the build-up of organic materials

Cooling Operations

Maintain temperatures that promote optimum produce quality and minimize pathogen growth
Keep air cooling and chilling equipment clean and sanitary
Keep water and ice clean and sanitary
Manufacture, transport, and store ice under sanitary conditions

Manure and Municipal Biosolids

Properly treated manure or biosolids can be an effective and safe fertilizer.

If manure is used as a fertilizer, it should be managed to minimize microbial hazards
Federal regulations address the requirements for use of biosolids in the U.S.. Some states also have specific requirements for the use of biosolids. Foreign growers should follow these or similar requirements

Manure

Use treatments to reduce pathogens in manure and other organic materials. Treatments may be active (e.g., composting) or passive (e.g., aging)
Manure treatment and storage sites close to fresh produce fields increase the risk of contamination
Consider factors such as slope and rainfall and the likelihood of runoff into fresh produce production areas
Use barriers or physical containment to secure storage and treatment sites
Protect treated manure from being re-contaminated
When purchasing treated manure, get information about the method of treatment
Maximize the time between application of manure to production areas and harvest
Use of raw manure on produce during the growing season is not recommended

Animal Feces

While not possible to exclude all animal life from fresh produce production areas, many field programs include elements to protect crops from animal damage.

Domestic animals should be excluded from fields and orchards during the growing and harvesting season
Follow GAPs to ensure animal waste from adjacent fields, pastures, or waste storage facilities does not contaminate fresh produce production areas. Where necessary, consider physical barriers such as ditches, mounds, grass/sod waterways, diversion berms, and vegetative buffer areas
Control of wild animal populations may be difficult or restricted by animal protection requirements. However, to the extent feasible, where high concentrations of wildlife are a concern, consider practices to deter or redirect wildlife to areas where crops are not destined for fresh produce markets

Worker Health and Hygiene

Infected employees who work with fresh produce increase the risk of transmitting foodborne illness.

Train employees to follow good hygienic practices
Establish a training program directed towards health and hygiene – include basics such as proper handwashing techniques and the importance of using toilet facilities
Become familiar with typical signs and symptoms of infectious diseases
Offer protection to workers with cuts or lesions on parts of the body that may make contact with fresh produce
If employees wear gloves, be sure the gloves are used properly and do not become a vehicle for spreading pathogens
Customer-pick and road-side produce operations should promote good hygienic practices with customers – encourage handwashing, provide toilets that are well equipped, clean, and sanitary and encourage washing fresh produce before consumption

Sanitary Facilities

Poor management of human and other wastes in the field or packing facility increases the risk of contaminating fresh produce

Be familiar with laws and regulations that apply to field and facility sanitation practices

Toilet facilities should be accessible to workers, properly located, and well supplied

Keep toilets, handwashing stations, and water containers clean and sanitary

Use caution when servicing portable toilets to prevent leakage into a field

Have a plan for containment in the event of waste spillage

Field Sanitation

Fresh produce may become contaminated during pre-harvest and harvest activities from contact with soil, fertilizers, water, workers, and harvesting equipment.

Clean harvest storage facilities and containers or bins prior to use

Take care not to contaminate fresh produce that is washed, cooled, or packaged

Use harvesting and packing equipment appropriately and keep as clean as practicable

Assign responsibility for equipment to the person in charge

Packing Facility

Maintain packing facilities in good condition to reduce the potential for microbial contamination.

Remove as much dirt as practicable outside of packing facility

Clean pallets, containers, or bins before use; discard damaged containers

Keep packing equipment, packing areas, and storage areas clean

Store empty containers in a way that protects them from contamination

Pest Control

Establish and maintain a pest control program

Block access of pests into enclosed facilities

Maintain a pest control log

Transportation

Proper transport of fresh produce will help reduce the potential for microbial contamination.

Good hygienic and sanitation practices should be used when loading, unloading, and inspecting fresh produce

Inspect transportation vehicles for cleanliness, odors, obvious dirt and debris before loading

Maintain proper transport temperatures

Load produce to minimize physical damage

Traceback

The ability to identify the source of a product can serve as an important complement to good agricultural and management practices.

Develop procedures to track produce containers from the farm, to the packer, distributor, and retailer

Documentation should indicate the source of the product and other information, such as date of harvest, farm identification, and who handled the produce

Growers, packers and shippers should partner with transporters, distributors and retailers to develop technologies to facilitate the traceback process

Once good agricultural and management practices are in place, ensure that the process is working correctly. Without accountability, the best efforts to minimize microbial contamination are subject to failure.

Appendix 21

Know Where You Stand:

Conducting GAP Self-Audits

Source: Primus Labs

KNOW WHERE YOU STAND

B. CONDUCTING SELF-AUDITS:

At **no charge**, growers or field representative can perform Self-Audits of each of your ranch operations, harvest crew operations, cooler operations, and packinghouse operations. These Self-Audits will help to give you, or your grower an idea of where improvements should be made. These Self-Audits are also a very good tool because the questions that are utilized in the Self-Auditing program are the same exact questions that are used by PrimusLabs.com auditors when conducting Independent Third Party Audits. If the Self-Audits are done "On-line", you will get your results and a corrective actions letter emailed back to you.

STEPS TO ACCESS THE PROGRAM:

1) Log onto PrimusLabs.com's Internet site www.primuslabs.com,
2) Click on **"Food Safety Programs"**,
3) Within the General Services box, select **"Self Audit Program (Download Audit Database)"**,
4) Use the **"Quick Pull Down Menu"** and select **"Electronic"**, then **"Online Program Menu"**,
5) Select **"Sign-In (First Time)"** on the left-side menu,
6) Select **"Self Auditor",**
7) Fill in personal information and click **"Submit",**
8) Select **"Login"** from the left-side menu,
9) Login using username and password, then select **"New Audit"**,
10) Select the audit type and then proceed to enter audit information.

C. CONDUCTING THIRD PARTY AUDITS:

PrimusLabs.com has a complete staff of multi-lingual auditors located throughout the Western Hemisphere. Regarding the scheduling of your third party audit, please contact Julian Sollozo at (805) 922-0055 or by e-mail at, julian@primuslabs.com.

Appendix 22

Process for Getting GAPs Certified

Source: North Carolina State University Cooperative Extension

Steps Outlining Process for Getting GAPs Certified

Joyce Baros, Benjamin Chapman, Chris Gunter, Audrey Kreske, Diane T. Ducharme[1]
[1]North Carolina State University

Create a Food Safety Plan:

Step 1: Familiarize yourself with Good Agricultural Practices:

Good Agricultural Practices (GAPs) are the basic environmental and operational conditions necessary for mitigating the risks associated with producing fruits and vegetables. The purpose of GAPs is to give logical guidance in implementing best management practices that will help by reducing and managing contamination of fruits and vegetables. Examples of GAPs include worker hygiene and health, manure use and water quality throughout the production and harvesting process.

- For more information visit the N.C. Fresh Produce Safety Portal
  - http://ncfreshproducesafety.ncsu.edu/

Step 2: Complete preliminary exercises:

Before attending a GAPs training, it is helpful to be familiar with food safety hazards on your farm. By creating a map of your farm and completing an initial hazard assessment, you will be better prepared to actively participate in training.

- Map your Farm
  - http://edis.ifas.ufl.edu/pdffiles/FY/FY96900.pdf
- Initial hazard assessment
  - https://store.extension.iastate.edu/ItemDetail.aspx?ProductID=12938

Step 3: Attend a GAPs training:

GAPs trainings are offered throughout the state on an ongoing basis. To find a workshop that will fit your needs please visit the N.C. Fresh Produce Safety Training and Events Calendar or check with your local Extension agent.

- NC Fresh Produce Safety Training and Events Calendar
  - http://ncfreshproducesafety.ncsu.edu/category/trainings-events
- Contact your local Extension office
  - http://www.ces.ncsu.edu/local-county-center/

Step 4: Complete hazard assessment of farm using information learned in training:

Now that you have attended a GAPs training you will be better acquainted with food safety hazards on the farm. Use your new knowledge to complete a more in-depth assessment of your farm. The N.C. Fresh Produce Safety Portal offers a variety of different self-audits so that you may choose the one that best fits your needs.

- Fresh Produce Safety Portal Self-Audits
  - http://ncfreshproducesafety.ncsu.edu/good-agricultural-practices/audits-plans/self-audits

Step 5: Collect your specific GAPs in a food safety plan:

You've put in the time learning about GAPs and assessing food safety hazards on your farm, now it's time to put your plan in writing. A food safety plan consists of standard operating procedures

(SOPs), which describe how you address food safety risks on your farm. Your food safety plan also includes any documentation or records you may have regarding your Good Agricultural Practices. The N.C. Fresh Produce Safety Portal includes food safety plan templates to be modified for your farm as well as information on writing SOPs.

- Food safety plan templates and creating SOPs
    - http://ncfreshproducesafety.ncsu.edu/good-agricultural-practices/audits-plans/food-safety-plans

Get GAPs Certified:

Step 1: Determine buyer requirements or choose your 3rd party auditor:

If your buyer requires GAPs certification you should determine from them which 3rd party auditor to use and which sections of the audit are required. If your market does not require GAPs certification you may choose whichever 3rd party auditor you prefer. The N.C. Fresh Produce Safety Portal provides a list of 3rd party auditors commonly used in North Carolina.

- List of 3rd party auditors and audit questions
    - http://ncfreshproducesafety.ncsu.edu/good-agricultural-practices/audits-plans/third-party-auditors

Step 2: Download audit matrix and check requirements:

Download the audit matrix and make sure your food safety plan satisfies all the requirements of that particular audit. Ensure you have gathered all of the appropriate records and documentation.

Step 3: Request audit:

Once you have your food safety plan and are sure it meets the audit requirements you are ready to request an audit. When you submit your audit request you will need to include your farm information, the type of audit you are requesting, and several dates and times when you will be harvesting the crops you wish to have inspected. You will also need to send a copy of your food safety manual for review. The USDA audit request is available on the NCDA&CS website. To request an audit from a different 3rd party auditor, contact that company directly.

- NCDA&CS USDA audit request
    - http://www.ncagr.gov/markets/NCgradesvc/

Step 4: Use your audit:

You've completed your audit and received your score. Whether you passed with flying colors or hit a few roadblocks, now is the time to evaluate and make improvements. Carefully review your audit and determine where you may have lost points. What could you do to improve your management practices and reduce food safety risks? You've invested your time and money into preparing for your audit; make sure you are utilizing the results to benefit your farm.

***Apply for cost-share**

Funding is sometimes available to provide growers with financial support in improving food safety on their farm. The North Carolina Department of Agriculture and Consumer Services (http://www.ncagr.gov/markets/NCgradesvc/) as well as the Carolina Farm Stewardship Association (http://www.carolinafarmstewards.org/) have offered cost-share programs in the past. Check these websites for updates or contact your local Extension office for more information.

Acknowledgements

We'd like to thank the Local Foods Buyers who so graciously gave of their time for this study:

Retailers, Co-ops and Specialty Grocers

Bare Essentials Natural Market, Boone
Chatham Marketplace, Pittsboro
Deep Roots Market, Greensboro
French Broad Food Coop, Asheville
Ingles Grocery, Black Mountain
The Fresh Market, Greensboro
Whole Foods, national
Carlie C's IGA, Dunn
Company Stores Market, Burlington
Farm Fresh, Virginia Beach
Hendersonville Community Coop
Lowe's Foods, Winston-Salem
Tidal Creek Co-op, Wilmington

Wholesale Distributors and Food Service Companies

Albert's Organics, SE District, Charlotte
Eastern Carolina Organics, Durham
Ford Produce, Raleigh
Fresh Point, Raleigh
Ward Produce, Raleigh
Bon Appetit, SE Region, Durham
Farmhand Foods, Durham
Foster Caviness, Greensboro
Honeycutt Produce, Chadburn

Specialty Distributors

Bread Riot, Rowan County
Feast DownEast, Wilmington and SE
Mint Market, Durham
Pilot Mountain Pride, Surry Co and NW
Sandhills Farm to Table Co-op, Moore County
Down East Connect, Columbus Co and SE
Madison Farms, Madison County
Piedmont Local Food, Rockingham County
Produce Box, Raleigh / statewide

Restaurants

Acme Food and Beverage, Carrboro
Green Sage Café/Coffeehouse, Asheville
Little Hen, Holly Springs
Manna, Wilmington
Angelina's, Pittsboro
Laurey's, Asheville
Lucky 32, Greensboro
Market Place, Asheville

Institutional / Goverment Buyers

NCDA Farm to School

Staff:

Carolyn Christman, interviewer and writer/editor, Cedar Grove Institute for Sustainable Communities

Ann Moss Joyner, survey designer, analyst, report writer and editor, Cedar Grove Institute for Sustainable Communities, Inc.

Project Team

Team Leader: S. Gary Bullen, Extension Associate, Ag and Resource Economics, Box 8109, NCSU, Raleigh, NC 27695-8109. Phone 919/515-6096. Email gary_bullen@ncsu.edu.

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Chris Gunter, Vegetable Production Specialist, NC State University

Charles Safley, Associate Head and Department Extension Leader, NC State University

Tim Woods, Extension Professor, University of Kentucky

Laura Wurts, Carolina Farm Stewardship Association

Susan Colucci, Henderson County Area Specialist Agent

Jenn Beck, Madison County Extension Agent

Jeremy Delisle, Yancey and Mitchell County Area Agent

Meghan Baker, Buncombe County Extension Agent

Bart Renner, Transylvania County Extension Agent, Local Foods and Small Farms

Ross Young, Madison County Extension Director

Darrell Blackwelder, Rowan County Extension Director

Amy Lynn Albertson, Davidson County Extension Agent

Nicole Sanchez, Jones County Area Specialized Agent, Commercial Horticulture

John McIntyre, Duplin County Extension Agent - Horticulture

Hugh E. Weathers
Commissioner

State of South Carolina
Department of Agriculture

Laboratory and Consumer Services

Mailing Address
PO Box 11280
Columbia, SC 29211

Physical Location
123 Ballard Court
W. Columbia, SC 29172

Laboratory
803.737.9700

Consumer Services
803.737.9690

803.737.9703 (FX)
www.agriculture.sc.gov

APPLICATION FOR EXEMPTION

PRODUCERS WHO SELL DIRECTLY TO THE END CONSUMER NO MORE THAN $15,000 ANNUALLY OF NON- POTENTIALLY HAZARDOUS CANDY OR BAKED GOODS

Name of Applicant _____ Phone: _____ Email: _____

Mailing Address _____
Street City State Zip Code County

Name of Firm _____ Phone: _____

Firm Address _____
Street City State Zip Code County

Pursuant to Section 44-1-143(H), CODE OF LAWS OF SOUTH CAROLINA, 1976, AMENDED JUNE 7, 2012, above named Applicant certifies compliance with requirements for exemption from inspections, and packaging in an inspected food processing establishment, or from being required to obtain a Registration Verification Certificate (RVC) from the Department of Agriculture by verifying that no more than $15,000 are sold annually and said non-potentially hazardous candy/baked good is only sold directly to end consumers. Labels are required on all packages that are sold in South Carolina and must be in compliance with section 44-1-143.

When and if the conditions for this exemption are no longer met, Firm must apply for Registration Verification Certification (RVC).

Check which product(s) you will be producing:

___baked cookies **_____baked breads*** **____baked cakes** **_____candy**

___baked high-acid fruit pies (*apple, apricot, grape, peach, plum, quince, orange, nectarine, blackberry, raspberry, boysenberry, cherry, cranberry, strawberry, red currants)*

Moist quick breads like zucchini, pumpkin, and banana may be potentially hazardous.

A product analysis to determine interaction of pH and water activity (Aw) may be required in order to exempt any product not listed above. Please contact Kimberly Baker, kabaker@clemson.edu at Clemson University, (864-376-4031), or NC State (919.513.2090) or a commercial laboratory for analysis. Analysis will be at the expense of the cottage food operation.

Please answer the following questions for all products

Are your product(s) baked? Yes____ or No____

Are your product(s) candy? Yes____ or No____

Does your product(s) contain crème or custard filling? Yes____ or No____

Will your product(s) require refrigeration? Yes____ or No____

Will your product(s) be vacuumed packaged or reduced oxygen packaged? Yes____ or No____

Where do you intend to sell your product(s)? _____
(**The privilege to sell at markets will be at the discretion of the market manager*.)

Date of application: _____ Applicants Signature: _____

Send application to: SCDA
123 Ballard Court
West Columbia, SC 29172

aculler@scda.sc.gov
803-734-7321

For official use only:
Product analysis required? Yes____ or No____

Analysis Received_____

Exemption Certificate # _____ Date Issued: _____

Exemption Denied State Reason: _____

Cottage Foods

SC Department of Agriculture Exemption: *Frequently Asked Questions*

What is a Cottage Food Operation?

A cottage food operation is a home-based food operation that operates out of an individual's dwelling that prepares, packages, stores and distributes non-potentially hazardous foods to a person.

What is covered under the Cottage Bill (SC 44-1-143 H)?

Non-potentially hazardous baked goods and candy that are sold directly to the end consumer are covered under this bill. These foods cannot be sold for re-sale/wholesale. Examples of these type products are: baked *cookies, baked cakes, baked breads*, baked high-acid fruit pies (apple, apricot, grape, peach, plum, quince, orange, nectarine, blackberry, raspberry, boysenberry, cherry, cranberry, strawberry, red currants) and candy.*

**Moist quick breads like zucchini, pumpkin & banana may be potentially hazardous.*

What is a potentially hazardous food in South Carolina?

This bill defines a 'Potentially hazardous foods' as:

(a) an animal food that is raw or heat-treated; a plant food that is heat-treated or consists of raw seed sprouts; cut melons; cut leafy greens; cut tomatoes or mixtures of cut tomatoes not modified to prevent microorganism growth or toxin formation; garlic-in-oil mixtures not modified to prevent microorganism growth or toxin formation;

(b) certain foods that are designated as Product Assessment Required (PA) because of the interaction of the pH and water activity (Aw) values in these foods. Below is a table indicating the interaction of pH and Aw for control of spores in food heat-treated to destroy vegetative cells and subsequently packaged:

Aw values		pH values		
		4.6 or less	>4.6 - 5.6	>5.6
(1)	<0.92	non-PHF	non-PHF	non-PHF
(2)	>0.92 - 0.95	non-PHF	non-PHF	PHF
(3)	>0.95	non-PHF	PHF	PHF

Foods in item (2) with a pH value greater than 5.6 and foods in item (3) with a pH value greater than 4.6 are considered potentially hazardous unless a product assessment is conducted pursuant to the 2009 Federal Drug Administration Food Code.

Examples of potentially hazardous baked goods include, but are not limited to *pumpkin pie, sweet potato pie, cheese cake, custard pies, cream pies, pastries with potentially hazardous toppings or fillings*.

Does my product have to be labeled?

Yes, all food items packaged at the operation for sale must be properly labeled in compliance with federal laws and regulations. Labels must include:

- Name and address of the home-based food operation
- Name of the product being sold
- Complete ingredient list (including all allergens)
- A net wt. in customary and metric measurements
- A conspicuous statement printed in all capital letters and in a color that provides a clear contrast to the background that reads **"*Not for Resale – Processed and prepared by a home-based food production operation that is not subject to South Carolina's Food Safety Regulations*."**

For more help with labeling, please go to
http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfCFR/CFRSearch.cfm?CFRPart=101

Do I need to apply for an exemption from the SC Department of Agriculture?

You will need to apply for an exemption from inspection and label review if you intend to manufacture your products at home and sell to the end consumer at locations other than where the products were made. This includes farmers markets, flea markets and other similar direct-to-consumer venues. An application for exemption can be found on the SC Department of Agriculture website at http://agriculture.sc.gov/forms

Custom, made-to-order or special-order products do not fall under the jurisdiction of the SC Department of Agriculture. Some examples of these type products include, but is not limited to: wedding cakes, birthday cakes, shower cakes, etc.

Do I qualify for an exemption from the SC Department of Agriculture?

In order to qualify for an exemption from the SC Department of Agriculture, you must:

- Only produce non-hazardous baked goods and candy. See above - *What is covered under the Cottage Bill?*
- Sell no more than $15,000 per year.
- Sell only to the end consumer.

My product is not listed, how do I determine if it is non-potentially hazardous?

A product analysis to determine interaction of pH and water activity (Aw) will be required in order to exempt any product not listed above. Please contact Kimberly Baker, kabaker@clemson.edu (864-376-4031) or NC State (919.513.2090) or a commercial laboratory for analysis. Analysis will be at the expense of the cottage food operation.

The text of the full Cottage Bill (SC 44-1-143 H) can be found at:
http://www.scstatehouse.gov/sess119_2011-2012/bills/4689.htm

CLEMSON COOPERATIVE EXTENSION

http://www.clemson.edu/extension/hgic

HGIC 3861 1-888-656-9988

HOME & GARDEN INFORMATION CENTER

Starting a Food Business

Starting a food business is a formidable task. Expansive research must be done to derive a suitable recipe for commercial production. This is followed by tests that have to consider shelf-life as well as the cost of the product. Quality has to be balanced against profits and the final decision is likely to be based on the market for which a food item is to be produced. To be a success, it is imperative that the food product be of high quality and fill a marketing niche.

Characteristics of a Successful Entrepreneur

The small business entrepreneur will need certain characteristics to be successful in establishing a food business. The characteristics common to successful entrepreneurs include:

- A desire for responsibility
- A preference for moderate risk
- Confidence in your ability to succeed
- Desire for immediate feedback
- A high energy level
- A need to accomplish goals
- Strong organizational skills
- Strong communication skills
- A need for feelings of accomplishment and achievement
- A high degree of commitment
- A tolerance for uncertainty
- The ability to be flexible
- A desire to work hard
- Total dedication to the business
- A strong market demand for the product
- Luck

Type of Product

One of the first considerations to make is what type of product will be produced such as a canned food, a baked good or a refrigerated product. Special food processing equipment, government registration and technical training are required to start a commercial canning facility. Regulations for producing a canned food item will differ depending on whether the product is low acid, acidified or acid.

Low-acid Foods: These foods, such as meat products, beans and corn, have a pH value (indicates acidity) greater than 4.6 and a water activity (A_w) greater than 0.85 (measures free moisture in a food). At these levels the deadly *Clostridium botulinum* microorganism could grow in foods that are improperly canned. They must be processed at proper temperatures under specified pressure in compliance with all Food and Drug Administration (FDA) regulations.

Acidified Foods: These products, such as pickled foods, have a water activity greater than 0.85 and have been acidified to a pH of less than 4.6 to prevent the growth of *Clostridium botulinum.*

Acid Foods: These foods, such as fruits, jams and jellies, naturally have a pH below 4.6.

Regulations

Entrepreneurs must be familiar with state and federal food regulations before starting a food business and must comply with the recommendations in the SC Food and Cosmetics Act. The regulations are available from the South Carolina Department of Agriculture (SCDA), which is responsible for enforcing safe food manufacture and sale at the state level.

Food may not be manufactured in the home for distribution or sale. Food sold at the place of production is under the inspection of the Public Health Department. Food manufactured for wholesale distribution is under the supervision of the SCDA. Food under regulation of the SCDA must be produced in an approved facility, registered with the SCDA, have product labels reviewed by the SCDA for compliance with labeling laws and have routine food safety inspections. Each of these regulations must be met before the sale of a product can begin.

In addition to state requirements, most specialty foods are subject to federal regulations because products cross state boundaries during distribution. The federal agencies responsible for food safety are the FDA and the US Department of Agriculture (USDA). A food processing operation should be designed and operated in accordance with "Good Manufacturing Practices" (GMP) regulations, which are available on the FDA website (www.fda.gov). All food plants, except meat and poultry plants, are subject to inspection by FDA to ensure compliance with these regulations. Specialty foods containing meat or poultry ingredients fall under the jurisdiction of the USDA. Meat and poultry food processing plants should be constructed and operated according to the "Meat and Poultry Inspection Program" that can be obtained from the SC Meat and Poultry Inspection Department.

There are specific GMP regulations for canned low-acid and acidified foods. Commercial food manufacturers are required to register each new product with the FDA and file a full description (called a scheduled process) of the processes to be employed in the manufacture of the product. Copies of these regulations, the registration form and the scheduled process form can be obtained on the FDA website (www.fda.gov). In addition, the processor must report any instances of spoilage; must have an established product recall plan; must have all operators of thermal-processing systems trained by attending a "Better Process Control School" at an approved university; and must maintain complete records of processing operations.

Basics of Product Development

Entrepreneurs should follow these basic steps in developing new food products.

Idea Stage: The idea stage involves "cloud nine" dreaming and making every effort to determine what product the consumer will purchase and continue to purchase. The following questions need to be answered:

- Does the product satisfy a consumer need?
- Will it return a profit?
- Will it be acceptable to consumers, wholesalers and retailers alike?
- Is it unique?
- Does it provide a new service to customers?
- Do you have the production technology to develop the product?
- Do you have the marketing skills to sell the product?
- What products will it replace or compete against?

Development Stage: This stage involves creation of the new product. Simply being a good cook will not ensure good products for commercial marketing. Food scientists are needed to solve shelf-life and safety problems. They address questions such as: Will bacteria, mold, yeasts or pathogens be a concern? Is the "browning reaction" (a chemical reaction between ingredients) a problem and, if so, can it be solved? Is light a factor in product or quality deterioration? Can texture or mouth-feel be improved? Is rancidity a problem?

Taste Panel Stage: The taste panel stage should run concurrently with formula or recipe development. Using sensory evaluation test forms, an experienced panel should check quality parameters such as color, texture, appearance and flavor at various stages of product formulation to distinguish good from undesirable traits.

Consumer Sampling Stage: The consumer sampling stage is often neglected by small food processors but can give valuable information about the product's potential success. Entrepreneurs should consider displaying their new products in shopping malls and grocery stores. Shoppers would be given a sample to taste and a questionnaire about the new product to fill out onsite. This sampling can sometimes be done with the product available for sale during the sampling period if the store allows. Actual sales after tasting reinforce the questionnaire. For instance, if 100 people say they

will purchase but only five purchases the product, there may be some question about the truthfulness of the answers. Commercial demand for the product should be evaluated to determine if sufficient volume will be produced and sold to make the venture economically feasible.

Shelf-Life Stage: The shelf-life stage is extremely important because a processor must know how long a new product will keep under a variety of temperatures or other environmental conditions. Shelf-life loss may be due to chemical or microbial (bacteria, mold and yeast) spoilage. Small firms normally have to contract with independent or consulting laboratories to have accelerated shelf-life studies performed on new products. The studies are done by raising the temperature of the packaged product above normal storage conditions (110 to 120°F). Although this is not as good as a prolonged shelf-life study at normal temperatures (75 to 80°F), it does give some indication of product shelf life. Lot codes for recall and product liability are based on these studies.

Packaging Stage: This stage is especially important because the package often sells a new product. Consumers want colorful, attractive, conveniently packaged forms. Packaging should not impart flavor to the product or react chemically with the food. It should be lightweight, economical and resistant to tearing.

Production Stage: The production stage includes making plans for a production line to manufacture the product. Do not arrange a full-scale production line until after successfully test marketing a new product. Many entrepreneurs will have their products co-packed by an existing plant for test marketing. The production line should be set up according to a blueprint of its layout. Keep in mind drainage, ventilation, waste disposal, lighting, equipment size and flow, energy conservation, safety, sanitation, ease of cleaning, storage area, and compliance with government regulations.

Processing controls must be established to ensure consistent quality during production as set forth by product standards (specifications). Likewise, quality control procedures must be developed to determine if the standards are being met during production and to know when to take corrective action to prevent economic losses due to deviations and to ensure product safety.

Test Marketing Stage: The test marketing stage for small processors involves introducing their new product into a limited area, such as a large metropolitan city. It is important to select a site with a population made up of many ethnic groups and income levels. If the product fails, another product can be tried. If the product succeeds, it is distributed in stages to progressively larger areas (statewide, regional, and national).

Commercialization Stage: Commercialization is the final step in determining the success or failure of a new product. Most small food companies sell mainly to the institutional trade and if they sell to retail outlets, it is usually to privately owned stores or small chains. Larger chains will not take on a new food product unless the product is heavily advertised by the company. The buyer for a large chain must be convinced that the product is good and that advertising exists.

Ingredients

The success of any new specialty product depends on the quality of its flavor, color and texture, its stability under various storage conditions, and its safety. Often, additives may be needed to maintain or enhance product quality throughout and after processing. Additives should not be used to disguise faulty or inferior manufacturing processes or to conceal damage or spoilage. Only the minimum amount of an additive necessary to achieve desired results should be used.

Government regulatory agencies such as the FDA and USDA closely monitor the use and levels of additives in food products. The safety of food additives is constantly being reviewed, so food processors must pay close attention to current regulatory statues governing particular additives.

Food Processing

Food preservation through processing is an extremely broad area in food science and methods include refrigeration, freezing, pasteurization, canning, fermentation, concentration, irradiation and dehydration.

Quality Control/Sanitation

Quality control is imperative to the successful development of any food product. Consumers perceive food safety as an integral component of food quality control. The food processor must establish a food safety program including in-process procedures that ensure consistent quality and meet product specifications. It is important to obtain product liability insurance for your protection.

Packaging

Food packaging protects the food from the surrounding environment, thus preventing contamination, damage and deterioration. Today, convenience is a major factor in packaging. The food package also plays a crucial role in communication. In the marketing of new products, packaging conveys the nature of the food and directions for its use and it attracts and persuades the buyer. Color coordination, artistic design, nutrition facts, ingredient labeling, portion size and safety all influence a consumer's decision to buy.

Labels

Food labeling was originally designed by the government to protect consumers from fraud. Recent surveys indicate that consumers use labels to identify and avoid perceived health hazards rather than to seek and obtain benefits (does the product contain preservatives, fats, cholesterol?). A label consists of the "principal display panel," used to attract consumers, and the "information panel," placed immediately to the right of the principal display panel.

Information that is mandatory on food labels includes:

- Statement of identity/product name
- Net weight (in ounces and grams)
- Name/address of manufacturer
- Ingredient listing
- Manufacturing code
- Nutritional labeling (some exemptions apply)

Information that is voluntary but if included must be worded according to regulations includes:

- Grades
- Labeling for special dietary use

Optional information includes:

- Universal product code
- Open dating
- Registered trademarks/symbols

Coding Products

An integral part of quality control is a system for coding new food products. The product must be identifiable to the manufacturer by the year and day it was packed and by the batch number, if more than one batch is processed per day. If more than once processing facility is involved, that must also be identified. It is imperative that these codes are recorded on distribution invoices so the product can be recalled promptly if there is a problem. All cases and individual containers must be coded. The coded lots should be large enough to enable easy identification during sale and distribution.

Any method of coding that is recognizable by the processor is acceptable. Alphabetical letters are often used to identify the month a product was packed. Julian dates are used to indicate the manufacture date. An example of a code is "291J1325," where "291" indicates the 291st day of the year; "J" is the month (October); "13" is the year packed (2013); "2" is the plant location; and "5" indicates the fifth hour of the shift. Accurate record keeping of these codes allows a manufacturer to trace the cause of consumer complaints, control distribution and inventory, ensure proper product rotation, and implement a recall if necessary.

Marketing

Marketing is traditionally thought of as the process of advertising, promoting and selling services and products. These are important in the development of new food products, but the first step is to define a specific market. If specialty food entrepreneurs wish to sell through retail food stores, they must have a Universal Product Code (UPC) correctly displayed on the label. Most brokers, wholesalers and retail buyers will not handle a product lacking UPC identification. It is the potential processor's responsibility to obtain a code for each product manufactured. More information about purchasing UPCs can be found through The Global Language of Business (GSI) at www.gs1us.org.

The next step is to determine which system of distribution is best suited to you and your products. What will be your sales outlets? Options include retail food stores, specialty shops or boutiques (selling unique or gourmet food items), roadside stands, farmers markets, or the front door of your processing plant.

There are several product characteristics that must be decided on regardless of the method of distribution. These include price, size of container and number of containers per carton. If you plan to use retail stores, specialty shops or boutiques, you must decide on representation, sales promotions and advertising.

Brokers

For most new processors, the food product distribution system resembles a maze. For those who need help in presenting their product, it may be prudent to seek representation through a broker. Brokers will help you develop a retail price, arrange promotion plans to enhance the product's acceptance and make sales presentations to the buyers of independent wholesalers and large retail food chains. Brokers' fees are usually about 5 percent of all sales made in the broker's territory.

If you seek broker representation, you may consider discussing your product with a "specialty" broker. These brokers specialize in representing products that fall into the specialty categories (relatively low-volume products). To locate the specialty broker nearest you, contact the National Association of Specialty Food and Confection Brokers (NASFCB) at www.specialtyfoodresource.com.

For more information on starting your own food business request HGIC 3863, *Inspection of Food: Who's Responsible*, or contact one of these agencies:

- Clemson University Extension Service
  Food2Market – Food Entrepreneur Assistance Program
  Kimberly A. Baker, MS, RD, LD
  Food Safety Associate
  kabaker@clemson.edu
  864-226-1581 ext. 115
  www.clemson.edu/extension/food2market

- South Carolina Department of Agriculture
  Food Safety and Compliance Program
  Ms. Angie Culler
  Food Safety and Compliance Manager
  803-737-9690
  http://agriculture.sc.gov/foodsafetyandcompliance

- South Carolina Meat & Poultry Inspection Department
  www.clemson.edu/public/lph/scmpid
  803-788-8747

- South Carolina DHEC Food Safety Division
  803-896-0640
  http://www.scdhec.gov/environment/envhealth/food/

- South Carolina DHEC Food Protection Dairy Division
  803-896-0644
  http://www.scdhec.gov/environment/envhealth/food/htm/dairy.htm

- Food and Drug Administration
  www.fda.gov
  Atlanta Office – 404-253-1171
  Charleston Office – 843-746-2990
  Columbia Office – 803-765-5845
  Greenville Office – 864-234-9966

- The Global Language of Business
  www.gs1us.org
  Member Services: 937-435-3870
  Corporate Headquarters: 609-620-0200

Sources:

1. Hurst, William C., et al. (February 1997). University of Georgia. *Getting Started in the Food Specialty Business*. http://www.efsonline.uga.edu/EFS_NFB/pubs/Getting%20Started%20in%20the%20Food%20Specialty%20Business.pdf
2. Clemson University Cooperative Extension Service (May 1998). *Developing Your Own Food Business*.

Reviewed and updated by Kimberly A. Baker, MS, RD, LD, Food Safety Associate, Clemson University Extension Service and Adair Hoover, Program Assistant, Food Safety and Preservation, Clemson University HGIC, 09/13. Originally reviewed and adapted for use in South Carolina by P.H. Schmutz, HGIC Information Specialist; Mark Burns, Inspector, S.C. Dept. of Agriculture; Mary Ridgeway, Director of Specialty Food Products, S.C. Dept. of Agriculture; Dr. W. Scott Whiteside, Associate Professor; Clemson University Department of Food, Nutrition and Packaging Sciences; and E.H. Hoyle, Retired Extension Food Safety Specialist, Clemson University. 02/00.

HOW TO PREPARE AN INVOICE

EXAMPLES AND TEMPLATES

Introduction

This document will explains how to prepare an invoice and provide the reader with a working example template.

Invoice Requirements:

Company details:

The following should be included:

- Company name
- Company address
- Company telephone number and email address.
- Company number
- VAT registration number (if VAT registered)

Invoice number:

Each of your invoices should have a unique invoice number. Although is called a number it can include letters. A common method is to prefix invoices with letters that indicate the client.

For example: If you provided services for DJ Construction, you could use DJC001 and DJC002 and so on.

Using three placements for the numbers will ensure they sort in date order.

HOW TO PREPARE AN INVOICE

EXAMPLES AND TEMPLATES

Dates:

You should include the following dates:

- Date: the date the invoice was raised.
- Due date: the date by which payment should be made. Normally 30 days after the invoice date.

Client details:

The name of the agency, or client if contracting directly.

Fees:

This section requires the following:

- A description of the services provided
- The gross amount due.
- The VAT amount, if you are VAT registered.
- The total amount due.

For example:

20 Days @ £500 per day	Amount:	£10,000
	VAT:	£1,175
	Total:	£11,175

HOW TO PREPARE AN INVOICE

EXAMPLES AND TEMPLATES

Payment terms:

Specify how you would like to receive the money. For example:

- Payment should be made within 30 days by cheque or money transfer.

- Cheques should be made payable to ‘My Company Ltd’.

- Money transfers should be sent to: (and details of the bank account, see example:

    - The Contractors Bank
      Sort: 01-01-01
      Acc#: 012345678
      Reference: Use invoice number

Most agencies and clients do not pay via cheque and choose money transfer. Cheques can be inconvenient. If you wish to only be paid by money transfer then use the following:

> Payment should be made within 30 days by money transfer only to the following account:
> The Contractors Bank
> Sort: 01-01-01
> Acc#: 012345678
> Reference: Use invoice number

HOW TO PREPARE AN INVOICE

EXAMPLES AND TEMPLATES

Email the invoice, or post it?

Your agency or client will specify how they would like to receive the invoice. Some require will request a paper copy.

If you are permitted to submit your invoice via email then it is useful to convert the invoice into PDF format so that it cannot be altered.

What about timesheets?

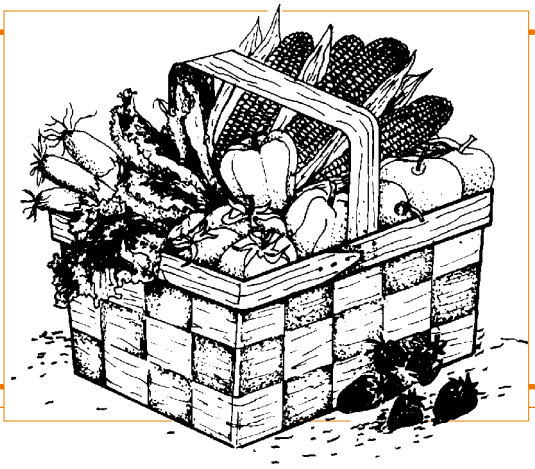
Most agencies and clients require a timesheet to be signed and a copy included with the invoice. Ensure you take a copy of the timesheet before sending it in!

SOME GENERAL ADVICE ON INVOICING!

1. Your invoices should be sent out quickly. They are second in importance only to your Sales Calls, so therefore make the time to set up the invoices and SEND THEM OUT ASAP!
2. When meeting with clients, establish what format they need the invoice in; some may prefer to be emailed a pdf version, while others they need hardcopy in the post
3. Make your invoices insistent. Make it clear that the client has to pay by a specific date. Why not say something like “This is due to be paid by OR To be paid before xx/yz/zz.)
4. When creating estimates for clients, make sure that you include your payment terms and/or payment schedule. That way they are clear from the outset when you will require the payment
5. State the fact that late payment can be subject to European Communities (Late Payment in Commercial Transactions) Regulations 2002. You are entitled to charge this interest and to cover your costs of collecting the payment
6. Also, on the invoice, you could consider having a statement in relation to the negative impact that late payment has on business generally
7. In the cover letter/email/compliments slip, request confirmation that the client has received it, and why not also request confirmation of the date on which the payment will be made?

8. You should find out WHO is responsible for clearing the invoice for payment, and who is responsible for processing the payment. Get the contact details for both parties and record them carefully in your system
9. If you don't passively receive confirmation from the client, actively send an email to them and ask again for confirmation of receipt and of payment date
10. Once you have a date agreed by which payment is to be made, take careful note of it in your system
11. A week or a few days before that date, email the client a reminder: "Just a reminder that this invoice is due to be paid by or before x/y/zz. With thanks…"
12. If payment is not received on the date, email the client again the very next day, attaching a copy of the invoice. Depending on your relationship with the client, you could also remind them that late payment fines are already taking effect
13. At that stage it becomes a credit control matter, which is another story for another day
14. ULTIMATELY, you need to have clear terms & conditions agreed with your clients up front in order for your invoicing to run smoothly. Get your clients to sign a document wherein those terms & conditions are clearly outlined, including the need for prompt payment

CONTAINERS AND PACKAGING
FRUITS & VEGETABLES



By
Karen L. B. Gast

There is an old adage that "If you package it right, you can sell just about anything." It's no different for packaging fruits and vegetables—they must be packaged so customers will buy them.

Proper packaging is especially important when a grower is selling to a wholesale buyer. There is no uniformity in container size or weight standards for all fruits and vegetables, but individual crops have specific industry packaging standards. If the crops are not packaged accordingly, wholesale customers probably will not buy them. Reasons for specific industry standards are twofold:

- So everyone in the industry speaks the same "packaging" language. In other words, everyone knows what they are buying and selling.
- Crops have different requirements for handling, so different types of containers are made to fit them.

The generic term, "container," will be used in this publication to refer to boxes, cartons, lugs, flats, crates, bags, sacks and bulk bins. When a specific container is discussed, that term will be used.

Different container sizes and types have the disadvantage of making handling and transporting crops to markets difficult. Often, they do not fit well together on pallets in storage, or in trucks. Where the crop is grown also will influence the container size and shape. In the past, when fruit and vegetable production and distribution was regional, different regions developed specific container sizes for their own markets. That is why there are Long Island, Florida, Catskill and California wirebound crates. L.A., Sanger and Brentwood lugs are examples of cities developing containers to differentiate their produce.

The main functions of a produce container are:

- To prevent and reduce injury to the crop during transit and handling.
- To provide ventilation to hasten cooling and escape of heat caused by respiration.
- To reduce water loss from the crop.

Container Materials

Containers may be made of wood, styrofoam, and plastic, but corrugated fiberboard is the most popular rigid container. Each material has advantages and disadvantages. Stacking strength, length of storage, storage treatment, precooling method and cost influence the choice of material.

If the container has contact with water or ice, it should be made of water-resistant material. Nailed wooden boxes and wirebound wooden crates provide rigidity under moist conditions and have excellent stacking strength. Due to costs, though, they are being replaced by cheaper fiberboard or plastic containers.

Kansas State University
Agricultural Experiment Station and
Cooperative Extension Service

Fiberboard containers are often waxed to give them water resistance; otherwise they weaken if they become wet or moist. Thus, their use is limited to long-term storage in high humidity conditions, or when hydrocooling and top-icing are used in precooling. Telescoping construction, dividers and corner reinforcement are ways that fiberboard boxes have been made stronger.

Plastic containers, a relatively new type of container, have good stacking strength and are water resistant. They tend to be brittle, especially foam plastic, which shatters quite easily when dropped or handled roughly.

Nonrigid containers such as bags and sacks are made of burlap, cotton or plastic mesh or ventilated plastic film. They contain the produce, but offer no structural support. They allow good contact between the produce and ice for cooling and storage.

Bulk Bins

Bulk bins, originally used in harvesting, are now used for shipping and storage of some produce. Bin sizes vary, but there is a move to a standard 40 × 48-inch size with a palletized bottom for easy handling. Placement and type of bin vents varies. Most bulk bins are wood and stackable. Corrugated fiberboard bins that are attached to wooden pallets are mostly used for watermelons and other vine crops.

Bulk bins are replacing loose bulk loading and handling for commodities such as potatoes, onions, melons and squash. Bins reduce the amount of handling labor needed, and may reduce bruising of the fruits and vegetables.

Container Ventilation

Containers need to be vented to effectively lower and maintain produce temperature for storage. If the produce is precooled by room cooling or forced-air cooling, the cold room air must be forced through the containers to remove field heat. To ensure the longest shelf life, the produce must be precooled as quickly as possible. Vents allow cold air to be forced more quickly through the containers and produce.

Vents also allow the heat built up by respiration to escape. Produce exposed to high temperatures in unvented containers will usually have a shorter shelf life.

A well-made container has uniform venting, so when it is stacked the vents will match other containers. Matching is important so cold air can be pulled through a whole stack or pallet of containers.

Too much venting weakens a container, while too little venting restricts the air flow through it. A good rule of thumb is to have 5 percent of the container sides and / or ends vented. A few large vertical vents are better than many small round ones. A container with bags, liners and vertical dividers will eliminate the beneficial effects of vents. Most commercial box and carton companies have standard containers with effective venting spacings.

Wrapping

Wrapping pears and apples individually in tissue-type paper has been a common practice to reduce vibrational and impact bruising from other fruit in the container. Wrapping has become less common in recent years because skilled labor is required to wrap fruit properly and efficiently.

Palletization of Containers

Palletization or unitized handling (stacking containers on standard size pallets) is used to reduce the number of times an individual container is handled, and to reduce damage to the contents. Palletization is becoming an industry standard for handling large quantities of produce.

A standard pallet is 40 × 48 inches, and most containers are designed to stack on them (straight or crossed). To hold the stack on the pallet, some containers have interlocking tabs between the layers. “Break-away” glue is sometimes used between the layers, or the unitized pallet is wrapped with plastic film or mesh. When stacking and loading the pallet, care needs to be taken to match vents between containers. Standard container sizes are now being developed that fit interchangeably on the 40 × 48-inch pallet.

Labeling

Produce containers should be labeled *at each end* and *on the top* with the following information:

1. Commodity (potatoes, apples, etc.)
2. Size, count and / or net weight (50 count, 32 pounds, etc.)
3. Grade (U.S. Fancy, U.S. #1, etc.)
4. Packer / grower / shipper (name and address)
5. Packing date (1-23-91, etc.)
6. Quality assurance or control code (harvest date information, bin number, packing time, packer number, inspector number, gassing room number for tomatoes or honeydew melons, etc.)

It is most important to label the end of the container; this part of the box will be most visible when containers are stacked. The first four items let the buyer know who, what and how much. The last two items help with quality assurance or control of the produce. If there are problems, a quality assurance code system will help find the source of the problem.

Grades and Sizes

Besides having a specific size container, each crop is packed to a uniform grade and size. The grades are set by the U.S. Department of Agriculture or by states. Individual states are often more strict than USDA standards. Most buyers want at least U.S. Grade No. 1 or better. The difference between No. 1 and lower grades is the percentage of fruits or vegetables that do not pass the grade standards. The USDA publishes leaflets with grade standards for most crops. Single copies are free from:

Fresh Products Branch
Agricultural Marketing Service
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Sizing is an important part of packing a crop "right." The buyer wants a container with uniformly sized fruits and vegetables, and also wants them labeled appropriately. Size may be designated as the number or count in the containers; but some crops use actual produce size in length or diameter.

Number or count is the number of fruits or vegetables that will fit into the container. This is customarily called a "count pack." The "designated number" usually corresponds to a standard size range of the fruit or vegetables. For example, if you are packing melons as "18s," you cannot put six extra-large melons into a container with 12 extra-small melons and label it as a carton of "18s."

A different type of count is used most commonly with tomatoes packed in two-layer boxes (lugs). They are labeled as 4×4, 4×5, 5×5, 6×6, etc. A 6×6 lug indicates that the box has six rows of six tomatoes in each layer—36 tomatoes in each layer—with a total of 72 tomatoes per lug, which should weigh about 20 to 25 pounds.

Other crops are labeled by size, usually diameter. For example, a container may be labeled 2¼-inch peaches.

Containers may also have minimum weight ranges. Bulk or loose packaging may have a minimum weight range to compensate for slight differences in the produce. Containers are often overfilled to offset weight losses during handling, storage and transit. Precise container weights are usually found in wholesale produce containers that are packaged with individual 1- to 5-pound bags for retail sales, called "consumer packs." Individual consumer packs within a wholesale container also are used with volume units. Berry fruits are the most common example where 12 to 24 half-pint, pint or quart boxes are packed in a flat or carton. The wholesale box containing consumer packs is called a "master."

Conclusions

Washing, drying, sorting, grading and packing crops into the right container is a good start, but it will not be good enough for most wholesale buyers and brokers. The packed produce must be at a proper storage temperature when it is delivered before most buyers will accept it. Ideally, the produce should be precooled rapidly to storage temperature before or after packing. Precooling will ensure the longest produce shelf life. Packed and precooled produce must be stored at optimum storage temperatures until it is delivered to the buyer.

For more information on optimum storage conditions (temperature and relative humidity) for specific crops, read K-State Research and Extension Bulletin MF-978, *Postharvest Management of Commercial Horticultural Crops: Storage Conditions—Fruits and Vegetables.*

VEGETABLES

Asparagus—Asparagus is sold by weight in the standard containers listed in Table 1. Spears may be loose-packed, or bundled vertically in pyramid crates. Vertical packing keeps the spears straight. Spears are sized by diameter and must be at least 5/16 inch in diameter to be sold. USDA size grades are:

Small = 5/16 inch to less than 8/16 inch diameter
Medium = 8/16 inch to less than 11/16 inch diameter
Large = 11/16 inch to less than 14/16 inch diameter
Very Large = 14/16 inch and up diameter

Beans, snap—Snap beans are sold by weight and bulk-packed in bushel hampers and cartons. They are sized by diameter.

Sieve size	Diameter (to but not including)
No.1 =	12/64 – 14.5/64 inch
No.2 =	14.5/64 – 18.5/64 inch
No.3 =	18.5/64 – 21/64 inch
No.4 =	21/64 – 24/64 inch
No.5 =	24/64 – 27/64 inch
No.6 and larger =	27/64 inch and larger

U.S. No.1 grade snap beans must have a maximum sieve size of 4; U.S. No.2 has no upper limit. Both have a minimum diameter of 12/64 inch.

Beets, bunched or topped—Beets are sold by weight and packed in the containers given in Table 1. They are usually sold bunched with 12 beets per bundle with tops attached, or loose with tops trimmed short or removed. Short-trimmed tops cannot be more than 4 inches long; topped beets cannot be more than ½ inch in length.

Broccoli—Broccoli is usually sold in cartons holding 14 and sometimes 18 individual heads, or bunches of stems of uniform size. Cartons weigh 20 to 24 pounds.

Brussels Sprouts—Brussels sprouts are packaged in 25-pound bulk-pack cartons, or in flats holding 12 10-ounce consumer-ready cups. They should be greater than 1 inch and no more than 2 ¾ inches in diameter.

Cabbage—Cabbage is sold by weight, in bulk or 50-pound sacks or cartons. Packages are labeled with head size: Small=less than 2 pounds, Medium=2 to 5 pounds, and Large=greater than 5 pounds. Sometimes head size is given as the number of heads in a 50-pound container.

Carrots, bunched or topped—When carrots are bunched with the tops left on, the bunches must weigh more than 1 pound and contain at least 4 carrots. They are packed 24 bunches to a crate. Topped carrots are packed in consumer-ready 1- or 2-pound poly bags that are packed in 48-pound units. Carrots also are packed loose in bulk containers.

Cauliflower—Cauliflower is usually packed in a flat or 2-layer carton of 9 to 16 trimmed and film-wrapped heads. A size designation is usually given that corresponds to the number of heads in the carton. The number 9 heads are larger than number 16s.

Corn, sweet—Sweet corn is packed with 5-dozen ears in cartons or wirebound crates. It is also packed in bags.

Cucumbers—Cucumbers are most often packed in 1⅑ bushel cartons. Size is based on diameter and length. Small cucumbers have diameters between ½ and 2 inches. Large cucumbers have diameters greater than 2¼ inches and lengths longer than 6 inches. If cucumbers are packed in smaller cartons, they are sold by count packs.

Cucumbers, greenhouse—Greenhouse cucumbers are packed in smaller cartons than field-grown cucumbers. They have a carton weight of 12 or 16 pounds, and often are plastic-wrapped (shrink-wrapped) to prevent water loss.

Eggplant—Eggplants packed in 20- to 23-pound cartons are packed 18 to 24 per carton. Size is designated by number per container.

Garlic—Garlic is packed in bulk or in a carton containing consumer-ready packages of 2 bulbs each. Bulk-packed garlic is sized.

Garlic size designations	Diameter in inches
#11 Super-Colossal	$2\frac{15}{16}$ and up
#10 Colossal	$2\frac{11}{16} – 2\frac{15}{16}$
#9 Super-Jumbo	$2\frac{7}{16} – 2\frac{11}{16}$
#8 Extra-Jumbo	$2\frac{3}{16} – 2\frac{7}{16}$
#7 Jumbo	$1\frac{15}{16} – 2\frac{3}{16}$
#6 Giant	$1\frac{13}{16} – 1\frac{15}{16}$
#5 Tube	$1\frac{11}{16} – 1\frac{11}{16}$
#4 Medium Tube	$1\frac{9}{16} – 1\frac{11}{16}$

Greens—Greens include collards, dandelion greens, kale, mustard greens and Swiss chard. They are packed either loose or in bunches, 12 to 24 per carton.

Herbs—There are no USDA standards for most herbs, and few industry standards for packing containers. Most herbs are packed in airtight bags to prevent wilting. They are packed in bulk, or in bunches of 6, 12 or 30 per container. It is best to work closely with the buyer when packing herbs.

Lettuce: romaine, big Boston, bibb, leaf—These leafy types of lettuce are most commonly packed in cartons of 24 heads.

Melons: casaba, crenshaw, honeydew, muskmelon—Melons of uniform size are packed in various size boxes. Muskmelons are packed in containers that can range from 38- to 41-pound half-cartons to 80- to 85-pound jumbo crates. Honeydews are usually packed in 30- to 40-pound cartons. The other specialty melons are packed in 25- to 35-pound cartons.

Okra—Okra is packed in various size containers which have a standard packed weight. Okra is usually sold by weight.

Onions—Dry onions are sold by weight, but are packed in standard weight containers and packed to a uniform size. Size is determined by diameter.

Onion bulb size designation	Diameter in inches
Small	1 to $2\frac{1}{4}$
Repackers or Prepackers	$1\frac{3}{4}$ to 3 (60% or more 2 inches)
Medium	2 to $3\frac{1}{2}$
Large or Jumbo	3 or greater

Green onions are bunched and packed 24 or 48 bunches per container, depending on size. Green onions can be sized by diameter: Small=less than ½ inch, Medium=½ to 1 inch, and Large=over 1 inch.

Oriental Vegetables—Leafy and head-type oriental vegetables are often bunched and packed into standard containers.

Ornamental Gourds—There are no USDA grade standards; handling will depend on the buyer. Gourds are often sold by weight and packed in bulk bins, or sold like miniature pumpkins, 40 pounds in ½- to ⅝-bushel crates.

Peas, green and snow—Peas are packed in standard size containers as outlined in Table 1. They are sold by standard weight of the filled container.

Pepper—Bell peppers are packed by size into standard containers that have a specific filled weight. Sizes are small, medium, large and extra large.

Chili peppers have no official standards for size and count. Standard packing containers are covered in Table 1.

Potatoes—Potatoes are packaged by size and by count per 50 pounds.

Potato size designation	Diameter (inches)
Size A	$1\frac{7}{8}$ and up
Size B	½ to $2\frac{1}{4}$
Small	$1\frac{3}{4}$ to $2\frac{1}{2}$
Medium	$2\frac{1}{4}$ to $3\frac{1}{4}$
Large	3 to $4\frac{1}{4}$

Potato count	Approximate tuber weight (ounces)
Under 50	15
50	12–19
60	10–16
70	9–15
80	8–13
90	7–12
100	6–10
110	5–9
120	4–8
130	4–8
140	4–8
over 140	4–8

Pumpkins—Jack o'lantern and processing pumpkins are shipped in bulk or in bulk bins. Eating pumpkins (small pie types) may be packed in crates, cabbage cartons or sacks. Standard weight for these smaller packs is 40 or 50 pounds. Miniature pumpkins are packed in ½- to ⅝-bushel crates with a standard weight of 40 pounds.

Radishes—Radishes are packed topped or bunched with tops. Bunched radishes must be uniformly sized within the bunch. Sizes are: Small = ½ to ¾ inch diameter, Medium = ¾ to 1 inch diameter, Large = 1 to ¼ inch diameter, and Very Large over ¼ inch diameter.

Rhubarb—Rhubarb is often packed in cartons or lugs of 20 pounds. U.S. grade standards have guidelines on length and diameter.

Rhubarb Grades	Diameter	Length
U.S. Fancy	> 1 inch	> 10 inches
U.S. No.1	> ¾ inch	> 10 inches
U.S. No.2	> ½ inch	> 10 inches

Rutabaga—Rutabagas are packed in 25- or 50-pound sacks or cartons, packed topped and usually waxed. They must be greater than 1¾ inches in diameter.

Spinach—Spinach can be packaged loose in bulk, loose in consumer-ready packages, or bunched. Bunched spinach is usually packed 24 bunches to a 20- to 22-pound carton. Cartons holding 10-ounce consumer-ready plastic bags are packed 12 to a carton.

Squash

Winter squash includes green and gold Table Queen (acorn), turban, delicata, butternut, sweet dumpling, kabocha, golden nugget, buttercup, delicious, orange marrow, hubbard, banana, sweet meat, Mediterranean and calabaza. Winter squash is usually packed in bulk bins or smaller 40- to 50-pound crates, and sold by weight.

Summer squash includes zucchini, cocozelle, chayote, scallopini, yellow crookneck, yellow straightneck and sunburst. Summer squash is packed in a variety of containers with standard minimum weight requirements. It is also sized by small and medium categories.

Sweet Potatoes—Sweet potatoes are packed in containers that hold 40 or 50 pounds. U.S. grade standards cover the requirements for different sizes.

Sweet potato U.S. Grade	Diameter (inches)	Length (inches)	Weight (ounces)
U.S. Extra No.1	1¾ - 3¼	3-9	< 18
U.S. No.1	1¾ - 3½	3-9	< 20
U.S. No.2	< 1½	——	< 36

Tomatoes—Cherry tomatoes are sold in flats holding 12, 1-pint boxes or baskets. They are usually picked vine-ripe.

Plum tomatoes are usually packed in quart boxes or baskets, eight to a carton. They are also picked vine-ripe.

Mature green tomatoes are sold in bulk-packed cartons, holding approximately 25 pounds. They are sorted by size. Size designation is based on the number of tomatoes (in rows and columns) in a layer on a standard two-layer tomato lug.

Pink and vine-ripe tomatoes are usually packed by uniform size in a two-layer lug or tray pack. They have softened enough that bulk packing causes too much bruising.

Size designation of tomatoes

Name	Size	Inches (min.)	Inches (max.)
Maximum			
Large	4 × 5 and up	$3^{15}/_{32}$	and up
Extra Large	5 × 5 and 5 × 6	$2^{28}/_{32}$	$3^{15}/_{32}$
Large	6 × 6	$2^{17}/_{32}$	$2^{28}/_{32}$
Medium	6 × 7	$2^{9}/_{32}$	$2^{17}/_{32}$
Small	7 × 7	$2^{7}/_{32}$	$2^{9}/_{32}$
Extra Small	7 × 8	$1^{28}/_{32}$	$2^{4}/_{32}$

Turnips—Turnips are packed bunched with tops, with tops short-trimmed, or topped. Packing containers and weight requirements differ for each type of pack. Topped turnips are bulk-packed in mesh or poly film bags or bushel baskets, or packed in consumer-ready 1-pound plastic bags, 24 bags to a carton. Turnips with tops are usually bunched and packed in wirebound crates or bushel baskets, and have a required minimum weight of 25 pounds.

Watermelon—Watermelons are sold by weight and usually in bulk bins. Prices are quoted per hundredweight.

FRUITS

Apples — Apples are packed by count and weight. Apples sold by weight are usually packaged in consumer-ready 3-pound poly bags, 12 bags per carton. The apples are uniformly sized.

Apples are also sold by count, which is the number of apples of a certain diameter / size that will fit into a standard bushel carton. The larger the apple, the fewer per carton, so the lower the number designation. Apples can be bulk- or volume-filled into a carton, or place-packed into tray or cell packs in a carton. Tray or cell packs reduce the amount of injury to the fruit, but cost more because the tray and cell inserts must be purchased. Following is a summary of the fruit count and size, and packing arrangement for apples.

1. Count	2. Pack	3. No. row	4. Pieces per layer	5. Layers	6. Size inches	7. Paper size
216	3×3	6×6	36	6	2⅛	9"
198	3×3	6×5	33	6	2¼	9"
175	3×3	6×7	35	5	2⅜	9"
163	3×2	6×7	33–32	5	2½	9"
150	3×2	6×6	30	5	2⅝	10"
138	3×2	6×5	28–27	5	2¾	10"
125	3×2	5×5	25	5	2⅞	10"
113	3×2	5×4	23–22	5	3	10"
100	3×2	4×4	20	5	3⅛	11"
88	3×2	4×5	22	4	3¼	11"
80	2×2	5×5	20	4	3⅜	11"
72	2×2	5×4	18	4	3½	12"
64	2×2	4×4	16	4	3⅝	12"
56	2×2	3×4	14	4	3¾	12"
48	2×2	3×3	12	4	3⅞	12"

1. Count = Number of apples per carton or box.
2. Pack = Add the two numbers to get the number of rows per tray or layer.
3. Number per rows = 1st number is the number of fruit in 1st, 3rd and 5th rows in the layer / tray. 2nd number is the number of fruit in the 2nd, 4th and 6th rows in the layer / tray.
4. Pieces per layer or tray = Number of fruit per layer or tray.
5. Layers = Number of layers or trays per carton or box.
6. Size = Minimum fruit diameter for given count.
7. Paper = Size of wrapping papers if fruit is to be individually wrapped.

Apricots—Apricots are sold by count and weight. When bulk- or volume-filled into 24-pound lugs, apricots are sold by weight. The size is designated by diameter in inches, or by jumbo, large, extra large, etc. When the fruit is tray-packed, it is given a count number, and price is based on that number.

Berries—Blackberries, blueberries, raspberries and strawberries are sold by volume in half-pints, pints and quarts. They are usually packed 12 (or sometimes 24) to a single layer crate, flat or box. Blueberries can be labeled by size. The standard used is the number of fruit per pint.

Extra large = Fewer than 90 berries per standard pint
Large = 90–129 berries per standard pint
Medium = 130–189 berries per standard pint
Small = 190–250 berries per standard pint

Cherries—Sweet cherries are bulk- or volume-filled into lugs that hold 18 to 20 pounds. The lugs are often lined with polyethylene (plastic) bags to preserve quality. Sweet cherries can be sorted by size. Fresh sour cherries are rarely seen in retail markets, except near production areas. They are very perishable, and most go to processors close to the production areas. There are no standard packs for sour cherries.

Grapes—Grapes are typically sold by weight in 23-pound lugs. Eastern or American type grapes are often sold by volume, in cartons filled with 12, 1-quart containers packed similar to berries.

Nectarines—Nectarines are sold by count of uniformly sized fruit in a bulk- or volume-filled lug, or a two-layer tray pack. The volume-filled lug must be at least 25 pounds, and the tray-pack averages 22½ pounds. Size designations range from the larger 50 size (number per lug) to the smaller 84 size.

Peaches—Peaches are usually sold by weight and sometimes by count. Shipping containers are packed with uniformly sized fruit, usually designated by diameter in inches. They are packed bulk- or volume-filled, or in tray-packs. If fruit is ranch-packed, then tray-packing is used to protect the softer fruit from bruising.

Pears—Pears are usually sold by count in bulk- or volume-filled cartons, wrapped in bulk- or volume-filled cartons, or tray-packed in lugs. The greater the count number, the smaller the fruit size. Each carton must contain uniformly sized fruit.

Plums and Fresh Prunes—Plums and fresh prunes are usually sold by weight of bulk- or volume-filled half-bushel lugs, with a minimum weight of 28 pounds. Fruit size is designated as 3×4, 6×6, 5×5, etc. These designations originated with an old 4-basket crate pack. The numbers designate the number of rows and columns in the top layer of the baskets. A 3×4 lug would have larger fruit than a 6×6 lug.

Definitions

Box or carton—Usually refers to a corrugated fiberboard container. It may be a two-piece telescoping box, or a carton that closes with top flaps. The contents can be place-packed with liners and layer dividers, or bulk-filled.

Crate—Usually refers to a wooden, wirebound container. These are usually bulk-filled to a desired weight or, in the case of sweet corn, filled with 5-dozen ears.

Flat—Usually refers to a container that is place-packed in one or two layers, depending on the crop. Flats are also used to package produce that are packed in half-pint, pint and quart consumer-ready containers.

Lug—Usually refers to a container that is place-packed in two or three layers, depending on the crop. Lugs can also be bulk-filled. They are made of wood, corrugated fiberboard, or a combination of both. Standard dimensions are 16⅛ × 13¼ inches with varying depths.

References

Hardenburg, R.E., A.E. Watada and C.Y. Wang. 1986. *The Commercial Storage of Fruits, Vegetables and Florist and Nursery Stocks.* USDA-ARS Agriculture Handbook #66 (revised) 136p.

Kadar, A.A., R.F. Kasmire, F.G. Mitchell, M.S. Reid, N.F. Sommer, and J.F. Thompson. 1985. *Postharvest Technology of Horticultural Crops.* Cooperative Extension University of California, Division of Agriculture and Natural Resources Special Publication #3311. Oakland, CA.

Lorenz, O.A. and D.N. Maynard. 1988. *Knott's Handbook for Vegetable Growers,* 3rd ed. Wiley Interscience, New York.

1990 Produce Availability and Merchandising Guide. *The Packer*. Vance Publishing Corp. Overland Park , KS.

Ryall, A.L. and W.J. Lipton. 1979. *Handling, Transportation and Storage of Fruits and Vegetables,* Volume 1, 2nd ed. Vegetables and Melons. AVI Publishing Co., Westport, CN.

Ryall, A.L. and W.T. Pentzer. 1974. *Handling, Transportation and Storage of Fruits and Vegetables,* Volume 2. Fruits and Tree Nuts. AVI Publishing Co., Westport, CN.

Containers and Packaging

Adelman-Fisher Packaging
207 Walnut Street
Kansas City, MO 64106

Aargus Poly Bag Co.
1415 Redeker Rd.
Des Plaines, IL 60016
(312) 356-3341

Liberty Carton Co.
Agri-Pack Div.
870 Louisiana Ave.
Minneapolis, MN 55425
(612) 540-9615

Allied Fastener Corp.
133 N. 25th Ave.
Melrose Park, IL 60521
(312) 345-0063

Alton Packaging Corp.
401 Alton St.
Alton, IL 62002
(618) 466-6552

Anderson Box Co.
Park Fletcher Station
Box 41264
Indianapolis, IN 46241
(317) 248-8086

Chesmore Seed Company
1302 S. 4th Street
St. Joseph, MO 64501
(816) 279-0865

Cordage Packaging
8112 W. Thomas St., Apt. 3
Justice, IL 60458
(312) 496-3152

Fresh-PAK
P.O. Box 256
Stevensville, MI 49127
(616) 429-3295

International Paper Co.
635 Northwest Ave.
Northlake, IL 60164
(312) 562-6900

Jacksonsville Box & Woodwork Co., Inc.
(tomato lugs)
P.O. Box 3447
Jacksonville, FL 32206
(904) 354-1442

Love Box Company, Inc.
3380 Centennial Road
Salina, KS 67401
(785) 823-7354

Pacific States Box and Basket Co.
(berry boxes; baskets)
1295 S. Los Angeles St.
Glendale, CA 91209
(213) 245-5711

Package Research Laboratory
2406 Shooting Park Rd.
Peru, IL 61354
(815) 223-7700

Packaging Corp. of America
1603 Orrington
Evanston, IL 60204
(312) 492-6956

Ridge Pallets, Inc.
(Bulk bins, pallets)
P.O. Box 819
Bartow, FL 33830
(813) 533-1147

Rockford Package Supply, Inc.
10421 Northland Drive
Rockford, MI 49341
800-444-7225 or (616) 866-0143

Smalley Package Company, Inc.
(bulk bins, pallets, baskets)
P.O. Box 231
Berryville, VA 22611
(703) 955-2550

Table 1. Standard size and net weights of common containers used for fresh vegetables.

Vegetable	Container	Approximate net weight (lb.)
Asparagus	Pyramid crate	30–36
	Half pyramid crate or carton	15–17
	Carton holding 16, 1½-lb. pkgs.	24–25
Bean, snap	Bushel crate hamper, or basket	28–32
	Carton	20–22
Beet		
Bunched	1⅖-bushel crate, 24s	36–40
	⅘-bushel crate, 12s	15–20
Topped	Sacked, as marked	25–50
Broccoli	Carton holding 14–18 bunches	20–24
Brussels	Carton	25
Sprouts	Carton holding 12 10-oz. cups	7½–8
Cabbage	Sack, crate or carton	50–55
Carrot		
Bunched	Carton holding 2 dz. bunches	23–27
Topped	48, 1-lb. or 24, 2-lb. bags in master container	48
	Mesh bag, loose or as marked	25–55
Cauliflower	Flat or 2-layer carton holding 9–16 trimmed heads	18–24
	Long Island type crate	45–55
Chinese		
Cabbage	15½-in. wirebound crate	50–53
	1⅑-bushel wirebound crate	40–45
Corn, sweet	Wirebound crate 4½–5 dz.	42–50
	Sacks	35–40
Cucumber	Bushel carton or wirebound crate	50–55
	1⅑-bushel carton or wirebound	50–55
	Los Angeles lug	28–32
Cucumber, Greenhouse	Carton holding 1-layer pack	8–10
	Carton	16
Eggplant	Carton packed 18s and 24s	20–23
	Bushel carton, 1⅑-bushel carton or wirebound crate	30–35
Garlic	Carton or crate, bulk	20
	Carton or crate, bulk	30
	Carton of 12 pkgs. of 2 bulbs ea.	10
Greens	Bushel basket, crate, carton	20–25
	1⅖ or 1⅗ bushel, crate or carton	30–35
Herbs, Fresh	Bulk, bunched-packed 6, 12, or 30 per carton.	Varies
Lettuce		
Romaine	1⅑ bushel wirebound crate	20–25
Big Boston	Carton & eastern carton holding 24 heads	20–24
Bibb	Carton	5–8
Leaf	Carton	10–13
Melon		
Casaba	Carton, bliss style, packed 4, 5, 6 or 8	32–34
Crenshaw	Carton, bliss style, packed 4, 5, 6 or 8	30–33
Honeydew	Flat crate standard	40
Muskmelon	½-carton or crate packed 12, 15, 18, 23	35–40
	Jumbo crate packed 18 to 45	70–80
	⅔-carton packed 15, 18, 24, 30	53–55
Watermelon	Bulk bin, medium size	1,400–1,800
	Carton holding 3–5 melons	65–80
Okra	Bushel hamper or crate	30
	⅝-bushel crate	18
	Carton	18
	12-qt. basket	15–18
Onion		
Dry	Sack	50
	Sack	25
	Carton holding 15, 3-lb. bags	45
	Carton holding 20, 2-lb. bags	40

Vegetable	Container	Approximate net weight (lb.)
Green	Carton / crate holding 4 dz. bunches	15–25
	Carton / crate holding 2 dz. bunches	20
	Carton	13
Pearl	Carton holding 12, 10-oz. containers	8
Oriental Vegetable	Lug	25–28
	Crate	75–80
	Carton	20–22
	Wirebound crate	45
Ornamental Gourds	½- to ⅝-bushel crate	40
	Bulk or Bulk bins	900–1200
Pea		
Green	Bushel basket or wirebound crate	28–32
Snow pea	Carton	10
Pepper		
Green	Bushel carton	25–30
	1⅑-bushel wirebound crate	25–30
Chili	Carton	27–34
	Lugs or carton, loose pack	16–25
Potato	100-lb. sack	100
	50-lb. sack or carton	50
	20-lb. film or paper bags	20
	5, 10-lb. film or paper bags	50
	10, 5-lb. film or paper bags	50
Pumpkin	Bulk	Semi-load
	Bulk bins	900–1,200
	1⅑-bushel crate	40 or 50
	½- to ⅝-bushel crate	40
Radish		
Bunched	Carton holding 4-dz. bunches	25
Topped	Carton holding 24, 8-oz. film bags	12
	Carton holding 30, 6-oz. film bags	11–12
Rhubarb	Carton or lug	20
	Carton	5
Rutabaga	Bag or carton	25
	Sack or carton	50

Vegetable	Container	Approximate net weight (lb.)
Spinach	Carton or wirebound crate holding 2 dozen bunches	20–22
	Carton holding 12, 10-oz. film bags	7½–8
	Bushel basket or crate	20–25
Squash		
Winter	1⅑-bushel crate	40–50
	Bulk bin carton, collapsible and reusable	800–900
	Various bulk bins	900–2,000
Summer	⅝-bushel crate or carton	21
	½-bushel basket or carton	21
	Carton or Los Angeles lug	24–28
	¾-lug	18–22
	1⅑-bushel crate	42–45
Sweet Potato	Carton, crate or bushel basket	50
	Carton, California	40
Tomato		
Cherry	Carton holding 12 pints	16–18
Mature green	Carton	25
Pinks & ripes	2-layer flat, carton or tray pack	20
	3-layer lug or carton	30
	Carton, loose pack	20
Turnip		
Topped	Film bag	25
	Film & mesh bag or bushel basket	50
	Carton holding 24, 1-lb. film bags	24

Table 2. Standard size and net weights of common containers used for fresh fruits.

Commodity	Container	Capacity cu. in.	Net weight (lb)
Apples	Tray pack carton	2,880	40–45
	Bushel carton (face and fill)	2,150	40–44
	Carton, cell pack	—	36–38
	Carton, tray pack	2,785	41–43
	Northwest wood box	2,174	41–43
Apricots	Lug	630	14 min.
	Lug	1,449	28 min.
Berries	24 qt. wirebound crate	1,613	27–36
	24 qt. wirebound crate	806	13–18
	12 pt. tray	403	7–9
Cherries, Sweet	Wood lug (face and fill)	610	15 min.
	Wood lug (loose)	870	20 min.
Grapes	Wood lug or carton	1,250	26–28
	12 qt. basket, eastern grapes	806	18
Nectarines	Wood box	778	18
	Carton	1,066	25
	4-basket crate	1,286	29
Peaches	¾-bu. basket (bulge)	1,613	36–39
	½-bu. basket (flat)	1,075	24–26
	Wirebound crate	1,820	38–42
	Wood lug	1,250	22–24
Pears	Standard wood box	1,760	44–46
	Wood lug	880	21–24
Plums and Fresh Prunes	L.A. wood lug	1,252	27–32
	4-basket crate	1,070	25–27
	Northwest prune lug	532	12–14
	½-bu. basket	1,075	25–32

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-979 March 1991

File code: Horticulture—11 (commercial) 3-91—2M; 3-98—300

PREPARATION OF ACCOUNTS RECEIVABLE INVOICE

1. Payer Name and Address - Enter the name and complete address of the party or parties responsible for the debt.

   When necessary, utilize the "Explanation of Charge" field for additional identification.

2. Mail To - Enter the complete name and exact address where remittances should be sent by the payer. For example:

   Illinois Department of Transportation
   District One Office
   201 West Center Court, Room 404
   Schaumburg, Illinois 60196-1096

   or

   Illinois Department of Transportation
   Central Bureau of Construction, Room 313
   2300 South Dirksen Parkway
   Springfield, Illinois 62764

3. Responsibility Code - Enter your organization's four digit responsibility code. Districts should use their administrative service code of 9X70.

4. Invoice Number - Invoices are prenumbered and preprinted for control purposes. Process all invoices, including voids, in sequential order.

5. Invoice Date - Enter the month, day, and year in which the invoice is prepared. Invoices which cannot be submitted to Accounts and Finance prior to cut-off should carry the first day of the subsequent month. You may utilize the space below the "Invoice Date" field to show the actual date submitted.

6. Revenue Code - From the current Chart of Revenue Account Codes, assign the appropriate revenue code. For example, an invoice pertaining to rental income would carry a revenue code of 6402. See Chart of Revenue Account Codes on page 1-10.

7. Claims Number - If the invoice is the result of a damage claim, enter the six digit claims number with hyphen, i.e., 5-00000. If the invoice is the result of a worker's compensation claim, enter the seven digit worker's compensation claim number with hyphen, i.e., 900-0000. For all other invoices, leave this field blank.

LA7041A (Rev. 01/06)
(Replaces Exhibit 7.04-1A)

8. Audit Number - When the issuance of an invoice is the result of an audit finding, enter the audit report number in the field provided. For example: 89-14-71 or 90-16-102.

9. Payer Number - From the current payer number listing(s), enter the payer number which exactly matches payer name, address, revenue code, claim number, parcel number, etc. If an exact match cannot be found, then leave blank. If the payment is for a damage or worker's compensation claim, leave the "Payer Number" field blank and ensure that "Claims Number" field contains the correct entry. Note--preceding zeros are not necessary in payer numbers. For example, if the payer number is 00150, write 150 in the "Payer Number" filed of the invoice.

10. Explanation of Charge - Enter a brief explanation for the billing plus additional information as needed to satisfy the policies, procedures, and needs of the various parties concerned. All invoices for project related revenues and refunds require a properly completed Uniform Code Stamp.

    When the Uniform Code Stamp is required, affix the stamp to the last three copies of the Accounts Receivable Invoice (not the original) and complete the stamp according to the directions listed in Chapter 2, Section 4, beginning on page 2-8. Other information required may include a state job number, route, section, county, project, parcel, obligation, rental period, itemization of costs, etc. Land Acquisition rentals must show "IMPROVED" or "UNIMPROVED." Also, provide information, such as payer number, invoice number, work order number, etc., which will help the payer/debtor identify the billing.

11. Amount - The "Amount" field may be used to show various subtotal dollar extensions. If not used for subtotaling or itemization, show invoice total amount.

12. Payment Due Date - The State Comptroller requires that formal due dates be established for all receivables.

    The Comptroller recommends that due dates fall no later than thirty days after the receivable is recognized unless contractual terms or specific industry standards require other treatment. Since an Accounts Receivable Invoice is to be issued as soon as the receivable is recognized (see Chapter 1, Section 3, page 1-4, entitled "Revenue Recognition"), you may use the invoice preparation date as the first day in the due date computation. Thus, count 30 days from the invoice date and enter the due date in the field provided.

    Districts and bureaus wishing to deviate from the 30 day standard may determine their own due date criteria. A copy of their procedures should be submitted to the Accounts and Finance Section. Once Accounts and Finance has approved the submittal, the procedures will be kept on file for review by internal and external auditors.

The establishment of due dates is sometimes difficult since it is not always known whether an invoice will be paid lump sum or by installment. To address this problem, we have developed the following guidelines:

a. If the invoice is to be paid by installment, calculate and show the final due date (which may be months or years away), the number of installment payments, and the monthly installment amount on the invoice.

b. If the invoice is to be paid lump sum or if the method of payment is not known, assume lump sum and calculate and enter the due date on the invoice, as described in the first paragraph above.

c. If the method of payment changes from lump sum to installment at a later date, calculate and show the new due date, the number of installment payments, and the monthly installment amount on the Accounts Receivable Remittance Statement in the "First Time Installment Information" field.

d. If the method of payment is specified in an agreement, calculate and show the due date as per the terms of the agreement. Since many agreements call for payment to occur before the originating office has sufficient information to prepare an invoice, the invoice preparation date may be used as the due date.

13. Invoice Total - Enter the total dollar value of the invoice in this field even if the same amount appears in the "Amount" field.

Illinois Department of Transportation

Invoice

(1) John D. Smith
111 N. South Street
Anytown, IL 62700-0500

Responsibility Code 9X70 (3)

Invoice Number 48500 (4)

Invoice Date 7/1/90 (5)

Make check payable to the TREASURER, STATE OF ILLINOIS and mail to:

(2) Illinois Department of Transportation
District X
123 Highway Road, P. O. Box 302
District City, IL 62700-0302

Revenue Code 6501 (6)

Claims Number 5-00000 (7)

Audit Number (8)

Payer Number (9)

Explanation of Charge	Amount
D/A: May 28, 1990 (10)	(11)
Damage: Bridge Rail	
Driver: John D. Smith	
Location: Southbound I55 on Campbell Bridge	
Aluminum bridge rail/concrete repairs by contractor low proposal	$ 2,059.00
STATE OF ILLINOIS CHARGES:	
Material: 3 posts and anchors @ $52/ea.	156.00
4 sections of 4" aluminum rail @ $3/ft.	102.00
Labor: 1 man 1½ hours @ $21.47/hr.	32.21
Equipment: 1 truck 1½ hours @ $6.00/hr.	9.00

Payment Due Date 7/31/90 (12)

Invoice Total (13) $ 2,358.21

Illinois Department of Transportation

Invoice

(1) Jane A. Doe
1117 Main Street
Anytown, IL 62700-0500

Responsibility Code 9X70 (3)

Invoice Number 48501 (4)

Invoice Date 7/1/90 (5)

Make check payable to the TREASURER, STATE OF ILLINOIS and mail to:

(2) Illinois Department of Transportation
District X
123 Highway Road, P. O. Box 302
District City, IL 62700-0302

Revenue Code 6402 (6)

Claims Number (7)

Audit Number (8)

Payer Number 1788 (9)

Explanation of Charge	Amount
FA Route 789 (10) Section 2 Corn County Job No. RC-9X-017-88 Parcel No. 8117068 Rental of State property for the month of August, 1990. IMPROVED	(11) $ 250.00

VENDOR	SCHEDULE	ITEM	INV. DATE	INV. NO.
			7-1-90	48501

FUND	AGENCY	A-OBJ.	SEQ.-TYPE	E-OBJ.
999	49499	9999	0000	9999

OBLIGATION	RESP.	TOTAL AMOUNT	SPLIT
	9X55	$250.00 CR	N

F/P	P-PRO.	CONT.-NO.	FUNC.	SEP/T.
			315	

SEC.-SUB.	DST.	CAT.	W-ACT.	CO.	PARCEL NO.
				119	8117068

PRCLS.	ACRES	IMP.	FT/S.	JOB-NO.	PC.
		01	010 L	RC-9X-017-88	1

Payment Due Date 8/1/90 (12)

Invoice Total	(13)	$ 250.00

Hugh E. Weathers
Commissioner

State of South Carolina
Department of Agriculture

Food Safety Division

Mailing Address
PO Box 11280
Columbia, SC 29211

Physical Location
123 Ballard Court
W. Columbia, SC 29172

Laboratory
803.737.9700

Consumer Services
803.737.9690

803.737.9703 (FX)
www.agriculture.sc.gov

Application for Registration Verification Certificate (RVC)

Section 1 Business Information

Name of Applicant(s) and Title_____
Name of Business _____
Address of Processing Facility _____City_____ Zip_____
Applicant Mailing Address_____City_____Zip_____
County_____ (Phone) _____ (Alternate) _____
Email _____

Attach a **Brief Business Plan: nature of business, hours of operation, employee size, and distribution area.

Section 2 Type of Business

___ Manufacturer/ Processor ___ Distributor/Warehouse ___ Salvager ___ Copacked ___ Cosmetic

Section 3 Product Information

___ Acidified Foods (pickled)**
___ Baked Goods
___ Candy/Confections
___ Catfish***
___ Cheese *
___ Dessert Foods
___ Dry/Nonperishable Foods
___ Egg*
___ Honey
___ Jams/Jellies*
___ Juice***
___ LACF**
___ Multiple Food Packages
___ Pasta
___ Sandwiches
___ Sauces/Condiments
Marinades/Dressings**
___ Seafood***
___ Peanuts
___ Dry Rubs/Spices
___ Other (specify) _____

* These products may require specialized training, licensing, certification and/or analysis to sell and produce.
** Provide a copy of product analysis from a processing authority for shelf stable canned/jarred/bottled products. Provide a copy of Better Process Control School certification for all acidified and LACF products.
***Provide a copy of HACCP certification for juice and seafood/fish products.

Note: You must notify the South Carolina Department of Agriculture (SCDA) if your firm relocates, goes out-of-business, becomes inactive, manufactures new types of products, or makes any changes that will affect your registration status.

If your product is Co-packed or Co-Bottled by another firm, please provide all pertinent information including Co-packer's name, address, contact name and telephone number, Co-packer's SCDA registration number or out-of-state's permit/license number. (Please use additional sheets, if needed.)

_____
_____
_____

Is your *finished* product(s) sold:

___ Canned	___ Frozen	___ Shelf Stable
___ Jarred/Bottled	___ Refrigerated	___ Other (Specify) _____

Section 4 Product Labeling

Please **submit a copy of your sample label or proof** of your current or proposed label for review. Labels MUST be in compliance with the **Fair Packaging and Labeling Act** AND the **Food Allergen Labeling and Consumer Protection Act**. Please refer to **Our Favorite Product** for Guidance. **ALL email submissions must be in PDF format.**

Section 5 Facility Use (Share kitchen)

SCDA regulated Specialty Food firm using a SC Department of Health and Environmental Control (DHEC) inspected kitchen: The owner/operator of the DHEC kitchen must get approval from their DHEC inspector to allow the use of their kitchen. The owner/operator of the DHEC kitchen **AND** the Specialty Food Manufacturer must submit, in writing, a statement granting the Specialty Food Firm permission to use the DHEC **kitchen during non-operational hours**. The letter must be submitted to SCDA and DHEC prior to manufacturer and sale of product. DHEC, as the primary agency, can refuse permission for the Specialty Food Manufacturer to operate in the DHEC kitchen if in their opinion the operation would adversely impact the operation or maintenance of the DHEC facility.

**Please Submit Permission Letter from DHEC Restaurant Owner/Operator.

Section 6 Signature of Applicant

Submit this application and all requested information to: aculler@scda.sc.gov or SCDA, Food Safety and Compliance, c/o Angie Culler, 123 Ballard Court, W. Columbia SC 29172.

By signing this application, you are confirming that all is accurate and true. Failure to supply all requested information will result in delay in processing application. The Food Safety Officer in your county will arrange an inspection of your facility, process, and product and may request additional information at that time. **Upon a compliant inspection**, you will be registered with the SCDA and will be permitted to produce, distribute and/or sell your product. A registration number and RVC certificate will be issued.

_____ _____

Applicant Name/ Signature Date

For Official use only

___ Compliance inspection Date __/___/_____
___ Label(s) reviewed and in compliance
___ pH Analysis and Process Schedule
___ Certification of Better Processing Control School/HACCP
___ Co-packer information verified Date __/___/____
___ Permission Letter Received Date __/___/____
___ Registration Certificate No._____
___ Registration Updated_____

Revised Apr 2013

carolina farm stewardship association

Good Agricultural Practices for Small Diversified Farms

Tips and Strategies to Reduce Risk and Pass an Audit

DEVELOPED BY

North Carolina State University and the Carolina Farm Stewardship Association

Authors: Benjamin Chapman, Ph.D., Audrey Kreske, Ph.D., and Roland McReynolds, Esq.

This manual made possible by a Specialty Crops Block grant awarded by the U.S. Dept. of Agriculture and the North Carolina Dept. of Agriculture and Consumer Services

carolinafarmstewards.org

Table of Contents

About the Opening Markets Project

The farms participating in this research project all had less than 30 acres in production and harvested crops a majority of the year. In many cases they also managed livestock on the property, employed small staffs or had no staff besides the farm operators themselves, and used the farm operators' house bathrooms for worker hygiene. This manual is based on lessons and tips learned from experiences these small-farm operators went through in an attempt to gain a GAP certificate.

This research and manual were made possible by funding from a North Carolina Specialty Crops Block Grant, awarded by the NC Dept. of Agriculture and Consumer Services, and the US Dept. of Agriculture. The authors thank both agencies for this support.

Introduction

About this Manual

Many small-farm operators identify the food safety certification process as a roadblock to getting their fresh produce into food service, institutional, and retail markets. Through a partnership with Carolina Farm Stewardship Association, North Carolina State University/North Carolina Cooperative Extension faculty conducted research in 2011 and 2012 to evaluate and quantify the barriers that small-farm operators face in attaining food safety certification.

The aim of this project was to document real-world examples of how small, diversified farms could cost-effectively manage food safety risk, and meet the standards set in the US Department of Agriculture (USDA) Good Agricultural Practices (GAP) certification program. The goal was to see whether it was possible for these types of farms to actually pass a GAP audit, without breaking the bank and without requiring them to change their crop production practices. The intent of this manual is to share tips and strategies learned from this research that other small, diversified produce farms can employ to meet GAP certification requirements imposed by potential buyers.

This manual and research are intended to help you level the playing field when working with a GAP auditor, and to give you the tools you need to show an auditor that you have an effective food safety program. To make the most of this document, it is best to have a copy of the USDA GAP audit checklist at hand.

Audit Tip #1
Understand your potential buyer's needs.

If an existing or potential customer asks for GAP certification, find out what they really mean. What are their actual concerns and audit sections they require to address those concerns? Especially for farm-to-school customers, is there a particular distributor the customer works with that is already certified to serve the local school district, and can you get approved for that school system simply by using that distributor to deliver your products? Depending on your operation, particular audit sections may be more or less costly for you to address. For instance, Part One -Farm Review and/or Part Two -Field Harvest and Field Packing may be more approachable for farms that are just getting started with food safety certification.

USDA Good Agricultural Practices (GAP) vs. Good Handling Practices (GHP) Audits

The USDA GAP and GHP (Good Handling Practices) audit program is a voluntary independent audit based on recommendations made in the US Food and Drug Administration's *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* (FDA, 1998). Although known as the USDA GAP audit, it is not federal regulation, but a market-driven certification program: A buyer makes the choice to require a farm to obtain this food safety audit before it will buy produce from that farm. GAPs cover on farm production and harvesting practices, and GHPs cover packing, storage and distribution of crops.

Any farm or packing house seeking a USDA GAP/GHP certification must complete the General Section, but otherwise, buyers' expectations vary. A local farm-to-school program, for instance, may be satisfied if participating farms simply supply their produce to the school through a GHP-certified distributor. To pass any section, you must earn at least 80% of the points available in that section. You can choose to have a single crop or multiple crops included in your GAP certification. Generally, the auditor needs to be able to observe your harvesting and/or packing process for a crop in order for it to be covered by your certification. The certification is good for 12 months from the date the auditor issues your certificate.

NOTE This manual is intended to address only the 'General', 'Farm Review' and 'Field Harvest and Field Packing Activities' sections of the USDA GAP audit program. It does not cover the GHP sections, 'House Packing Facility' and 'Storage and Transportation.' Table 1 provides an overview of the sections included in the audit related to harvesting and packing activities.

TABLE 1 USDA GAP/GHP Audit Section

PROGRAMS	SECTION	TOTAL POINTS (80% needed to pass)	SUMMARY
General Section	Mandatory section	180 (144)	Includes the food safety plan, traceability, worker health and hygiene and pesticide/chemical use
Good Agricultural Practices	Part I Farm Review	190 (152)	Includes farming operations during the growing season such as water usage, the presence of animals, wildlife, livestock, the use of manure and land history
	Part II Field Harvest and Field Packing Activities	185 (148)	Includes the pre-harvest assessment, bathroom facilities, harvesting containers and equipment, transportation and clean up procedures
Good Handling Practices*	Part III House Packing Facility	290 (232)	Includes water use, treatment of processing water, cleaning program, worker health and hygiene, containers and pest control
	Part IV Storage and Transportation	255 (204)	Includes mechanical equipment, ice and refrigeration, cleaning program, worker health and hygiene, transportation and loading, and pest control

USDA GAP and GHP audits are performed by auditors working for your state Department of Agriculture. These auditors are, in turn, certified by the USDA. Contact the inspection office in your state to schedule your audit and ask questions about the process.

*NOTE Part III and Part IV are outside the scope of this manual.

NORTH CAROLINA

North Carolina Department of Agriculture & Consumer Services
Cooperative Grading Service
P.O. Box 588 Williamston, NC 27892
www.ncgradingservice.org
(252) 792-1672 phone; (252) 792-4784 fax

SOUTH CAROLINA

South Carolina Department of Agriculture, Fruit & Vegetable Inspection Service
P.O. Box 11280, Columbia, SC 29211
(803)737-4597 phone; (803)737-4667 fax

The Market Value of GAP Certification

Attaining GAP certification ultimately opens up new markets to you that require a food safety certificate such as schools, major retail grocery stores or wholesalers. The majority of the farms that participated in the research that this manual was built upon reported that their current buyers (retailers, food service operations and consumers) did not require GAPs certification. However, many participants also said that they believed that more buyers would require some sort of inspection or certification in the near future. The NC and SC Farm-to-School programs both require USDA GAPs certification or equivalent private certifications. Producers who have identified these markets as a growth area for their business report that they did not believe that they would receive a premium for a GAP-certified product, and that the access to the new market was the only benefit.

GAPs vs. the National Organic Program

Many of the farms participating in this research program were already third-party certified under the USDA's National Organic Program (NOP), and others followed NOP practices but were not certified organic. For produce to be sold as 'organic,' it must be certified as being grown in accordance with practices and standards developed by the Agricultural Marketing Service as part of the National Organics Program. These regulations detail the practices that are accepted and prohibited in the growing, cleaning, packaging, and marketing of products labeled as organic. The regulations include requirements for maintaining and improving soil health and fertility and specifically prohibit the use of synthetic fertilizers, soil and product fumigants, and chemical pest control practices in organic production. In addition, sewage sludge may not be used in the production of the crops, and crops may not be processed using ionizing radiation. The regulations include a National List of Allowed and Prohibited Substances to guide growers and certifying entities in the use of the label.

One concern identified by operators of certified organic farms regarding GAP certification is that once approved, a farm's organic certification applies to all produce, grain and oilseed crops produced on that farm, whereas a GAP audit only certifies specific crops. Organic farmers expressed concern that this crop-by-crop approach would require multiple audits and duplicative efforts compared to organic certification. In our research, this concern proved to be less significant than expected. A GAPs auditor can certify multiple crops at once, and will certify types of similar crops as opposed to individual cultivars; GAP certification is based on the way crops are handled in harvesting and packing. For instance, if requested, an auditor will certify all leafy greens from observing the production and harvest process of one leafy green crop on your farm—you do not have to get kale, chard, collards, leaf lettuces, etc., certified individually. Moreover, under certain circumstances, an auditor may approve GAP certification for all crops grown on the farm, if requested. For more information, see the section 'Planning Steps' in Chapter II.

Table 2 shows some of the major similarities and differences between the NOP and GAPs.

TABLE 2 Comparing NOP to USDA GAP

	NATIONAL ORGANIC PROGRAM	USDA GAPS
Type of Audit	Audit farm inputs/outputs from documentation regarding organic growing methods	Audit farm practices from documentation and observation regarding risks of contamination
Cost	Baseline price + Price per acre	$92/hour (includes conducting the audit, travel time and preparatory time), $50 website administrative fee
Duration of Certification	Annual	Annual
Raw Manure Application	Incorporated into the soil… …not less than 120 days prior to the harvest of a product whose edible portion has direct contact with soil. …not less than 90 days prior to the harvest of a product whose edible portion does not have direct contact with the soil surface or soil particle.	Incorporated into the soil… …at least 2 weeks prior to planting or a minimum of 120 days prior to harvest. …but not applied to commodities harvested within 120 days of planting, such as leafy greens; manure must have been incorporated into soil at least 120 days before harvest of such crops.
Similar documentation	Field map, land history, seed stock documentation, manure application, compost monitoring, cleaning records of equipment and transportation, traceability.	

TABLE 3 GAP Audit Planning Process

The Audit Process

Understanding the nuts and bolts of the GAP audit process is the foundation for mastering an inspection. The critical idea is to prioritize the safety concerns relevant to your farm based on risks and your resources available to address those risks. With a few important exceptions, a GAP inspection is not a 'one strike and your out' process. Good preparation and knowledge of how audit scoring works allows you to maximize your chances of passing and minimize your time and expense in implementing food safety practices and record keeping protocols.

Planning Steps Before Scheduling an Audit

Once you have decided to pursue GAP certification and identified what parts of your operation you want audited, there are three key issues to consider in planning for the actual inspection.

CROP HARVEST WINDOWS

Timing your audit makes all the difference for maximizing the value of your investment in certification.

If you are seeking to certify only one crop with a short production season, you may want to schedule your audit for the very start of your production season so that you can sell GAP-certified product throughout the season. Example: Strawberries.

If you are certifying one crop with a long production season (ie, greater than 30 days), you have greater flexibility. Try to time your audit so that you can get the most out of the 12 months the certificate will last you. Be aware that your auditor will determine on your first visit if a second, unannounced verification inspection will be required depending on the results and observations in the initial audit. This is not standardized and will be determined on a case-by-case basis. In the event a follow-up audit is required, your certificate won't be issued until after the second inspection, and then will be good for 12 months from that second inspection. Example: Leafy Greens.

If you are certifying multiple crops, schedule your audit so that the auditor is visiting your farm when you have the largest variety of crops being harvested.

Example: If you grow multiple crops such as root vegetables and leafy greens in both the Spring and Fall, as well as Summer crops such as cucumbers, tomatoes and peppers, and short-harvest-window crops such as strawberries, potatoes or sweet potatoes, schedule your initial audit at the transition between two production seasons. A follow-up inspection will result in additional inspection expenses. So if you aren't required to have a follow-up visit, time the one audit to catch production of short-harvest-window crops that you want certified so you can avoid the expense of a separate visit to cover those crops.

NOTE If there is a specific crop that a buyer has asked to be include on the certification that was not seen on the audit, ensure that you request a follow-up visit and provide a window of time when the auditor may see that crop. Care in scheduling will ensure that the auditor can observe, and certify, the maximum number of crops you produce on your farm.

FOOD SAFETY MANUAL

You must have a food safety manual complete prior to requesting an audit. Your food safety manual is a written document that covers all aspects of your growing and handling process, and identifies the potential sources of risks and how you address them. Your manual describes what steps and procedures you will take to reduce the risks of contamination by chemical, physical and microbial hazards. You are required to submit a copy of your manual along with your request to schedule an audit.

Having a complete and easy to read manual can make passing a GAP audit much easier, as you can earn many points simply by including the right paperwork. Many audit points are based on written practices, so auditors can evaluate planned risk-reduction activities. Written policies, procedures, and records will be the main parts of your food safety manual. See 'Audit Scoring' for more information on how to make the most of this opportunity.

FOOD SAFETY OFFICER

You must name someone—you, your co-operator(s), or other farm management staff—as your food safety officer. That officer must be present at the time of the inspection, and must know your food safety practices in complete detail. Not having a food safety officer will result in automatic failure on your audit.

Audit Tip#2
Do you need a follow up inspection?

Although this is a judgment call made by the auditor, help them see why only one audit is necessary and be an advocate for your farm. Show as many crop production examples as you can during the audit process and help the auditor understand your processes. For example, hand harvesting tomatoes should satisfy the auditor's need to see the harvest of vegetables that aren't grown in contact with soil that you also hand harvest.

Preparing for Your Inspection

Before scheduling an audit, make sure all your documentation and logs are in place so you can receive full points for this paperwork. Review all your policies and procedures with all employees, as the auditor will interview them to verify the effectiveness of your food safety program. Make sure your water test results are available in your food safety manual, and if you have conducted a mock recall make sure that paperwork is available as well.

If you are a diversified farmer with several crops to be audited, you will need to prepare a chart listing all crops in a maximum of eight categories, with the corresponding acreage of each crop that you are planning for the year (see Table 4). If you are completing the audit for a specific crop, such as sweet potatoes, make sure that is identified as one of the categories.

TABLE 4 Crop Categories

EXAMPLE CROPS	ACREAGE
Herbs	0.02
Vegetables	3.0
Root Vegetables	1.5
Sweet Potatoes	1.0
Leafy Greens	1.0
Total Acres	6.52

Requesting Your Audit

When you request your audit make sure to include several dates (up to 6) when you know you will be harvesting for scheduled deliveries, such as CSA packing days, or the day before the farmers' market. Also state the time of day when harvest will be conducted, such as before 10 am or after 5 pm, so the auditor can plan to be on site while these activities are actually taking place.

Once your food safety manual is completed, you should send the 'Request for Audit Services' form to the state inspection services agency. This initial audit request form includes:

- Farm contact information
- Farm information (commodities and acres)
- Type of Audit requested: GAP or GHP
    - Select scopes (or parts): Part 1 Farm Review and/or Part 2 Field Harvesting & Field Packing Activities
- Your preferred dates for the audit

Send this form at least 2-3 weeks in advance of your first desired inspection date, along with a copy of your food safety manual. The audit agency will respond with information regarding the auditor's name, the audit date and time, the audit agenda and the estimated cost of the audit.

USDA GAP Audit Costs

The average cost of the audit for farms participating in the research project was $925. The charges include an administrative fee of $50, and the auditor's time, charged at $92/hour. You will be billed for the auditor's time on site conducting the audit, time to travel to and from your farm, and time spent reviewing your food safety manual in preparation for your audit. The distance traveled by the auditor to your farm will greatly effect the cost of the audit. Time spent on the farm to complete the audit will vary depending on the sections you submit to be completed. Charges for a follow-up visit will be approximately the same as an initial audit. If required, the second unannounced visit will have a limited scope and focus on field observations and a review of logs and records.

AUDIT COST EXAMPLE: SINGLE VISIT	
Admin Fee	$50
Prep Time 1 Hour	$92
Travel to your Farm 3 Hours	$276
Audit Day 2.5 hours	$230
Travel from your Farm 3 Hours	$276
Paperwork 1 Hour	$92
TOTAL	$1,016

Audit Tip #3
Coordinate with neighbors to control travel costs.

If an auditor can audit multiple farms nearby to one another on one trip, she will divide her travel costs among those farms. To reduce your overall cost, call around to neighboring farms, ask other small-farm operators at the farmers market, ask buyers, or work with extension agents in your area to coordinate multiple farms to request the audit at the same time to take advantage of this cost-reduction option.

Audit Day

When the auditor arrives, she will confirm the audit sections to be completed, and review your records and documentation with you. The auditor will ask for copies of some items such as the field map and traceability records showing an example of how boxes are labeled with lot numbers for shipping. The auditor will tour your farm and observe field harvesting activities, including but not limited to:

- speaking with you and any family members/employees on site,
- examining restroom facilities (bathroom and handwashing areas),
- examining the condition of equipment, and
- examining crop production areas.

The auditor will confirm that employees are complying with your standard operating procedures and policies. After the auditor has completed all observations and reviewed your food safety manual, she will score your operation. The closing meeting will consist of a review of the auditor's notes, discussion of any corrective actions and presentation of your score(s).

Audit Tip #4
Take advantage of GAP audit cost shares.

In 2013 and 2014, Carolina Farm Stewardship Association will have GAP audit cost share funds available for farmers in North Carolina who participate in a specialized GAP training program for diversified small farms. For more information, call CFSA at 919 542 2402, or email Karen McSwain, Farm Services Director, at Karen@carolinafarmstewards.org.

The North Carolina Dept. of Agriculture and Consumer Services also may offer GAP inspection cost share for NC farms. For more information, contact the NCDA&CS Cooperative Grading Service at (252) 792-1672.

TABLE 5 A Typical Audit Day Timeline

AUDIT	DESCRIPTION
Opening Meeting	The auditor will discuss the agenda of the audit, answer any questions you may have, and explain the audit process so you know what to expect during the audit.
Conducting the Audit	The auditor will review your documents and records, interview workers, and observe processes to determine whether you are following your food safety plan and the audit requirements.
Auditor Paperwork	After the auditor has finished looking over your operation, the auditor will take time to review her findings, and finalize the audit.
Closing Meeting	The auditor will meet with you and discuss the findings of the audit. The auditor will also answer any of your questions and explain any observations.

Audit Scoring

The auditor uses an audit checklist to score your food safety performance in each of the sections that you are undergoing. Each of the questions on the checklist is worth five, ten or fifteen points, and partial points are not awarded. You receive full points on a question for a 'yes' answer, and zero points for each 'no.'

Some questions may not be applicable to your operation, in which case the auditor will enter an N/A. For questions answered N/A, the points available for that question are deducted from the total points available for that section of the audit, resulting in Adjusted Total Points—and reducing the number of points you must earn to pass that section. The auditor must explain in writing on the audit checklist any 'no' or 'N/A' answers. See the hypothetical farm examples below including Tables 6, 7 and 8 for an understanding of the application of adjusted total points scoring.

Audit Scoring Example HAPPY HARVEST FARM

General Section Scoring

1. Has a traceability program in place
2. Has not completed a mock recall, (but this is the farm's first time applying for certification and thus not required)
3. Has drinking and handwashing water test results
4. Has policy on worker/visitor health and hygiene and training
5. Has policy on smoking/eating area and handwashing sign
6. The house restroom is clean
7. Has policy for addressing workers with foodborne illness
8. Has policy on how to deal with product/food contact surfaces that comes in contact with blood
9. Has policy on what workers do when they get hurt
10. Company personnel applying pre-/post-harvest materials are licensed or trained on proper use

TABLE 6 Scoring Calculations for General Section

HAPPY HARVEST FARM	CALCULATIONS	TOTAL POINTS
Total Points Available	180 points	180
Subtract N/A Questions*	G-2, 10 points G-10, 10 points	20
Adjusted Total Points	180 – 20 = 160 points	160
Passing Score (80%)	160 x 0.8 (80%) = 128 points	128
Farm's Calculated Points	160 – 0 = 160 points	160
Pass/Fail	Pass	160 > 128

*N/A QUESTIONS

- G-2, 10 points, No mock recall required for first audit
- G-10, 10 points, No cleaning schedule required for house bathroom

Audit Scoring Example MERRY HOLLY FARM

Farm Review Section Scoring

1. Uses pond as irrigation water source
2. Has water test results
3. Has poultry 20 feet away from crop production areas
4. There are no manure lagoons on or near the property
5. Field has monitoring program for animal intrusion
6. Has fence around fields and pond
7. Uses composted manure purchased from a supplier with analysis reports
8. Land has been used for crop production for 20 years
9. Field is not susceptible to flooding
10. Only one production field

TABLE 7 Scoring Calculations for Farm Review Section

MERRY HOLLY FARM	CALCULATIONS	TOTAL POINTS
Total Points Available	190 points	190
Subtract N/A Questions*	1-9, 10 points	10
Adjusted Total Points	190– 10 = 180 points	180
Passing Score (80%)	180 X 0.8 (80%) = 144 points	144
Farm's Calculated Points	180 – 15 = 165 points	165
Pass/Fail	Pass	165 > 144

POINTS LOST

- 1-8, 15 points, poultry 20 feet away from crop production areas

*N/A QUESTIONS

- 1-9, 10 points, No manure lagoons located adjacent to the area

Audit Scoring Example BUNNY LOU FARM

Field Harvest and Field Packing Activities Scoring

1. Uses portable restroom on leased land
2. Has water test results
3. Uses 5 gallon buckets for harvest containers
4. Harvests by hand and knife
5. Uses pick-up truck bed for transporting produce from field to packing shed
6. Does no field packing
7. Uses lot codes for product moving out of field

TABLE 8 Scoring Calculations for Field Harvest and Field Packing Activities Section

BUNNY LOU FARM	CALCULATIONS	TOTAL POINTS
Total Points Available	185 points	185
Subtract N/A Questions*	2-3, 10 points 2-10, 10 points 2-13, 5 points 2-19, 10 points 2-20, 10 points	45
Adjusted Total Points	185 – 45 = 140 points	140
Passing Score (80%)	140 X 0.8 (80%) = 112 points	112
Farm's Calculated Points	140 - 0 = 140 points	140
Pass/Fail	Pass	140 > 112

*N/A QUESTIONS

- 2-3, 10 points, has a portable restroom, not a permanent toilet
- 2-10 & -13, 15 points total, no mechanical harvesting
- 2-19 & -20, 20 points total, no field packing

Recordkeeping

Just keeping proper paperwork can earn you as much as 65 to 85 percent of the points you need to pass a particular section of the audit.

Paperwork required for an audit falls into three categories:

1. RECORD A record is something that must be kept to show an action was taken. Examples include pre-harvest checklists and activity logs such as cleaning schedules.
2. POLICY A policy is a written statement in the food safety plan describing the food safety procedures followed on the farm, such as a statement that employees will not be allowed to work with produce while sick.
3. DOCUMENT A document may be a combination of a policy and a record, such as a policy listing all health and hygiene practices followed on the farm that is signed by employees after they receive hygiene training; or the results of a water test.

The auditor awards the remaining points based on her observations of the activities and conditions on the farm. For example, the auditor may watch and interview employees; examine the cleanliness of the bathroom facility; and assess the proximity of livestock pesticide and fertilizer storage areas to crop production fields.

The tables on page 11 break down the major areas of emphasis in each GAP specified section, along with the points allotted for each issue based on the means of evaluation.

Automatic Failure

The auditor will end the audit and fail your farm if she observes any of the following:

- High likelihood of product being contaminated, such as livestock in the irrigation water
- High presence of rodents or pests in the production area during packing, processing, or storage
- Employee practices that threaten the safety of the produce
- Failure to have a food safety manual or food safety officer
- Falsification of records

Audit Tip #5
Organic certification records do double duty.

Many farms participating in this research project were already certified organic under the USDA's National Organic Program. If your farm is certified organic, you are already required to keep certain records that are also relevant for GAP certification, and you don't need to reinvent the wheel. Here's a list of organic certification documents that do double-duty:

1 Field map
2 Land history
3 Seed stock documentation
4 Manure application records
5 Compost monitoring records
6 Cleaning records for equipment and transportation
7 Traceability system records

TABLE 9 Points distribution for General Questions Section

RANKING	CATEGORY	POINTS	RECORD	POLICY	DOCUMENT	OBSERVATION
1	Worker health and hygiene	75		30	15	30
2	Bathroom and handwashing	35	10			25
3	Traceability	25	10		15	
4	Product handling	15		15		
5	Facilities/storage	10		10		
6	Animals/pests	10	10			
7	Water	10	10			
Total		180	40	55	30	55

TABLE 10 Point distribution for Part One

RANKING	CATEGORY	POINTS	RECORD	POLICY	DOCUMENT	OBSERVATION
1	Water	45			30	15
2	Animals/pests	45	10			35
3	Manure	10				10
Select one	Raw manure	35	30			5
	Composted manure	35	15		10	10
	No manure used	35		35		
4	Sewage/waste	25				25
5	Land history	20	20			
6	Traceability	10	10			
Total		260	85	35	40	100

TABLE 11 Point distribution for Part Two

RANKING	CATEGORY	POINTS	RECORD	POLICY	DOCUMENT	OBSERVATION
1	Equipment/containers	80		5	30	45
2	Bathroom and handwashing	40		10		30
3	Product handling	25		15		10
4	Water	15	15			
5	Land history	15			15	
6	Traceability	10			10	
Total		185	15	30	55	85

Traceability

Traceability is the ability to link a product to its origin. In the event that microbiological, chemical, or physical contamination is discovered in your crops, it is of the utmost importance to remove the implicated product from further distribution as quickly as possible. A traceability program allows a farm to easily identify any other products harvested from the same field on the same date that also may have been contaminated, and that therefore should be removed from the market. The program also allows the farm to identify records that will help isolate potential causes of contamination, such as dates of any pesticide and manure applications to that product or field, employee health/hygiene issues, and any unusual events such as flooding or wildlife intrusion.

Lot Codes

The essential element of a traceability system is a lot code that is tied to the production area where a crop is harvested, and that uniquely identifies that crop when it moves out of the field. This can be as simple as the date of harvest, for example applying a lot number of 5052012 to all crops harvested on May 5, 2012. Each day would have a lot number and that number will correspond to the field the product was harvested from and all the records associated with that field (manure application, flooding, worker injury, etc). Another alternative is to identify the day and month by using a perpetual Julian date calendar (see below). Lot codes are not standardized; a producer can define the size of a lot (one day's production, one week's, etc., shipped through CSA) to match their risk tolerance. Having smaller lots can limit how much of a product would be withdrawn from the market in the event of a recall. Reducing the amount of product recalled can minimize the disruption to your business. Regardless of how the code is made, it should provide you with information on how to identify the produce.

JULIAN DATE CALENDAR
PERPETUAL

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	001	032	060	091	121	152	182	213	244	274	305	335
2	002	033	061	092	122	153	183	214	245	275	306	336
3	003	034	062	093	123	154	184	215	246	276	307	337
4	004	035	063	094	124	155	185	216	247	277	308	338
5	005	036	064	095	125	156	186	217	248	278	309	339

Mock Recall

To be prepared for a recall situation, and to demonstrate the effectiveness of your traceability program for a GAP audit, you should complete a mock recall annually. A mock recall is a simulated recall exercise with a time limit to complete the entire exercise (i.e. 2 hours). Testing these programs is the best way to ensure their effectiveness and your preparedness for an actual recall. Recalls are conducted to identify and recover potentially adulterated, misbranded, and/or hazardous foods from trade and/or consumer channels effectively. For information on current recalls go to http://www.fda.gov/Safety/Recalls/default.htm.

There are not a lot of examples of how small farms recall product because the media usually follows big companies with high numbers of illnesses and affected product, but the real world experience of one of the farms involved in our study is instructive. In the summer of 2011, one of the project farms, which at the time was producing sprouts, received an email from one of its CSA customers about 12 hours after news broke regarding a major *E. coli* outbreak in Germany that was linked to sprouts. The customer claimed to have contracted foodborne illness from the farm's sprouts and therefore no longer trusted the farm's produce.

The farm immediately began implementing its traceability program. The farm contacted its buyers and cancelled all sprouts orders that were due to be delivered the next day, and asked those accounts to remove the farm's sprouts from sale immediately and record the amount of product disposed of so that the farm could reimburse those buyers. The farm did not bother with individual customers since they had no way of contacting them personally. The farm took the remaining sprouts that were due to be delivered the next day to the dump. Aside from one customer complaint, which was not confirmed, the farm received no other complaints, but this farm decided to discontinue selling sprouts.

NOTE For the first time that you are completing a GAP audit, a mock recall is not required.

RECALL PLAN CHECKLIST

1. Create a Customer/Buyer Contact list. Be sure to update names, phone numbers, and emails annually or as needed.
   - Restaurants or buying club distributors: Two contacts in purchasing/shipping department
   - Your own CSA: All members by email or website
   - Farmer's Market/Roadside stand: Website for customers to look for information, email sign up sheet, signs posted at the market or roadside stand
2. Create a Recall Contact list. This list should include names and phone numbers of media representatives, proper authorities (FDA, NCDA&CS, etc.), your insurance company and your legal counsel.
3. Identify the problem (chemical, physical or microbial risks) and assess the health risks.
4. Determine the products and lot numbers involved. (Only strawberries, or one day's worth of all vegetables, etc.)
5. Determine quantities involved. (cases, boxes, etc.)
6. Determine current inventory on the premises.
7. Determine the amount of product in the marketplace.
8. Identify the customers/buyers who have received the product.
9. Collect pertinent documentation regarding the affected product.
   - Inputs and outputs of affected field associated with the lot number such as notes on flooding, wildlife activity, an ill employee, manure application, etc.
10. You will need to determine:
    - the total amount of suspect product shipped/delivered
    - the total amount of suspect product still in the buyer's procession
    - the total amount of suspect product the buyer has shipped
    - any product discarded
11. Upon completion of the mock recall, outline any issues in the recall plan and how you should change the recall plan to make it better. For example, taking longer than 2 hours and not being able to account for 100% of the product.

To conduct a mock recall, identify one of your products delivered to a customer on a specific date. Call the customer, with a lot number and shipping information and enquire where the product went. Also have the customer create or send you a copy of any written documentation to verify their distribution. This document should be in your food safety manual alongside mock recall log (where the date and this activity is recorded).

In the General Section, the auditor will look in your food safety manual for your traceability program and a record of a completed mock recall and award up to 25 points in questions G-1 and G-2. In Part One and Two, the auditor will look for a record showing how production fields and produce moving out of fields are identified and award up to 10 points for each question (1-26 and 2-21).

Audit Tip #6
Get marketing mileage out of your traceability plan.

A majority of the farms in our study sold directly to the consumer through CSA programs, roadside stands and farmers' markets. In the event of a recall, contacting these types of customers can be difficult to unrealistic. Some of the ways small-farm operators can contact these types of patrons are through email sign up sheets, website notifications, and signs at the farmstand/farmers' markets. The system created by preparing for a recall has marketing benefits as well, as having customer email lists and proactively communicating with direct market clients can help build your brand.

Worker Health and Hygiene

There are five key avenues for transfer of pathogens to produce:

1. Human to human, produce, or soil contact
2. Soil to produce contact
3. Container/equipment to soil contact
4. Contaminated water contact
5. Improper sanitation (oral-fecal contact, produce-fecal contact)

Worker Training

All produce handlers on your farm should understand the importance of proper health and hygiene and the role food safety plays in the quality of your product and the health of your customers. You can build this understanding, and score key audit points, by conducting annual training on proper health and hygiene practices with all staff. At the minimum, the training should cover: the importance of good hygiene and handwashing, proper handwashing technique, when to wash hands, first aid procedures, properly using the restroom facilities, illness/injury procedures, and your policy on taking breaks and eating. This can be in the form of formal presentations, videos, demonstrations, or one-on-one instruction.

The auditor will look in your food safety manual for a document that includes a worker health and hygiene policy and a log of all training that has been conducted; worth 15 points in question G-5.

NOTE Also include a training on regulated and non-regulated materials used by employees by reviewing proper usage and directions for such materials (pesticides, etc.) and keep this log of training in your food safety manual along with appropriate licenses; worth 10 points in question G-15.

ONLINE TRAINING

Training videos are available online and upon request from your local Cooperative Extension Agent.

1. GAPs Worker Training Requested by Growers
   http://ncfreshproducesafety.wordpress.com/2011/05/10/gaps-worker-training-requested-by-growers/
2. Food Safety Begins on the Farm: A Presentation CD
   http://calsbookstore-lamp.cit.cornell.edu/catalog/product_info.php?cPath=23& products_id=50 &osCsid=hbv2330hvd2jv1h25ovc2ugn23
3. Keeping Food Safe
   http://www.foodsafety.ksu.edu/en/article-details.php?a=3&c=15&sc=128&id=701

Farm Visitors

You should make sure all visitors to your farm understand that they could contaminate food, and therefore you need to provide them tools for handwashing and hygiene. This is especially important in U-pick operations, where customers are picking their own produce, and customers should be informed of your hygiene procedures when they receive their U-pick containers. U-pick farms in the study group strategically posted signs in various areas before entrance into the U-pick areas that advised customers to wash hands before picking, to not eat in the field, and that identified the location of bathroom facilities.

You should treat the auditor as a visitor and inform her about health and hygiene practices on your farm. If you keep a sign-in sheet for all farm visitors, make sure the auditor signs in, too.

The auditor will look in your food safety manual for a policy that requires all workers and visitors to follow proper sanitation and hygiene practices; worth 10 points in question G-4.

Hand Washing

Hands can be a major source of human pathogens, so to prevent disease you and your farm employees should always observe proper hand washing techniques and procedures.

Employees who are handling or packaging produce need to be washing their hands:

- Before beginning or returning to work
- After visiting the bathroom
- Before and after eating, smoking and other breaks
- After any other activities besides produce handling
- Anytime hands become dirty

To wash hands properly:

1. Use running potable water
2. Use soap
3. Lather hands, wrists, and fingers
4. Don't forget to scrub your thumbs, under your nails and in between your fingers
5. Wash your hands for 20 seconds
6. Fully dry your hands with disposable paper towels

You will need to post handwashing signs in bathrooms to remind employees to wash their hands. At the minimum a handwashing sign should be present on the property

to remind employees to wash their hands. If the house bathroom is the only toilet facility on your property, a handwashing sign is not required in that bathroom, but it does need to be somewhere on the property where employees and visitors can easily see it.

The auditor will observe employees following good hygiene practices, washing their hands and look for handwashing signage; worth 40 points on questions G-6, G-7, and G-8.

ONLINE INSTRUCTIONS

Designs and directions for building an inexpensive portable handwashing station are available on the internet.

1. How to build a portable hand washing station
   http://www.youtube.com/watch?v=SMa5OTa3PnU
2. How to build a field hand washing station
   http://ncgoodfarmersmarketpractices.com/how-to/build-a-handwashing-station/

Worker Health

If an employee shows symptoms of diarrheal disease or other foodborne illness, they should be prohibited from handling fresh produce. It is important that employees understand that if they work with produce while they are sick they can possibly contaminate the produce. As a farm operator you are relying on your employees to tell you when they are sick, although you should be alert to obvious symptoms such as vomiting during work or frequent trips to the restroom. If your only workers are you and your family members, you should have a policy in place that if all the worker/family members are sick with foodborne illness then no harvesting will occur that day.

The auditor will look in your food safety manual for a policy that workers do not work when they are sick with foodborne illness; worth 15 points in questions G-12.

Employees should be instructed to seek prompt treatment with clean first aid supplies if they suffer injuries (cuts, abrasions and other injuries). You need to have a properly stocked first aid kit on site so that workers are able to deal with injuries properly.

If produce comes in contact with blood or other bodily fluids, you should have a procedure describing its proper disposal, i.e. bag the items and throw away immediately. Other elements of a policy to respond to contamination by human bodily fluids would include:

1. Marking the area with flags and not harvesting any materials from the area.
2. Using shovels to place contaminated soil and produce into doubled heavy plastic garbage bags.
3. Placing shovels in separate bags and moving them to a designated area for cleaning and sanitizing.

Dispose of the contaminated bags of produce and soil in a manner approved by the county environmental health department.

The auditor will look in your food safety manual for policies directing workers to seek treatment if they are injured and describe procedures related to cleaning/disposal of produce or contact surfaces that have come in contact with blood or other bodily fluids; worth 20 points over questions G-13 and G-14.

Restroom and Sewage Facilities

To reduce contamination on the farm it is important to provide employees with clean bathroom facilities. Researchers have found that some pathogens, such as Salmonella, can persist in the air after flushing the toilet and contaminate the toilet seat and the toilet seat lid (Barker and Jones. 2005). In another study, Salmonella was isolated in the toilet bowl below the waterline up to 50 days after seeding (Barker and Bloomfield, 2000).

Employee Restrooms

You must provide a bathroom and handwashing station for all employees. Bathroom facilities should be reasonably clean and stocked with single use towels, toilet paper, hand soap or antibacterial soap, and water for handwashing. It is essential to have these items (single use towels, toilet paper, hand soap or antibacterial soap) stocked on the property.

In the General Section, the auditor will inspect restroom facilities to determine their cleanliness and whether they are properly stocked, and will look for a restroom cleaning log in your food safety manual; worth 25 points in questions G-9 and G-10, if applicable.

If you rent portable bathroom facilities to have on the property, you will need to have records from the sanitation company about the frequency of servicing and cleaning. It is not necessary to have a cleaning schedule for a house bathroom but the auditor will observe the bathroom to make sure it is as clean as possible.

The number, condition, and placement of field bathroom facilities needs to comply with applicable state and/or federal regulations. The Occupational Safety and Health Administration (OSHA) requires one bathroom and one handwashing facility for every 20 employees within ¼ mile walk of each hand laborer's place of work. Such field bathroom facilities will need to be located close to the crop productions fields, but not in a location where a wastewater spill would contaminate the crop production area. Making sure to have a response plan in place for the event of a major spill or leak of bathroom facilities is a simple way to score audit points. This plan needs to describe what will be done to contain the spill and prevent additional contamination, what will be done to clean it up, and how contaminated product will be disposed.

SAMPLE PORT-A-JOHN SPILL RESPONSE PLAN

1. Any affected produce is immediately disposed in a covered waste bin.
2. The contaminated area will be marked off with caution tape or string.
3. Signs in appropriate languages will be posted at the perimeter prohibiting entry to the contaminated area.
4. People and animals will be kept out until the port-a-john is sufficiently decontaminated.
5. Any solid waste still resting on the surface will be shoveled up and removed to the waste bin.
6. Any affected permanent structures will be hosed off and disinfected with a dilute bleach solution.
7. The sanitation unit will be cleaned up and replaced by the company providing the units and maintenance services.

In Part Two, the auditor will observe the restroom facilities (number, condition, distance from workers, and location compared to production fields) and look for a policy in your food safety manual detailing a response plan in case of a spill or leak; worth 30 points over questions 2-2, 2-4, and 2-5.

Sewage Treatment Systems

The farm sewage treatment/septic system should be functioning properly and not leaking. In an audit, the auditor will ask where the system is located and observe the area.

Your audit score can be negatively impacted by conditions off your farm and out of your control. For example, if there is a municipal/commercial sewage treatment facility or waste material landfill within a ¼ mile of the crop production area, you are at risk of losing 10 points. If possible in such a situation, establish a buffer area on your property between the treatment facility and your crop production areas.

Audit Tip # 7
Have back up stocks of restroom supplies.

It is important to have items properly stocked on your property such as restroom supplies or cleaning supplies. The auditor understands she is on a farm operation and you may need to restock items daily. Your ability to address on the spot something that was outside the guidelines allows the auditor to see your food safety policies at work on the farm. During an audit, a farm participating in the research project had no soap, single use towels or trash can available at the portable bathroom. The farm supervisor told the auditor that the sanitation company had just finished cleaning the facilities, and must have failed to restock those items. The auditor advised the supervisor to properly stock the bathroom immediately and they would not lose any points.

NOTE The auditor also spoke with the farm's employees to verify that the sanitation company had in fact been on site that day.

Water

Water issues can cost you points in the General Section, Farm Review, and Field Harvest sections of the GAP audit. Therefore it is essential to complete your agricultural and drinking water test at the appropriate intervals, keep records in your food safety manual, and conduct environmental assessments of your water source periodically to determine any new contamination routes.

Water Risk Assessment

Water is a potential source of contamination for fresh produce, and one of the most significant areas of concern in a GAP audit. To reduce contamination risk and maximize your audit performance, it is important to choose the highest quality source possible for agricultural irrigation. Water can be contaminated by sediment, agricultural runoff, chemicals, or any of the major microbial contaminants, such as bacteria, viruses, or parasitic organisms. Irrigation methods that reduce water contact with produce such as drip are recommended over overhead irrigation.

NOTE If your water source is well water, you should regularly check the integrity of the well casing and head; combined with a clean annual water test, this step should be sufficient to ensure the safety of your well water supply.

In the General Section and Part Two, the auditor will look in your food safety manual for a record of test results for drinking and harvested product wash water and award up to 25 points in questions G-3 and 2-15. In Part One, the auditor will look for a record of test results for water used for irrigation and fertigation purposes and determine if the water source is protected from contamination; worth up to 45 points over questions 1-3, 1-4 and 1-5.

Table 12 below identifies sources of irrigation water and the level of risk with each source. Overhead irrigation is more likely to spread contamination to above-ground plant parts than root-zone irrigation.

TABLE 12 Water Source Risk Assessment

WATER SOURCE	RISK	FREQUENCY OF TESTING
Municipal water	Low	Request testing results from local authorities
Well water	Medium	Annual test at the beginning of the season
Surface	High	Water needs to be tested, at the minimum, three times during the season (beginning, peak, and end of season)

Water Testing

It is important for you to understand the microbial quality of the water you are using for irrigation or wash water on your farm. The water should be tested specifically for fecal coliforms and generic *E. coli*, and the test used should not be a simple positive/negative but should determine the number of *E. coli* present.

The laboratory used by farms for water testing in this project was typically the local environmental health department and the typical charge was $25-50 per sample. While the presence of generic *E. coli* does not correlate directly with the likelihood of pathogens being present, it does suggest that the water has been exposed to fecal matter that may contain pathogens. We test for indicators as it is a more cost-effective activity than testing for all possible pathogens. Thresholds exist for water quality for different uses: zero *E. coli* are allowed for wash water and drinking; higher levels are permissible for irrigation water as that water is often impacted by UV rays and drying.

Audit Tip #8
Tap local soil & water agencies to improve water quality.

When surface water (a pond, lake, stream, creek or river) is used, it is critical to prevent polluted runoff from contaminating this source. Key strategies are: berms, diversions, separation from animals with fencing, distance, and topography. The Natural Resource Conservation Service (NRCS) provides cost share funding for water quality protection enhancements such as fencing, berms, windbreaks, micro-irrigation systems, and other enhancements. Contact your local NRCS office or your local soil and water conservation agency for information about these options.

How to Take a Water Sample

BEFORE SAMPLING YOUR WATER SUPPLY

- Contact your selected laboratory prior to collecting the sample to confirm the following:
  - Sample delivery times
  - Collecting instructions
  - Pricing per sample
  - Testing methods available
- Collect samples in sterile containers provided by the testing laboratory.
- Do not rinse your sample bottles prior to taking samples.
- If more than one sample is to be tested, all samples should be collected within a continuous 18 hour period.
- Always take extra bottles and sample request forms from the testing lab.

One of the tests recommended is the Colilert® method (Generic *E. coli* and coliforms) with quantitative results (not presence/absence). If funds are low, a single sample at the point of use is recommended to account for the entire irrigation system. If funds are available or you plan on participating in a cost share program, one sample should be taken from the water source (wellhead, surface water, etc) and from the point of use (end point) for irrigation and wash water. Your results will be representative of the water quality throughout your system. You will be able to identify if your water is becoming contaminated through your system, either in irrigation lines or at the wash station. If you do find an unacceptable level of contamination, you can isolate it either to the water source (i.e. crack well casing, inflow from above due to faulty well seal, contaminated runoff, wildlife contamination, etc.) or to the above-ground (i.e. irrigation or wash station) system.

TABLE 13 Water Sampling Procedures

Irrigation water samples	Run the irrigation system for the amount of time needed to flush the 'hold up' volume of the system plus an additional 5-10 minutes. Collect samples from the sprinkler/drip system (not the intake area).
Post Harvest Water	When collecting samples from the distribution system tap make sure to remove any attachments, such as aerators. Open the tap fully and allow the system to run for at least 10 minutes (or the time to flush out the 'hold up' volume) before the sample is taken. Slowly fill the container to the line as indicated and tightly cap the container.
Transportation	The sample should be delivered to the laboratory as soon as possible, and no longer than 24 hours after its collection. Samples should be placed in a cooler with ice or gel packs during transportation. Check with specific lab for any additional procedures.

How to Read Your Test Results

Using the Colilert test for Generic *E. coli*, results will be available after 22 to 26 hours. Laboratory results can be delivered via fax, email, or mail. Keep your results in your food safety manual. The results you receive should provide you an average of the generic *E. coli* levels for your 5 samples, and provide the highest single sample concentration. For irrigation water coming in direct contact with the edible portion of a plant, if the average is below 126 MPN/100 mL and highest single sample is below 235 MPN/100 mL then your water is acceptable for agricultural use (EPA, 1986). For water not coming in direct contact with the edible portion of a plant, if the average is below 126 MPN/100 mL and highest single sample is below 576 MPN/100 mL then your water is acceptable for agricultural use. If either number exceeds those tolerances, then you need to take remedial action.

NOTE Most testing labs will return results as MPN/100 mL but some will report in CFU/100 mL. These measures are equivalent, so regardless of the measurement units, you are looking for the same thresholds (126/235 or 126/576).

What to Do if Your Water is Contaminated

If you discover your water exceeds the EPA standards for contamination, then you should conduct an environmental survey to find the cause and retest the water source as soon as possible. Issues to investigate include; a crack in your well casing, a faulty well seal, contaminated runoff, wildlife contamination, or some other impact. If possible, you can take steps to mitigate these circumstances, such as; repairing your well casing, providing a riparian buffer for livestock around an irrigation pond, fencing livestock out of irrigation ponds and drainage areas, or if possible, switching to another source of irrigation water until results are below the EPA standard.

A more aggressive sampling program (i.e., sampling once per week instead of once per month) may be necessary if an explanation for the contamination is not readily apparent. Do not use water from that water system, in a manner that directly contacts edible portions of the crop, until the water can meet the outlined acceptance criteria for its use.

Improving Your Water

You can take specific mitigation steps to improve your water to meet the water quality parameters. These steps can include filtration or the use of disinfection practices. A sand filter will not remove bacterial contamination.

- If water disinfection is necessary, you will need to contact your local irrigation dealer for specific setup and costs.
    - You should discuss the size of the system, the amount of water that will need to be treated, the physical parameters of the water, and price.
    - You should seek input from your local extension agent or a representative from NC State University to help with your decision.
- The most common disinfection method is application of chlorine using one time-released calcium hypochlorite tablets. This method will add a suitable level of free chlorine (5 mg/L or ppm) to water that will inactivate most bacterial contaminants, but is less effective for viruses and parasites.
- It is important to account for the debris, soil and/or feces that may be in the water that will "consume" the disinfectant. Thus it may be necessary to add 200 mg/L (ppm) or more of chlorine to environmental waters, in order to achieve 5 mg/L (ppm) of free chlorine.
- Other systems are available that use gaseous chlorine as well as copper ionization, copper sulfate, ozone, chlorine dioxide, etc.

NOTE To demonstrate to the auditor that your mitigation was effective, and gain the water testing points, a retest with results lower than the prescribed thresholds is required.

Synthetic Water Treatments and Organic Certification

The National Organic Program Regulations 7 CFR § 205.601, provide that certain synthetic substances may be used to disinfect contaminated water. Chlorine products, such as calcium hypochlorite, chlorine dioxide and sodium hypochlorite, can be used as algicides, disinfectants, and/or sanitizers, including in irrigation water cleaning systems. The residual chlorine levels for wash water in direct crop or food contact and in flush water from cleaning irrigation systems that is applied to crops or fields cannot exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (currently 4 ppm).

Chlorine products may be used up to maximum labeled rates for disinfecting and sanitizing equipment or tools. No intervening event is necessary before equipment is used in contact with organic crops.

NOTE You are not required to wash crops, but you should make an effort to remove excessive dirt and mud from the product and/or the harvesting containers. It is not a best management practice to use a wet cloth to wipe off crops because cross contamination from the cloth is likely to occur.

Audit Tip #9: It's not pass/fail—prioritize your food safety investments.

There will be times when you need to make business decisions based on audit questions: Do I need to implement a particular risk reduction method right now to gain certain points, or can I use my resources elsewhere to make up for these missed points?

During an audit, a farm in the research project lost 15 points for question 1-5 because the auditor did not feel the irrigation water source was protected from contamination, even though the irrigation water test results were compliant with EPA Standards. The surface water source was not protected from runoff from the up hill packing shed or from animals with fencing. The farm passed the Part 1 audit despite missing this question.

Animals

Domestic and wildlife animals in crop production and packing areas can serve as a potential source of contamination. Since animals are in contact with soil, manure and water, they are at risk for picking up contaminants from these sources. Wild and domestic animals can carry pathogens in their feces. Therefore, keeping wild and domestic animals and their feces out of your field and packing area is a significant focus of a USDA GAP audit.

The auditors understand there is no method that will be 100% effective at keeping animals out of crop production fields, but they want to see a positive deterrence followed up with monitoring to determine if the method is effective. Employees should report animal tracks, crop destruction or evidence of feces to their supervisor. Of course, wild animals in production fields can also cause crop yield losses due to consumption and quality issues such as bruising, so it makes sense to prevent animal intrusion for business reasons as well.

In Part One, the auditor will look in your food safety manual for a list of measures taken to keep animals out of production fields and a record of monitoring for animal intrusion signs and award up to 10 points (1-12 and 1-13).

Animal Control Methods

There are a variety of wildlife control methods to try, and none of them are foolproof. Options include fencing, noise cannons, scarecrows, reflective tape, and applications of fish emulsion. Fencing can be expensive: the average cost of fencing for farms in the research project was $4.83 per foot. So it is perfectly acceptable to try other methods. The biggest mistake you can make, however, is to assume that wildlife intrusion is not a problem.

A farm in the research project lost 5 points on Part One because the auditor discovered animal tracks in the middle of the unfenced production fields; and the farm operator had not taken any control steps because he believed there was no wildlife pressure in the area.

Another farm in the research project did not fence any crop production areas on leased land due to cost. However after observing a deer in the fields during a safety review, the farmer decided to work towards fencing crop production areas for both food safety and product loss reasons. Even though you may not be attempting a GAP certification, keeping animals out of production fields is of importance to prevent contamination, which is a food safety risk, and product loss which is a profitability issue.

Animal Buffering

If livestock are near production areas—including livestock on neighboring farms—the auditors will observe the property to see if there is a distance of approximately one mile between those animals and crop areas, or if there is a natural barrier such as a small forest area or cover crop between animals and the production fields. During an audit, a farm in the research project lost 15 points for question 1-8 because the farm's crop production land, which was leased, was approximately 15 feet from an active horse pasture, owned by the farmer's landlord. The auditor recommended planting a cover crop buffer in this area in future seasons to attain those points. Other farms in the project that managed livestock on their farms as part of their farming operation, and that kept far less than a mile between produce crops and livestock, received full points on this question because production fields and livestock were separated by a small tree line or forest area, housing areas, ditches, and other physical barriers to water- and wind-borne contaminants.

The auditor will observe the property and determine if the production fields are separated from livestock areas by an appropriate distance or a natural barrier; worth 15 points on question 1-8.

If manure lagoons are located adjacent to or near the production fields, it is important to prevent lagoon leakage/overflow or runoff from reaching crop production areas. It is important that the farmer or owner of the manure lagoon maintain the integrity of the lagoon and ensure no leaching. The lining materials (compacted bentonite clay or synthetic lagoon lining) of the lagoon need to be checked regularly for erosion, agitation damage, animal burrows, or cracks. Manure lagoons need to be 300 feet from any well and diversions or other barriers need to be installed to prevent runoff.

Audit Tip #10
Be aware of foot traffic on the farm.

If you manage livestock, you will be walking the property to manage the livestock and crop production fields on a daily basis. When employees move from livestock areas to crop production areas, anything they have come in contact with will be on their shoes, clothes and/or hands, possibly leading to cross-contamination. If possible, employees should be assigned tasks in one area for the whole day or after working with animals employees should be instructed to wash their hands and change boots/shoes or walk through a foot bath to prevent cross contamination between the livestock and crop production areas.

Working Animals

If you use livestock to reduce pests or weeds in crop production areas, you should recognize that the animals' presence in a field is a 'manure application.' Therefore you should take steps to increase the time between that application and the harvest of crops from that area. An example would be using chickens in a movable tractor to clear out pests/weeds after harvest has completed. During this time, livestock urine and feces will accumulate in the crop production area. It is important to document this raw manure application and make sure no crops will be planted for 2 weeks or harvested within 120 days of your removal of the poultry from that field (see example below).

DATE	ACTIVITY	DOCUMENTATION
Sept 2	Animals allowed to graze on harvested crop production area	Record raw manure application on Sept 2-10
Sept 10	Animals removed from harvested crop production area	
Sept 24 -26	Till the remaining plants and soil; if planting immediately must wait 2 weeks after tilling	Record tilling of land after raw manure application
	A best practice would be to use this area for cover crop, to increase time between raw manure application and planting/harvest of crops	Record when crops are planted and expected to be harvested

If you are using domestic animals such as dogs and cats to control wildlife entry into the fields, or horses to pull plows, you will need to determine how to deal with urine and feces from these domestic animals in the crop production areas. Domestic animals in production fields are specifically addressed in Part One, questions 1-12 and 1-13.

Manure and Composting

Effectively managing your use of any type of soil amendment that includes manure from animal or human sources makes a big difference for passing the 'Farm Review' section of a USDA GAPs audit. Pathogens of concern when using manure-based soil amendments are Salmonella and *E. coli* 0157:H7.

Fertilizer Management Practices

When using raw or composted manure fertilizer, it is important to use best management practices to reduce contamination, such as; proper storage to prevent introduction of pathogens into the material, thorough incorporation of the material into the soil, maximizing the time between application of the material and harvest of produce crops, following proper composting practices, and keeping records of the application of the material. If manure is composted improperly or incompletely it may contain pathogenic bacteria.

A farm in the research project stored raw manure from a dairy in the production field so that it was easy to apply the manure during the harvesting season. The manure pile was placed in an area where runoff from the pile would enter the production fields. It is important to store manure (raw or composted) in an area where it is not likely that runoff from the pile will enter crop production areas. Manure piles should not be stored uphill from crop production areas, and if possible should be covered with a shelter or tarp to limit runoff and leaching.

For GAP audit purposes, your management approach depends on whether you use raw or composted manure.

NOTE If you apply both raw and composted manure to a field, or use a mix of raw and composted manure, for audit purposes you should manage the field and the amendments under the raw manure application rules (Part One – Option A).

NOTE If no manure from animal or human sources is used on crop production fields (policy in food safety manual), the auditor will award 35 points in question 1-22.

Raw Manure

When applying raw manure:

- It should be incorporated into the soil at least 2 weeks prior to planting, OR a minimum of 120 days prior to harvest.
- It should not be applied to crops that will be harvested within the next 120 days.
- Your records of raw manure application should include the dates of application and the planting/harvesting of crops grown in that crop production area.

In Part One – Option A, the auditor will look for records demonstrating the application rate, time, and location of raw manure and observe the storage of manure; worth up to 35 points over questions 1-14, 1-15, 1-16 and 1-17.

Composted Manure

When applying composted manure:

- Make sure it was composted properly to reduce the level of pathogens.
- Maintain records of your composting methods including time charts for passive composting methods and time and temperature charts for active methods.
- if the compost is purchased from off the farm, make sure you receive and keep in your food safety manual an analysis report documenting the compost's treatment process and the levels of heavy metals, fecal coliforms (<1,000 MPN/g), Salmonella and *E. coli* 0157:H7 (<detection limit).

In Part One – Option B, the auditor will look in your food safety manual for a procedure describing your composting method and a log reporting the duration of the composting period, as well as the temperature of the pile if you are using active composting methods (see below). The auditor will also observe the storage of the compost pile. If purchasing a composted product, it is important to have a copy of the analysis report from the supplier. A total of 35 points over questions 1-18, 1-19, 1-20, and 1-21 are available.

Audit Tip #11
GAP and organic rules conflict on manure application.

The USDA GAP audit specifies that raw manure application should be a minimum of 120 days prior to harvest and that no raw manure should be applied on crops harvested within 120 days of application. The National Organic Program allows application of manure 120 days before harvest for crops where the consumed portion comes into contact with the soil, or 90 days before harvest if the consumed portion does not come into contact with the soil. If possible, a best management practice would be to apply manure when the field is not in production, and follow with a cover crop planting. This will maximize the time between application and harvest of crops.

'Green manure' is a crop that is grown then plowed into the soil or otherwise left to decompose for the purpose of soil improvement. Examples include soybeans, clover, rye, and others. Green manure does not mean raw manure, and is not treated as a soil amendment of concern in a GAP audit.

Manure Composting Methods

PASSIVE COMPOSTING (AGING)

To reduce pathogens, passive methods rely on:

- Time
  The length of time the material should be aged will vary based on regional and seasonal climate factors as well as the type and source of manure. You will need to maintain records showing how long the material has been aged.
- Natural temperature.
- Moisture fluctuations.
- Ultraviolet (UV) irradiation from the sun.

NOTE If you are using passive composting methods for manure, and are going to allow a 120-day-plus window between applying that composted manure to a field and harvesting any product, it may be easier for you to treat that compost as raw manure for documentation purposes.

ACTIVE COMPOSTING

To reduce pathogens, active methods involve:

- Microbial action (aerobic and anaerobic) to digest organic material.
- High temperatures that kill off pathogens in days.
- Regular turning of the compost pile to eliminate cold spots where pathogens can take refuge. You will need to document the duration of the composting period, the temperatures achieved, and the frequency of turnings.

This process will vary depending on seasonal and regional climatic factors such as ambient temperatures and rainfall.

Land History

Your food safety manual should include a description of the land use of the farm for at least the previous five years. What the land was used for previously will affect what contamination risks might be present in the soil and water ways. Conduct a site evaluation for the evidence of old buildings, prior flooding or the potential for flooding (i.e., proximity to streambeds, swamps, etc.), or other risk factors for contamination from pathogens, heavy metals, or chemicals. There is a minimum risk of contamination if there has been no recent dumping of trash; use of the farm as a dairy, livestock or poultry feedlot; or evidence of improper use of animal wastes.

If you identify a risk of contamination occurred in the past, you should have a record of soil testing, and the land should be used for cover crops or cash crops with minimal contact with the soil until the soil tests show contaminant levels below safe threshold levels.

If your crop production areas have been flooded it is important to test the soil for microbial, chemical, and heavy metals contamination (Provin et al., 2008). Floodwaters are likely to contain contaminants, such as raw manure or feces, agricultural chemicals, fuel, heavy metals, or other chemical contaminants. Microbial pathogens that could be in floodwaters include bacteria, viruses, and parasites. For this reason, the FDA considers crops where the edible portion has come in contact with floodwaters to be adulterated, and they should not to be sold for human consumption (FDA, 2011). This applies to both above ground crops and root crops, as root crops can internalize contaminants.

Before cleaning up or destroying crops in flooded fields, check with your local Farm Services Agency or NRCS representatives regarding exact documentation to certify losses, procedures for initiating claims, and possible financial assistance (Bosworth & Kauppila, 2001). If you are an organic grower, floodwaters may contain residues of prohibited substances. Contact your certifier to discuss your situation.

Flooded soils should be allowed to dry sufficiently and should be reworked, tilling to at least six inches deep, before planting crops. Adding compost or other organic matter when tilling will be beneficial to the soil. The soil should be retested for nutrient levels after floodwaters recede, as the pH and nutrient levels of the soil may have changed.

NOTE Water from heavy rainfall that pools on the surface of saturated soils is NOT considered flooding.

Equipment and Containers

It is important to keep all equipment and harvesting containers that come in contact with produce as clean as possible, and this is a major focus in a GAP audit. Spoilage bacteria and pathogens can survive and grow on surfaces that remain wet or where nutrients are readily available. In the washing environment, it is important to prevent areas of standing water and use equipment that can be easily cleaned and sanitized properly so as not to contribute to cross contamination. Remaining plant material on equipment surfaces, such as knives, will support the growth of bacteria.

How to Clean and Sanitize Properly

To maximize the effectiveness of your cleaning procedures:

- Avoid contact between fruits, vegetables, bins, etc. and soil where possible.
- Avoid bruises or cuts to fruits or vegetables that may allow internal contamination.
- Don't use surface water for product washing.
- Clean and sanitize bins and harvest equipment after each use.

A farm in the research project used knives to harvest crops in the fields and those knives were cleaned once a year and stored on a wooden board. If harvesting equipment is not cleaned on a scheduled basis there will be a buildup of plant material and contaminants such as plant and/or human pathogens.

Cleaning food contact surfaces means removing soil and residues. This involves a three-step process of rinsing away surface debris, washing and scrubbing with soap or detergent, and rinsing with clean potable water. Rinsing surfaces thoroughly is important so that any detergent residue is removed (Wilson et al., 2011).

Sanitizing is the process of treating a food contact surface with a sanitizing solution that will kill most microorganisms or reduce them to a non-harmful level. For sanitizers to be effective, surfaces must first be cleaned, because soil and soap residues can make the sanitizing solution less effective (Wilson et al., 2011). It is important to follow directions for proper use of the sanitizer of choice (i.e. for household bleach (chlorine) one cap full per one gallon of water). The sanitizer will also not work as well if not mixed properly; for example, if you add more chlorine than just one capful per gallon you may actually reduce the sanitizer's efficacy.

Harvest Tools

Equipment used for harvesting produce such as knives, scissors, and pruning shears, should be cleaned and sanitized on a regular basis to remove any leftover plant debris and prevent the growth of bacteria. Make sure you have a policy on cleaning, train your employees on the policy and proper cleaning procedures, and abide by the policy. An auditor will inspect harvest equipment storage areas and review your policy, including asking harvest workers when and how they clean harvest equipment.

If any mechanical harvesting takes place on your farm, make sure that any light bulbs or other glass on the harvesting equipment are protected to prevent contamination of produce in the fields in the event of glass breakage.

Harvest Containers

When packing in the field, new or sanitized containers should be used for packing the product. Reusing harvest containers that are not easily cleaned and sanitized is not recommended for use as a best management practice. If practical, it is recommended to use reusable plastic containers (RPCs) that are easily cleanable and stackable. If you cannot use RPCs, another acceptable practice would be purchasing new cardboard/wax boxes (approximately $1-2 dollars) for single use. If funds are not available for RPCs or new boxes, you should use new box liners or plastic bags to be the primary package that the produce item is in direct contact with; the reused box will act as the secondary package, similar to a cereal box.

Materials used for packing product in the fields should be stored in an area protected from contamination. If packaging is being reused after it has been cleaned, it needs to be protected from contamination with a tarp or other covering, and stored so it is not in contact with the floor, such as on a pallet or shelf.

In Part Two, the auditor will look in your food safety manual for your cleaning/sanitizing procedures for harvesting containers and equipment and for a record of scheduled cleaning activities; worth up to 20 points in questions 2-6 and 2-7.

During the season, harvesting containers should not be used to carry other items. Containers that are used for other activities need to be clearly labeled so they will not to be used for harvesting (5 points, question 2-14). If harvesting containers are broken or damaged, they should be fixed or thrown away (5 points, question 2-8).

Transportation equipment used to move produce items from field to other areas should be clean and in good repair. For instance, a truck bed or cart used to carry packed harvest containers should be free of debris and washed on a regular basis, and should not be seriously rusted or otherwise damaged to an extent that could result in damage to harvest containers or crops.

In Part Two, the auditor will look in your food safety manual for a policy regarding harvesting container use during season and observe the cleanliness of transportation; worth up to 15 points in questions 2-14 and 2-17.

References

Barker, J. and M. Jones. 2005. The potential spread of infection caused by aerosol contamination of surfaces after flushing a domestic toilet. J. Appl. Micrbiol. 99:339-347.

Barker. J., and S. Bloomfield. 2000. Survival of Salmonella in bathrooms and toilets in domestic homes following salmonellosis. J Appl. Microbiol. 89:137-144.

Bosworth, S., and D., Kauppila. 2001. Managing flood-damaged crops. University of Vermont Extension. http://www.uvm.edu/extension/agriculture/pdfs/flood_damaged_crops2011.pdf
Accessed Septemeber 15, 2012.

Buchholz, U., H. Bernard, D. Werber, M. Böhmer, C. Remschmidt, H. Wilking, Y. Deleré, M. an der Heiden, C. Adlhoch, J. Dreesman, J. Ehlers, S.Ethelberg, M. Faber, C. Frank, G. Fricke, M. Greiner, M. Höhle, S. Ivarsson, U. Jark, M. Kirchner, J. Koch, G. Krause, P. Luber, B. Rosner, K. Stark, and M. Kühne. 2011. German Outbreak of Escherichia coli O104:H4 Associated with Sprouts. New Eng. J. Med. 365:1763-1770

Provin. T., S. Feagley, J. Pitt, and M. McFarland. 2008. Soil Testing Following Flooding, Overland Flow of Waste Waters and other Freshwater Related Disasters.Texas AgriLife Extension. http://varietytesting.tamu.edu/criticalinformation/Freshwater%20flooding%20soil%20testing%20issues.pdf
Accessed September 15, 2012.

USDA Agricultural Marketing Service. National Organic Program. Title 7 Code of Federal Regulations, Pt. 205.601 Synthetic substances allowed for use in organic crop production. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=dad1e569a7fb11f5a6badc56ef2db08f&rgn=div5&view=text&node =7:3.1.1.9.32&idno=7#7:3.1.1.9.32.7.354.2
Accessed September 12, 2012.

USDA Agricultural Marketing Service. National Organic Program. Title 7 Code of Federal Regulations, Pt. 205.203 Soil fertility and crop nutrient management practice standard. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=dad1e569a7fb11f5a6badc56ef2db08f&rgn=div5&view=text&node=7:3. 1.1.9.32&idno=7#7:3.1.1.9.32.3.354.4
Accessed September 15, 2012.

U.S. Environmental Protection Agency. 1986. Ambient water quality criteria for bacteria, 1986. Report EPA440/5-84-002. United States Environmental Protection Agency, Washington, D.C.

U.S. Food and Drug Administration. 2012b. USDA Good Agricultural Practices Good Handling Pracitces Audit Verification Checklist. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5091326
Accessed Janury 18, 2013.

U.S. Food and Drug Administration. 2011. Guidance for Industry: Evaluating the Safety of Flood-affected Food Crops for Human Consumption. http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodDefenseandEmergencyResponse/ucm274683.htm
Accessed September 15, 2012

U.S. Food and Drug Administration. 1998. Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables. http://www.fda.gov/food/ guidancecomplianceregulatoryinformation/guidancedocuments/produceandplanproducts/ucm064458.htm
Accessed September 15, 2012

U.S. Food and Drug Administration. 1987. Occupational safety and health standards for agriculture. Title 29 Code of Federal Regulations, Pt. 1928.110 Field Sanitation. http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=613b1c647926fb4136ad2fd8b714a560&rgn =div8&view=text&node=29:9.1.1.1.2.6.1.1&idno=29
Accessed September 14, 2012

Wilson, L., C., Strohbehn, P., Domoto, M., Smith, B., Brehm-Stecher and A., Mendonca. 2011.

On-farm food safety: Cleaning and sanitizing guide. Iowa State University Extension. http://www.extension.iastate.edu/Publications/PM1974C.pdf

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REQUEST FOR AUDIT SERVICES

AUDITEE INFORMATION		FARM/FACILITY INFORMATION	
Company Name:		**COMMODITIES:**	**# of ACRES:**
Address:			
City, State & Zip:			
GPS Coordinates:			
Phone#:			
Fax #:			
Email Address:		**ARE YOU A NC FARM TO SCHOOL SUPPLIER?**	
Contact Person:		**[ ] YES [ ] NO**	

For a copy of the USDA GAP/GHP Audit Checklist, visit the USDA website **www.ams.gov/gapghp**

Type of Audit(s) Requested (Choose at least one)	Scope(s) of GAP/GHP Audit Requested:
[ ] Good Agricultural Practices & Good Handling Practices	**[ ] Part 1 - Farm Review**
(GAP/GHP-Select Audit Scopes---------->	**[ ] Part 2 - Field Harvesting/Field Packing Activities**
[ ] Harmonized Food Safety Standard	**[ ] Part 3 - House Packing Facility**
[ ] Tomato Audit Protocol (T-GAP)	**[ ] Part 4 - Storage & Transportation**
[ ] Leafy Greens Audit (LGMA)	**[ ] Part 6 - Wholesale Distribution Center/Terminal**
[ ] Identity Preservation Audit (IP)	**Warehouse**
	[ ] Part 7 - Food Defense
DATE(S) preferred to have the audit:	

Once the request form has been received we will fax you an agenda outlining the objectives, audit, criteria, personnel required, affirmed date, time schedule, and estimated cost of the audit.
If the date on the agenda needs to be changed, we will need to be informed as soon as possible.
We charge the USDA rate of $92.00 per hour which includes travel, time on site, and audit preparatory time.
As per USDA requirements, we charge an additional $50.00 fee for website maintenance and certification.
There is a $150.00 USDA fee for all Harmonized Food Safety Audits and requires signature of a Subway Audit Release Form.
Before performing the audit, we must have a Participation Agreement on file that is signed by a company official. The agreement allows the auditor to view your records, access the facility, and allows for an unannounced visit to your facility if in operation > 30 days.
We would like to have this request no later than 2 weeks prior to the end of your season.
The commodity has to be in harvest before we can perform Pt. 2. In Part 2 or 3, employees must be working in the field or packing facility in order to verify that policies and procedures are being followed.

Signature_____DATE_____

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FORM APPROVED BY OMB No. 0581-0125

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Fruit and Vegetable Programs
Fresh Products Branch

REQUEST FOR AUDIT SERVICES

(This is the only acceptable form for fax or electronic submission to USDA for audit requests)

NOTE: Fill in all appropriate blocks. Requested services may be delayed because of incomplete information. Type of service requested must be selected below.

DATE OF REQUEST:		**ANTICIPATED DATE OF AUDIT:**	

AUDITEE INFORMATION		**FARM / FACILITY INFORMATION**	
Company Name:		Location:	
Street Address:			
City, State & Zip:		Total Acres / Total Sq Feet to be audited:	
Phone Number:			
Contact Person:			

APPLICANT INFORMATION		**COMMODITIES TO BE COVERED BY AUDIT** (Please List)
Company Name		
Phone Number:		
Fax Number:		
E-mail:		
Contact Person:		

TYPE OF AUDIT SERVICES REQUESTED

Type of Audit(s) Requested (Please choose at least one)	**Scope of GAP&GHP Audit** (Please choose all that apply)
☐ Good Agricultural Practices & Good Handling Practices (GAP&GHP) (Select Audit Scopes)	☐ Part 1 – Farm Review
☐ Mushroom Specific GAP Audit (M-GAP)	☐ Part 2 – Field Harvest & Field Packing Activities
☐ Tomato Audit Protocol (T-GAP)	☐ Part 3 – House Packing Facility
☐ Leafy Greens Audit (LGMA)	☐ Part 4 – Storage & Transportation
☐ Identity Preservation Audit (IP)	☐ Part 6 – Wholesale Distribution Center / Terminal Warehouse
☐ Other, Specify: _____	☐ Part 7 – Preventative Food Defense Procedures

ADDITIONAL REMARKS	

To download a copy of the USDA Good Agricultural Practices & Good Handling Practices audit checklist, please visit the USDA website at http://www.ams.usda.gov/gapghp.

Once a request has been received, a USDA representative will make contact within 48 hours of receipt to schedule the audit.

Checklist for Retail Purchasing of Local Produce

Name of Producer/Farm _____
City _____ State _____ Zip _____
Telephone _____ E-mail _____
Total acres farmed _____ Availability of promotional materials YES NO
Products to be purchased _____
Is an insurance liability required YES (Dollar amount_____) NO
Was the produce grown without addition of chemical pesticides and fertilizers? YES NO
Are you USDA Certified Organic? YES NO
Is the facility licensed and inspected to process products YES NO
Are there acceptable substitutes available if an order cannot be filled YES NO

Production Practices	Yes	No	N/A
Are wells protected from contamination?			
If irrigation is used, what is its source? ☐ Well ☐ Stream ☐ Pond ☐ Municipal ☐ Other _____			
What types of manures are used? ☐ Raw manure ☐ Composted ☐ Aged ☐ No manure is used			
Is raw manure incorporated at least 2 weeks prior to planting and/or 120 days prior to harvest?			
Is the manure application schedule documented with a copy submitted to the retail operation?			
Is land use history available to determine risk of product contamination (e.g., runoff from upstream, flooding, chemical spills, or excessive agricultural crop application)?			
Is the field exposed to runoff from animal confinement or grazing areas?			
Is land that is frequently flooded used to grow food crops?			
Are coliform tests conducted on soil in frequently flooded land?			
Are farm livestock and wild animals restricted from growing areas?			
Are portable toilets used in a way that prevents field contamination from waste water?			

Product Handling	Yes	No	N/A
Are storage and packaging facilities located away from growing areas?			
Is there risk of contamination with manure?			
Are harvesting baskets, totes, or other containers kept covered and cleaned (with potable water) and sanitized before use?			
Is harvesting equipment/machinery that comes into contact with the products kept as clean as possible?			
Are product and non-product containers available and clearly marked?			
Is dirt, mud, or other debris removed from product before packing?			
Are food grade packaging materials clean and stored in areas protected from pets, livestock, wild animals, and other contaminants?			

Transportation	Yes	No	N/A
Is product loaded and stored to minimize physical damage and risk of contamination?			
Is transport vehicle well maintained and clean?			
Are there designated areas in transport vehicle for food products and non-food items?			
Are products kept cool during transit?			

IOWA STATE UNIVERSITY
Extension and Outreach

SOUTH CAROLINA

DEPARTMENT OF AGRICULTURE

FOOD SAFETY DIVISION

“GUIDELINES FOR FOOD PROCESSORS”

2013

(REVISED)

SOUTH CAROLINA DEPARTMENT OF AGRICULTURE

"PRODUCT TO PRODUCTION" – GETTING STARTED FROM SCRATCH

If you plan to manufacture your product yourself, you need to contact the following for Rules and Regulations:

- If your product is sold **retail only**, call DHEC Food Protection – 803-896-0640
- If your product contains **more than 3% raw or 2% cooked Beef, Pork, Chicken or Lamb, call Meat Inspection Service – 803-788-8732.**
- If your product is a **Non Cheese Dairy, Soft Drink or Water Product**, call DHEC Dairy – 803-896-0644.
- If your product is a **Shellfish** product only, call DHEC Shellfish – 843-846-1030.
- If your product is an **alcoholic** product, call ATF – 1-800-398-2282
- All other products, call South Department of Agriculture – 803-737-9690.

SCDA regulated Specialty Food firm using a DHEC inspected kitchen

The owner/operator of the DHEC kitchen must get approval from their DHEC inspector to allow the use of their kitchen. The owner/operator of the DHEC kitchen **AND** the Specialty Food Manufacturer must submit, in writing, a statement granting the Specialty Food Firm permission to use the DHEC **kitchen during non-operational hours**. The letter must be submitted to SCDA and DHEC prior to manufacture and sale of product. DHEC, as the primary agency, can refuse permission for the Specialty Food Manufacturer to operate in the DHEC kitchen if in their opinion the operation would adversely impact the operation or maintenance of the DHEC facility.

Business Counseling and Training

For valuable information on how to run a successful business, schedule an appointment with Service Corps of Retired Executives (SCORE), 803-765-5131. SCORE is a volunteer program sponsored by the U.S. Small Business Administration. SCORE volunteers work in or near their home communities to provide management counseling and training to first-time entrepreneurs and current small business owners. Visit the SCORE web site at www.sba.gov.

Funding a Startup Business

Startup funding is necessary before any revenue is generated from product sales. Since it is costly to start any business, the use of an inspected facility such as a restaurant or caterer may be the best route initially. DHEC and SCDA must be involved with this option and must grant approval.

Product Liability Insurance

Investigate the cost of product liability insurance. Many large customers require sellers to show proof of liability insurance. Check with your homeowner's insurance provider for assistance. This is not a SCDA or Federal requirement.

Labeling Requirements

Research compatibility between the chosen label and the bottle (package) and what you and your co-packer use before any final decisions are made. Labels must comply with the Fair Packaging and Labeling Act and the Food Allergen Labeling and Consumer Protection Act. The SCDA will review your label prior to printing to ensure compliance. Food labels that are not in compliance are considered misbranded, therefore adulterated, and can be removed from sale.

UPC Coding

A UPC Code may be needed to sell your product in supermarkets. Call 1-800-543-8137 for more information about UPC Codes. This is not a SCDA or Federal requirement.

Product Analysis/Thermal Process Schedule

Product analysis by a recognized Process Authority to determine the nature of your product, shelf life, processing requirements, and other important characteristics would be a good idea. An analysis for pH, water activity and thermal processing requirements will be required for Acidified and Low Acid foods. A product analysis can be obtained from the **Processing Authorities** at Clemson University Food Science or NC State University. For Clemson, please contact Kimberly Baker, 864-376-4031, kabaker@clemson.edu. For NC State, please contact Dr. Fletcher Arritt, 919-513-2090, fmarritt@ncsu.edu or Tristan Berry, tkberry@ncsu.edu . Products will be classified as **ACID FOODS** (most jams and jellies), **ACIDIFIED FOODS** (relishes, pickles, some sauces), or **LOW ACID FOODS** (vegetables, milk based sauces, and soups). Acidified and Low-Acid Foods will require special certification. Attendance and completion of a **Better Process Control School** is required.

Minimum Cooking Temperatures

Internal Temperature: Beef (145*F), Pork (150*F), Fish (145*F), Poultry (165*F), Eggs (145*F) Ground: Beef (155*F), Pork (155*F), Poultry (165*F) External Surfaces: Beef (155*F), Pork (155*F), Poultry (165*F) Hold Temperature (of already-cooked foods): 130*F or above or 45*F or below

SOUTH CAROLINA DEPARTMENT OF AGRICULTURE

GUIDELINES FOR FOOD PROCESSORS

SECTIONS

Section 1. Definitions.

The definitions and interpretations contained in S**ection 39-25-20 of the South Carolina Food and Cosmetic Act** are applicable to such terms when used in these guidelines. The following definitions shall also apply:

- "Food processing area" means any place where food products or their ingredients intended for human consumption are prepared, processed, repacked, handled or manufactured. A food processing area shall also include any room used for washing and storing utensils, equipment or other apparatuses that come into contact with foods or ingredients of foods.

- "Potentially hazardous foods" means any perishable food, which consists in whole or in part of milk or milk products, eggs, meat, poultry, fish, shellfish or other ingredients capable of supporting rapid and progressive growth of infections or toxigenic microorganisms.

- "Sanitize" means effective treatment to physically clean surfaces of equipment, walls, refrigerators and utensils by a process that is effective in destroying microorganisms, including pathogens.

- "Shall" and "should." As used in these guidelines, "shall" refers to mandatory requirements and "should" refers to recommended procedures or equipment.

Section 2. Grounds.

The grounds around a food processing area under the control of the operator shall be free from conditions, which may result in the contamination of food. Standing water, excessively dusty road, uncut weeds, litter and wastes that may attract insects, birds, rodents or other animals shall not be permitted.

Section 3. Building and facilities.

Food processing areas shall be suitable in size, construction and design to permit easy maintenance and a sanitary operation. Food processing areas shall be completely separated from living quarters by solid, impervious walls with no connecting openings.

- Walls and ceilings - Walls and ceilings shall be kept clean and in good repair. They should be constructed of tile, smooth surface concrete, cement plaster, FRP (Fiberglass Reinforced Plastic), or other suitable materials. The paint should be an oil base paint or epoxy and should be light colored.

- Floors - Floors shall be kept clean and in good repair. Floors should be constructed of smooth surface concrete, tile or other waterproof materials that can be easily cleaned.

- Drains - Drains shall be installed where needed. Drains shall be adequate in size to prevent back-up clogging. They shall have proper traps and shall be kept in good repair.

- Sinks - There shall be a minimum of a mop sink-hand sink combination and a separate utensil sink to adequately clean and sanitize all utensils as needed.

- Water and sewage - The Department of Health and Environmental Control (DHEC) shall approve the Water Source and Sewage Disposal System whether private or public (Telephone 803-898¬3432 for information). Plumbing shall be installed in a manner that will prevent back-flow. All Sinks, Drains and Toilets shall drain into a DHEC approved Sewage Disposal System.

- Hot water - An adequate supply of hot water shall be supplied to all sinks. The temperature should be maintained at a minimum of 140 deg. F at all sinks except hand washing sinks which should be maintained at a minimum of 110 deg. F.

- Hand-washing facilities - Convenient hand-washing facilities shall be available for use before handling any foods, their ingredients or equipment. There shall be adequate hot water and bactericidal soap at each hand-washing station. Single service, disposable towels should be supplied also.

- Lighting - There shall be ample light available to promote cleanliness and safety. Light bulbs over processing areas or open food or ingredients must be protected to prevent glass getting into the product.

- Ventilation - There shall be adequate ventilation to prevent condensation and disagreeable odors. All windows and doors left open for ventilation purposes shall be properly screened with #16-mesh screen. If an outside door opens directly into a processing room, an air or plastic curtain should be present.

- Rest room facilities - Rest room facilities shall be provided for personnel. Where rest room facilities are provided, associated hand-washing facilities shall also be provided. A sign shall be posted directing personnel to wash their hands with soap after using the toilet.

Section 4. Equipment and utensils.

All equipment and utensils should be suitable for their intended purposes and properly maintained.

- Rusted and corroded equipment shall not be used.
- Food contact surfaces should be smooth, free from pits and crevices and relatively non-absorbent.
- Sponge rubber, stone slab, linoleum and unglazed ceramic shall not be used in equipment construction. Wood handled utensils should not be used.
- Each freezer and cooler shall be equipped with an accurate, easily readable thermometer.

Section 5. Sanitary operations.

Floors, walls, ceilings, tables, work surfaces, equipment and utensils shall be clean and sanitary when put into service.

- Food contact surfaces, equipment and utensils shall be cleaned and sanitized as necessary to maintain sanitary conditions. Sanitization may be accomplished with steam, hot water, chlorine or other approved bactericidal agents.
- Cleaned and sanitized equipment and utensils shall be stored in a clean, dry manner protected as much as possible from dust and other contaminates.
- Waste materials shall be removed promptly to prevent development of unsanitary conditions and feeding areas for insects and rodents.
- A rodent and insect control program should be maintained and handled by a qualified individual or firm.

Section 6. Processes and controls.

All reasonable precaution shall be taken to assure that production procedures do not cause contamination of food during processing.

- Raw materials shall be inspected to ensure that they are free from any contamination and fit for human use. Must be from approved sources.
- Meaningful codes should be used so that positive identification of specific lots can be made.
- Potentially hazardous foods shall be stored at an air temperature of 45 deg. F or less. Frozen foods shall be stored at an air temperature of 0 deg. F or less.
- Storage and transportation of finished products shall be under conditions that will prevent contamination and undesirable deterioration of the product and the container.

Section 7. Personnel.

- No person infected with a communicable disease shall work in a food processing area. Personnel shall wear clean outer garments and maintain a high degree of personal cleanliness.
- Employees shall wash their hands thoroughly (and sanitize where necessary) before starting work, after each absence from the work area and any other time their hands may have become soiled or contaminated.
- Employees shall wear hairnets, caps, or other effective hair restraints.
- Personnel shall not eat or use tobacco in any form in a food processing area.

For more information on how to manufacture and label your product, contact

Angie Culler, State Manager

SCDA Food Safety & Compliance Program

803-737-9700

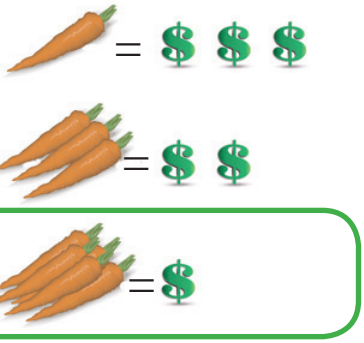
aculler@scda.sc.gov

Tips for Selling to: Grocery Stores

Grocery stores typically buy large volumes of fresh and processed foods as well as other household items, reselling their products to individual consumers. Grocery stores are appealing because they sell everything customers need at one convenient place. Depending on the size of the town, these stores may have more than one location. Very large grocery chains operate stores across broad regions of the country. Many grocery stores are now interested in selling products grown by local farmers.

For this market you can expect:

- **Medium-to-high volume**
- **Lower prices**



Advantages

- You may be able to sell larger volumes.
- The store may buy a range of products once you have introduced your first product.
- There is potential for a long-term relationship with the store, especially if you build a brand identity for your farm.

Considerations

- The first sale may be difficult because grocery stores have a limited amount of shelf space, already have regular suppliers, and may prefer to buy from fewer suppliers.
- Payment is not immediate, but generally occurs on a predictable monthly cycle.
- Standard packing and post-harvest practices are required. Produce should be delivered clean and cold.
- Grocery stores may require a PLU (Price Look-Up number) or UPC code (Universal Product Code, represented by a barcode).
- Do I have a Good Agricultural Practices (GAPs) plan? Does this buyer require it?

Photo: Rex Dufour, NCAT

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(Parent organization of the ATTRA Project, www.attra.ncat.org)

Tips for Selling to Grocery Stores

✪ *key point*

✪ **Be professional, reliable, and on time when communicating and delivering products.**

- **Visit or call the store and ask for an appointment with the produce buyer before the season begins. Provide the buyer with product samples, a product list for the full season, and a price list.**

✪ **Always provide a bill or invoice when you deliver your products.** Ask the receiving clerk to sign a copy that you keep for your records.

- **Build relationships with everyone who handles your product.**

✪ **Ask about and follow the store's expectations for pack, size, grade, or post-harvest practices.**

- **Communicate with buyers weekly during the growing season about your product availability.**

✪ **Plan your plantings for continuous harvest and adequate volume to supply expected demand from store.**

- **Offer the store lots of opportunities to promote and profile your farm along with your products.**
- **Offer to provide farm tours, pictures of your farm for display, and in-store demos of your products.**

Key Questions to Ask Yourself

- **What products do local grocery stores want that I could supply, including specialty ethnic foods?**
- **Does a particular chain have an interest in purchasing locally?**
- **What is my plan to ensure a consistent supply of a few key products over a period of several weeks?**
- **Do I have a Good Agricultural Practices (GAPs) plan? Does this buyer require it?**

Resources

- **ATTRA Publications**. Prices vary for individual publications. Many are free. An inexpensive subscription to ATTRA will give you access to all 350+ publications and databases. ***www.attra.ncat.org***
  - — **Scheduling Vegetable Plantings for Continuous Harvest** (2008)
  - — **Sustainable Season Extension: Considerations for Design** (2011)
  - — **Season Extension Techniques for Market Gardeners** (2005)
  - — **Postharvest Handling of Fruits and Vegetables** (2000)
  - — **Illustrated Guide to Growing Safe Produce on Your Farm: GAPs** (2011) (available in Spanish or English)
- **Selling Directly to Restaurants and Grocery Stores,** Washington State Department of Agriculture, 2010. ***http://agr.wa.gov/Marketing/SmallFarm/DOCS/3-sellingDirectlyToRestaurantsAndGroceryStores.pdf***
- **"A Guide for Farms Considering Selling in Grocery Stores"** and **"Is Selling to Grocery Stores Profitable for Farms or Processors?"** from the Local Fare website of the University of Wisconsin, Platteville. ***www.uwplatt.edu/cont_ed/LocalFare/links-resources.html***
- **See advertised prices of last week's produce** nationwide and by region at ***www.marketnews.usda.gov/portal/fv***
- **Price Look-up numbers (PLUs)**: a complete list is available on the Web, ***www.plucodes.com***
- ***Wall Street Journal* article** explains why and how to obtain UPC codes, including costs and alternatives. ***http://guides.wsj.com/small-business/starting-a-business/how-to-get-upc-codes-for-your-products-2***

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United States Department of Agriculture
National Institute of Food and Agriculture

Tips for Selling to: Grocery Stores

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This publication is available on the Internet at *www.attra.ncat.org*
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UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Marketing Fresh Produce to Food Retailers (Grocery Stores)

Introduction

Fresh produce retailing in the United States has seen changes and shifts in recent years that even many industry insiders would not have predicted at the end of the 1990s. At that time, the fresh produce distribution system seemed to be moving toward fewer and fewer large, centralized packaging and distribution centers. At the beginning of the 2010s, however, increased transportation costs and changing consumer preferences had grocers large and small considering the purchase of produce from growers nearer individual stores. Combined with the popularity of "local" produce among many American consumers, opportunities have risen for farm growers selling produce to local grocery stores. Producers of value-added produce products may also find local groceries a possible market for their product.

There are generally three avenues for selling produce to local groceries, based mainly on the size and scale of the store:

NICHE or SPECIALTY stores may often carry smaller product selections, with management and ownership entirely in the local area. The number of specialty food retailers has increased in recent years due to consumer interest in smaller store formats and specialty food items (like certified organic and local foods).

INDEPENDENT grocers function as a full-scale grocery, making purchase decisions at the store or regional level. These may be stand-alone stores or regional chains focused on a single city or metro area.

NATIONAL CHAIN stores typically make purchase and distribution decisions beyond the local level, often employing *regional distribution centers*. However, many national chains have also shifted to allow direct store delivery of some produce, particularly crops easily delivered in bulk, such as melons and pumpkins.

This fact sheet will overview key concerns for farms selling fresh produce to local grocery stores. Five main areas are overviewed: **producer-retailer relationships**, **pricing, packaging, quality, and quantity**.

Cultivating the Producer-Retailer Relationship

Selling wholesale produce is a highly relational business. Retailers are accustomed to placing orders with companies

Crop Diversification & Biofuel Research Education Center

and growers, and a relationship of mutual trust is cultivated between clients. Even many larger produce wholesalers and retailers trace their roots to small, family businesses that have grown across the generations. Personal relationships between buyers and sellers in the produce industry are very important.

Growers will need to cultivate a relationship with the produce manager or store manager responsible for making purchases of fresh produce. Producers should present themselves professionally and be willing to tell the story of how their produce is grown. This will allow the person purchasing your produce to get to know your farm and it can create an environment for moving more quantities of your crops. Retailers who understand and appreciate where a food crop is coming from tend to be more likely to promote that crop to their consumers. Some stores will include "point of purchase" materials, such as signs and recipes, to promote local crops. Others even invite producers into the store to hand out samples. Producers more willing to contribute to such displays and efforts will help cement the relationship with the retailer.

Pricing

Local groceries are often grouped with local restaurants in discussions about new market channels for fresh produce. Both buyers offer potentially larger markets for growers seeking higher-volume outlets to sell produce. However, one of the key differences for grocery buyers is that grocers are *generally* less likely to pay larger wholesale price premiums for locally grown produce. This makes negotiating price a key consideration for selling to a local grocer.

Producers should understand two things about pricing produce for sale to local grocers:

1. Prices received for produce will be wholesale, not retail.
2. Producers must understand how much their produce costs to grow and deliver.

Prices received from local groceries will be at or near wholesale price levels. This can be a surprise for producers accustomed to selling produce at retail prices, such as those received at farmers markets. Retailers work on *margin* — the difference between the wholesale price paid and the retail price. Some retailers may be willing to incur smaller margins to feature local produce; however, prices paid by groceries will still be at wholesale levels.

Since producers will be receiving wholesale prices, it is crucial that they understand how much a particular produce crop costs them to grow, harvest, and deliver to the grocery store. Knowing the costs of production will allow a grower to discuss potential prices with the local grocer. Be sure to factor in costs of packaging, delivery, and extra handling time that may be incurred when delivering produce. Some growers find it worth their extra time to sell produce through local grocers, despite smaller profits, because it provides a form of advertising for their farm to local consumers.

For a discussion of pricing, including examples and case studies regarding how to determine wholesale prices, growers may refer to publication PB1803 from the University of Tennessee's Center for Profitable Agriculture, *A General Guide to Pricing for Direct Farm Marketers and Value-Added Agricultural Entrepreneurs.*

Packaging

Another difference between selling in a direct market retail setting (such as a farmers market) and selling to a grocery store involves product packaging. Grocers are accustomed to handling

produce such as tomatoes, cucumbers, and squash in corrugated cardboard produce boxes. Other produce crops, like lettuce and greens, may be delivered in reusable plastic containers. Some crops, especially sweet corn, may be crated in wooden containers. Still other produce, such as berries and cherry tomatoes, may be packaged and labeled in plastic or paper pint or quart containers. Furthermore, grocers may be accustomed to handling other crops like melons that carry a sticker on each fruit with a numerical code; more produce is now labeled with individual Universal Product Code (UPC) or Product Lookup (PLU) symbols for scanning at checkout. For tips and resources on UPC and PLU symbols, producers may refer to *Tips for Selling to: Grocery Stores* published by the National Sustainable Agriculture Information Service (ATTRA).

While some local grocers may be willing to work with local growers, producers need to bear the responsibility of determining how to package the product in a manner that will allow the grocer to handle local product as safely and easily as possible. Produce growers should always budget the cost of packaging for delivery to the wholesale client and make production marketing decisions depending on their ability to bear the cost.

Producers may also realize that packaging can add value to their product. Attractive product labels carrying the farm's name and address can raise awareness among local consumers. Labels and signage indicating that products are locally grown, like signage carrying the Kentucky Department of Agriculture's Kentucky Proud logo, can help generate interest in local products in the retail store. Even bulk boxes or bins may be imprinted with a farm's name so that consumers can see where the produce has been grown as it is stocked in the produce section. Producers always need to manage costs of production, but money carefully spent on quality packaging may generate positive additional returns.

Produce is typically graded and packed in standard sized containers. Lists of common container sizes is included in the commodity merchandising information on the Produce Market Guide Web site.

Quality and Quantity

Produce is not only graded and packed in standard-sized containers, but it is also sold according to standard quality grades. While some local retailers may afford some leeway for local growers, producers should always adhere to commonly accepted grades and standards for produce crops. If a producer is unsure of how to size, grade, and pack produce, he or she should obtain the expertise to do so. Farm employees may also need to be trained on proper picking, grading/sorting, and packing techniques. In addition, certain varieties may be better suited for wholesale shipments. Resources such as the University of Kentucky Extension Publication ID-36, *Vegetable Production Guide for Commercial Growers*, may provide guidance for growers in variety selection.

Many produce crops require cooling and/or cool transport to maintain product quality and safety. Some local groceries may allow local producers to deliver crops directly after harvest for refrigerated storage. Others, especially larger chains, may require growers to maintain certain cool chain standards for different crops.

Producers willing to keep their crops at ideal postharvest temperature levels will benefit their grocer customers with improved product quality.

Finally, no discussion of selling produce to local grocers is complete without a discussion of product quantity. Failure of producers to deliver adequate and consistent quantities of produce is one of the main barriers for purchasing local produce frequently cited by grocers, foodservice, and other wholesale produce buyers. Producers will need to clearly communicate how much and how often they can deliver produce to the grocer *before* the season starts. Grocers understand that weather can impact harvest, but they expect clear communication from the producer in any event of delivery delay. Remember: the retailer is already accustomed to receiving wholesale produce at regular times and uniform quality. Local producers need to match (or exceed) the quality of existing wholesale options, especially if producers are trying to obtain any premiums in wholesale price.

Conclusion

More local grocers are open to the idea of sourcing local produce. Producers willing to develop a face-to-face relationship with a retail buyer, negotiate prices fair to both producer and grocer, and deliver produce of consistent quality and quantity can develop profitable wholesale market niches.

Additional Resources

- Kentucky MarketMaker (University of Kentucky)
http://www.marketmakerky.com
- Kentucky Proud (Kentucky Department of Agriculture)
http://www.kyproud.com
- MarketReady (University of Kentucky)
http://uky.edu/fsic/marketready
- Vegetable Production Guide for Commercial Growers, ID-36 (University of Kentucky)
http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm
- Agricultural Marketing Service (USDA)
http://www.ams.usda.gov
- Fresh Fruit, Vegetable, Nut and Specialty Crop Grade Standards (USDA-Agricultural Marketing Service)
http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&navID=U.S.GradeStandards&rightNav1=U.S.GradeStandards&topNav=&leftNav=&page=FreshGradeStandardsIndex&resultType=&acct=freshgrdcert
- General Guide to Pricing for Direct Farm Marketers and Value-Added Agricultural Entrepreneurs (University of Tennessee Center for Profitable Agriculture, 2011)
https://utextension.tennessee.edu/publications/Documents/PB1803.pdf
- The Packer
http://www.thepacker.com/
- Produce Market Guide (The Packer)
http://www.producemarketguide.com/index.php
- Selling Directly to Restaurants and Grocery Stores (Washington State Department of Agriculture, 2010)
http://agr.wa.gov/marketing/smallfarm/DOCS/3-SellingDirectlyToRestaurantsAndGroceryStores.pdf
- Should You Sell Products to Grocery Stores? (University of Wisconsin, 2010)
http://www.uwplatt.edu/cont_ed/LocalFare/pdf/SellingToGroceryStores.pdf
- Tips for Selling to: Grocery Stores (ATTRA-NCAT, 2012)
https://attra.ncat.org/attra-pub/summaries/summary.php?pub=387

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Photos by Miranda Hileman, University of Kentucky **June 2012**

Nutrition Labeling Fact Sheet

Introduction to nutrition labeling

The 1990 Nutrition Labeling and Education Act was established to provide consumers with accurate information about what is in the food products they are eating. The law provides rules for nutrition labeling that must be followed for all multi-ingredient foods. Clemson can analyze the nutritional content of your food product using a food ingredient database which will then generate a nutrition label with all the necessary information in the correct format. We will send you the label in a format that you can take to a printer and use on your product.

Objective of nutrition labeling

A nutrition label provides information on the ingredients and nutritional make-up of a food including the amount of calories, carbohydrate, fat, protein, and a limited number of vitamins and minerals that the food contains.

It provides valuable information for people following specific diet guidelines such as those required for diabetes, heart disease, and high blood pressure.

Components of a nutrition label

There are three major parts to a nutrition label: the product name including health claims, the ingredient list, and the nutrition facts panel.

The product name and any health claims are present on the front of the packaging. Health claims are closely regulated by the FDA (Food & Drug Administration) and must meet certain criteria. For example, a food that is labeled 'low fat' must not have more than 3 grams of total fat per serving. A food labeled 'reduced fat', however, has different criteria. It is illegal to use these health claims without first ensuring your product meets these specifications.

The ingredient list is a listing of all of the ingredients in the recipe of your food product. Ingredients are listed in order of weight with the ingredient present in the most amount/weight listed first.

The nutrition facts panel provides detailed information about the nutritional make-up of the food product. The nutrient amounts listed are based on consumption of one serving of the food product, making 'serving size' a key factor in the interpretation of the information.

Requesting nutrition labeling

If you have requested product testing from Clemson University by completing the 'Product Testing and Nutrition Labeling Request Form', we have the information needed to generate a food label for you. This form can be downloaded from the Food2Market website at www.clemson.edu/extension/food2market. You must make sure to check the 'Nutrition Label' box on the form in order to have the nutritional analysis completed. The cost is $100.

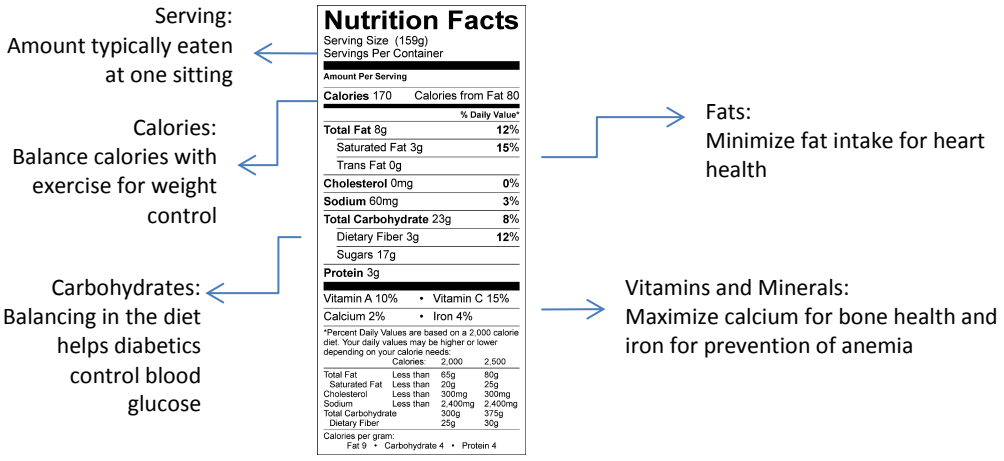
Mail the completed "Product Testing and Nutrition Labeling Request Form" and check made payable to "Clemson University" to:

Clemson University
Department of Food, Nutrition and Packaging Science
C/o Product Testing Laboratory
223 Poole Agricultural Center
P.O. Box 340316
Clemson, SC 29634-0316

Allow *3 weeks* for analysis to be completed and the label to be returned.
Your label will be sent to you via e-mail by default or to the address provided on the 'Product Testing and Nutrition Labeling Form'.

Interpreting your results
It is important to note that Clemson does not actually print labels for you, but we provide the nutrition label to you in a computer file or by mail that can be sent to a printer. The file will be saved as an Adobe PDF which is typically the format requested by print shops.
You are advised not to make specific health claims on your food product until you have consulted with officials from the FDA to ensure your product meets the necessary standards.

Highlights of the Nutrition Facts Panel



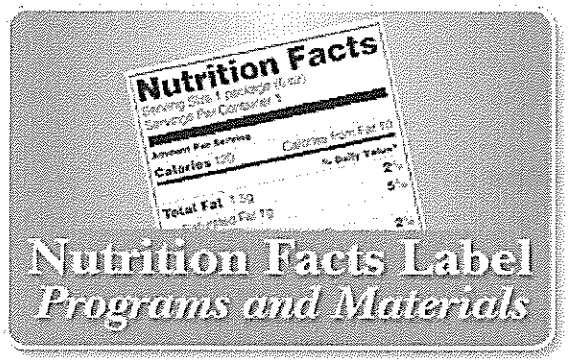
Parisi[1], M. A., E. L. Steinberg[2], and J. K. Northcutt. 2012. Product testing and nutrition labeling factsheets. Prepared for the Department of Food, Nutrition and Packaging Sciences, Clemson University.
[1]Assistant Professor, Winthrop University, Rock Hill, SC and Adjunct Assistant Professor, Clemson University; [2]Graduate Research Assistant, Clemson University; [3]Professor, Clemson University.

U.S. Food and Drug Administration
Protecting and Promoting Your Health

Home Food Ingredients, Packaging & Labeling Labeling & Nutrition

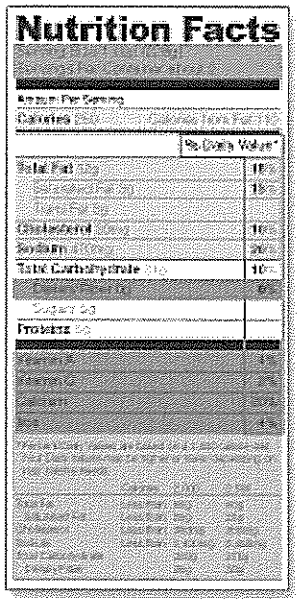
Food

Nutrition Facts Label Programs & Materials



Resources for Using & Promoting this Easy Health Tool

FDA's Center for Food Safety and Applied Nutrition (CFSAN) has a wealth of educational materials that make it easy to understand and use the Nutrition Facts Label. Consumers, educators, teachers, dietitians, and health professionals are invited to check out the many campaigns and printables available below.



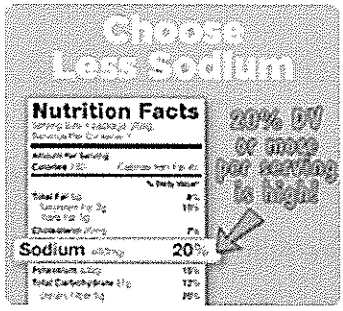
Understanding & Using the Nutrition Facts Label

The Nutrition Facts Label is an easy tool for making quick, informed food choices that contribute to a healthy diet. FDA offers a variety of resources for understanding and using the Nutrition Facts Label.

- Eating Healthier & Feeling Better Using the Nutrition Facts Label[1]
- How to Understand & Use the Nutrition Facts Label[2]
- Key to Choosing Healthful Foods Using the Nutrition Facts Label[3]
- *Trans* Fat Now Listed With Saturated Fat & Cholesterol[4]
- Talking About Trans Fat: What You Need to Know [5]
- Nutrition Facts Label Images for Download[6]

Videos

- The Food Label & You[7]
- Eat for a Healthy Heart[8]
- Read the Label![9]



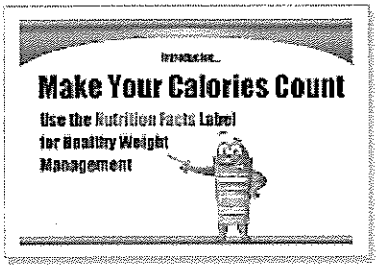
Sodium: Look at the Label [10]

También disponible en Español (Spanish)[11]

Over 75% of the sodium you eat comes from packaged and restaurant foods. The **Nutrition Facts Label** on food and beverage packages is a useful tool for making healthful dietary choices. FDA offers informative education materials that provide practical tips for using the label to **reduce sodium in your diet**.

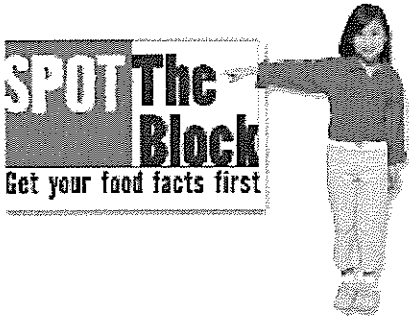
Make Your Calories Count Campaign

Make Your Calories Count is an interactive learning program that provides consumers with information to help plan a healthful diet while managing calorie intake. The



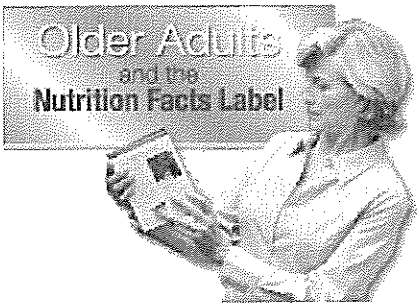
exercises will help consumers use the food label to make decisions about which food choice is right for them.

- Make Your Calories Count[12]
- Questions & Answers on Make Your Calories Count[13]



Spot the Block Campaign[14]

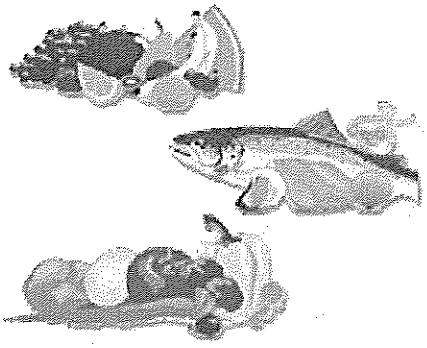
Spot the Block is the award-winning outreach campaign that challenges tweens (ages 9 to 13) to use the Nutrition Facts Label (the "block") to make healthy food choices. With engaging content, parent information, *and* grassroots outreach, kids and families across the United States can **Spot the Block** today—and every day!



Nutrition for Older Adults

Good nutrition can help older adults feel their best and stay strong. It can also help reduce the risk of and/or manage the symptoms of some diseases that are common among older adults.

- Using the Nutrition Facts Label: A How-To Guide for Older Adults[15]



Nutrients & Food

Understanding nutrients in foods can help consumers use the Nutrition Facts Label more effectively, and enable them to make choices that best suit their own health needs. Resources for becoming familiar with nutrients and their role in a healthy diet can be found here.

- 2010 Dietary Guidelines for Americans [16]
- Nutrition Information for Raw Fruits, Vegetables & Fish [17]
- Kids 'n Fiber — Video[18]

Page Last Updated: 03/18/2013
Note: If you need help accessing information in different file formats, see Instructions for Downloading Viewers and Players.

U.S. Food and Drug Administration
10903 New Hampshire Avenue
Silver Spring, MD 20993

Ph. 1-888-INFO-FDA (1-888-463-6332)
Email FDA

Links on this page:

1. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm266853.htm
2. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274593.htm
3. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm079449.htm
4. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm274590.htm
5. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm079609.htm
6. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm114155.htm
7. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm275409.htm
8. /ForConsumers/ConsumerUpdates/ucm199058.htm
9. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm079449.htm#video
10. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm315355.htm
11. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm317028.htm
12. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm275438.htm
13. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm275437.htm
14. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm281746.htm
15. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm267499.htm
16. http://www.health.gov/dietaryguidelines/2010.asp
17. /Food/IngredientsPackagingLabeling/LabelingNutrition/ucm063367.htm
18. /ForConsumers/ConsumerUpdates/ucm270899.htm

Food Labeling for Dummies

A definitive guide to common food label terms and claims

Animal Welfare APPROVED

animalwelfareapproved.org

introduction

Today, a bewildering range of terms and claims are used to promote and label the food we buy. While some of these terms and claims have definitions that are controlled by government regulation, most are unregulated and are widely used by companies to attract buyers to their products. The problem is that the use of such unregulated terms can lead to potential misunderstandings – and misuse. Common examples of labels you might see on food include 'locally grown', 'natural', 'free-range', or even 'fresh'. But what exactly do all these terms and claims really mean – and how can you be confident that they are true?

Animal Welfare Approved has produced *Food Labeling for Dummies* to provide clear and factual definitions for the most commonly used claims and terms for the production, marketing and labeling of meat, dairy, eggs and other farmed products.

How can the *Food Labeling for Dummies* help?

Let's consider a package of meat labeled "All natural Angus beef." Looking at this label, you might assume that this cow has spent every day of her life on lush grass in beautiful countryside. But the reality is that from six months of age it lived on a feedlot, where it was routinely treated with antibiotics. It never saw another blade of grass for the remainder of its life and was fed a grain-based diet in a feedlot until the day it was slaughtered. To top it all, the cow actually had no real Angus heritage in the first place – she simply had a predominantly black hide, which is all that was needed to qualify the farmer to use this term. In fact, the only true word in the "All natural Angus beef" label is that it was beef. This kind of misleading labeling is not only legal, but widely used.

Another challenge in trusting many common labels is the lack of accountability in so-called 'self-made' claims. Without independent third-party verification the integrity of a label claim is only as reliable as the person or company making it. The most trusted labels will always incorporate independent audits of the supply chain to verify a set of published standards in order to provide maximum integrity of any claims made.

How to use this guide

Where the use of a term or claim is legally defined or regulated, we provide the official definition in **bold type** – citing the official source. Where a term or claim is not regulated or legally defined, this fact is clearly stated and we provide an unbiased definition of the term or claim. Broadly speaking, the terms and claims made on food labels fall into two categories:

Verified or certified by an independent audit

Some of the terms and claims used on food labels are audited by an independent third party. In such cases an independent auditor visits the associated farm, slaughter plant or the processing/packing plant to ensure that the food was produced or processed according to specified rules or standards.

Food labels with 'self-made' claims

Other terms and claims used on food labels are submitted and approved using a 'self-declaration' process. In other words, there is no physical verification or independent audit process to check that the terms or claims used on the label are accurate – or even true.

Within these two categories of label it is common to see a range of claims or terms relating to the farming practices used, such as the avoidance of antibiotics or hormones, or specific environmental practices, or the high welfare treatment of the animals. When evaluating the validity of any claim it is important to take into account whether it has been independently verified or not. If there is no independent third party verification, you may wish to request further information from the supplier to ensure that the product really does meet your expectations.

legend

We have allocated a range of symbols for each commonly used claim or phrase to show if it is independently verified or not, and to highlight the authenticity of any wider issue(s) that the label claims address, such as the high welfare treatment of animals or environmental protection.

AUDITED/THIRD-PARTY CERTIFIED

This symbol is your assurance that term or claims made on the label have been verified regularly by a third party and determined to be true. This would include third-party certifications such as Animal Welfare Approved, Certified Organic and American Grassfed Association.

UNAUDITED/NO THIRD PARTY CERTIFICATION

This symbol shows that the terms or claims are not independently verified regularly. Where you see this symbol you may wish to contact the suppliers to find out more about the product or to ensure you are happy with the validity of any claims being made.

PUBLISHED PROTOCOL

A legally defined or agreed definition exists for the term or claim.

HIGH WELFARE ASSURANCE

The label is recognized by the main web based food labeling guides* as having meaningful animal care standards and in addition includes audited standards for high welfare slaughter.

HIGH WELFARE CLAIM

The label makes claims that may affect animal welfare, but these claims are not verified and/or not recognized and/or the label has no audited high welfare slaughter standards.

ENVIRONMENTAL ASSURANCE

The label makes claims that address farming's impact on the environment that are independently verified.

ENVIRONMENTAL CLAIM

The label makes claims that address farming's impact on the environment, but these claims are not verified.

FAMILY FARMED ASSURANCE

The label makes claims that the product was raised by a family farmer that are independently verified.

FAMILY FARMED CLAIM

The label makes claims that the product was raised by a family farmer, but these claims are not verified.

**The food labeling guides considered are: WSPA Eat Humane, NRDC Label Look-Up and Greener Choices Eco Labels*

SOCIAL RESPONSIBILITY ASSURANCE

The label makes claims that address fair treatment to workers and community that are independently verified.

SOCIAL RESPONSIBILITY CLAIM

The label makes claims that address fair treatment to workers and community, but these claims are not verified.

LOCAL/REGION SPECIFIC ASSURANCE

The label makes claims that the product was produced in a certain geographic region/country that are independently verified.

LOCAL/REGION SPECIFIC CLAIM

The label makes claims that the product was produced in a certain geographic region/country, but these claims are not verified.

ANTIBIOTIC USE CONTROLLED ASSURANCE

The label makes claims that antibiotic use is prohibited or significantly restricted that are independently verified by audit.

ANTIBIOTIC USE CONTROLLED CLAIM

The label makes claims that antibiotic use is prohibited or significantly restricted, but these claims are NOT verified by audit.

SLAUGHTER REVIEW ASSURANCE

The slaughter process is independently verified or audited annually to a published set of standards.

NO SLAUGHTER REVIEW

The slaughter process is not verified or audited annually to a published set of standards.

CAGED EGG PRODUCTION

Caged egg production is permitted.

terms and claims

AFFIDAVIT
No legal or regulated definition

An affidavit is defined as a statement where the person signing takes an oath that the contents are, to the best of their knowledge, true. The affidavit system is sometimes used in meat production to add weight to a company's claims of production methods, such as the avoidance of hormones and antibiotics, specific grazing and feeding protocols, or high welfare management. Buyers should be aware that while an affidavit system may provide some comfort that claims being made are factual, such systems do not employ independent third party verification programs that would provide absolute guarantees that the claims made are truthful. Retailers such as Wal-Mart are moving away from this kind of 'self-made' claim and are beginning to require audits to ensure integrity and to protect brand value.

AMERICAN HUMANE CERTIFIED
Definition by American Humane Certified

American Humane's program provides a verifiable assurance that products carrying the American Humane Certified label have met rigorous, science-based welfare standards and were humanely raised throughout their life process.

Despite their statement above, this animal welfare certification supports caged production for chickens as "humane". There are no requirements for pasture access for any species.

ANGUS/CERTIFIED ANGUS BEEF
No legal or regulated definition

The American Angus Association has registered a definition of "Angus" beef with the USDA that requires the animal to have 50 percent Angus genetics or a predominantly (51 percent) black coat or hide. The animal must be under 30 months at slaughter and meet some additional meat quality requirements. There are no requirements relating to how the animal is raised. The terms "Angus Beef" and "Black Angus Beef" are also commonly used but are even less regulated than Certified Angus Beef.

ANTIBIOTIC-FREE
No legal or regulated definition

See *"NO ANTIBIOTICS ADMINISTERED"* below.

ARTISAN/ARTISANAL
No legal or regulated definition

The terms "artisan" and "artisanal" imply that products are hand-made in small batches. As there is no legal definition for these terms, anyone can use the term "artisanal" – even if the product is mass produced in a factory. The term is most often used on labels and marketing materials for cheese, bread, pasta, jams, chocolates, confections, sauces, preserves, condiments, beverages, and ice cream, but can also include products from fisheries and other products.

BASTED OR SELF-BASTED
Definition by USDA Food Safety and Inspection Service

Bone-in poultry products that are injected or marinated with a solution containing butter or other edible fat, broth, stock or water plus spices, flavor enhancers and other approved substances must be labeled as basted or self-basted. The maximum added weight of approximately 3% solution before processing is included in the net weight on the label. Label must include a statement identifying the total quantity and common or usual name of all ingredients in the solution, e.g., "Injected with approximately 3% of a solution of _____ (list of ingredients)." Use of the terms "basted" or "self-basted" on boneless poultry products is limited to 8% of the weight of the raw poultry before processing.

BEYOND ORGANIC/BETTER THAN ORGANIC /MORE THAN ORGANIC
No legal or regulated definition

These terms imply that products meet and exceed organic standards. However, no verification of farming methods is either defined or audited to ensure that this is the case.

BIODYNAMIC
Definition by Demeter-USA

Biodynamic agriculture goes beyond organic, envisioning the farm as a self-contained and self-sustaining organism. In an effort to keep the farm, the farmer, the consumer, and the earth healthy, farmers avoid chemical pesticides and fertilizers, utilize compost and cover crops, and set aside a minimum of 10% of their total acreage for biodiversity. The entire farm, versus a particular crop, must be certified, and farms are inspected annually. In order for a product to bear the Demeter logo it must be made with certified Biodynamic® ingredients and meet strict processing standards to ensure the purest possible product.

Biodynamic farming is an approach based on the work of the Austrian philosopher, Rudolf Steiner. In addition to organic practices, such as crop rotation and composting, biodynamic farmers rely on special plant, animal and mineral preparations and the rhythmic influences of the sun, moon, planets and stars. Biodynamic® agriculture is a method of sustainable farming that regards the farm as a self-contained and self-sustaining organism. This system encourages farmers to avoid chemical pesticides and fertilizers, utilize compost and cover crops, and promote biodiversity. The Biodynamic® claim is legally defined and audited by the Demeter Association, Inc.

CAFO/ AFO
Definition by U.S. Environmental Protection Agency (EPA)

Animal Feeding Operations (AFOs) are agricultural operations where animals are kept and raised in confined situations. AFOs congregate animals, feed, manure and urine, dead animals and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures,

fields or on rangeland. AFOs confine animals for at least 45 days in a 12-month period and have no grass or other vegetation in the confinement area during the normal growing season. Concentrated Animal Feeding Operations (CAFOs) are AFOs that fall under one of the EPA's definitions of Large, Medium or Small CAFO's, depending on the number of animals involved, how wastewater and/or manure are managed, and whether the operation is "a significant contributor of pollutants." CAFOs exist in all regions of the U.S. They are concentrated in the eastern seaboard, the plains and the west coast. The total number of CAFOs is estimated to be in excess of 20,000. For more information got to www.epa.gov/region07/water/cafo/index.htm

CAFOs are also known as Confined Animal Feeding Operations, Concentrated Agricultural Feeding Operations, or Factory Farms. The vast majority of all animal proteins raised and consumed in the U.S. come through the CAFO system. If you buy meat you should be aware that CAFO facilities vary widely, with huge variations in size, sanitation, high welfare treatment practices, as well as antibiotic and hormone administration. CAFOs are prohibited under Animal Welfare Approved standards.

CAGE-FREE
No legal or regulated definition

This term is most often applied to egg laying hens, not to poultry raised for meat. As the term implies, hens laying eggs labeled as "cage-free" are raised without using cages, but almost always live inside barns or warehouses. This term does not explain if the birds had any access to the outside, whether any outside area was pasture or a bare lot, or if they were raised entirely indoors in overcrowded conditions. Beak cutting is permitted. No independent third party verification.

CERTIFIED FARMERS' MARKET
No legal or regulated definition in many states

Some states offer or require certification of farmers' markets to ensure that products sold are produced by the farmers themselves. In 2009, these states included California, Nevada and Texas. Most of the nation's producer-only farmers' markets establish their own rules and methods of ensuring product integrity at the local level. Ask the market organizer about the rules which apply to your nearest farmers' market.

CERTIFIED NATURALLY GROWN
No legal or regulated definition

Certified Naturally Grown is a non-profit organization offering certification programs tailored for small-scale, direct-market farmers and beekeepers using natural methods. Certified Naturally Grown (CNG) products are certified as having been produced in approximate accordance with national organic standard. This term is modeled on Participatory Guarantee Systems (PGS). PGS programs differ from third-party inspector models like the USDA's National Organic Program (NOP) in that they employ a peer-review inspection process built on local networks. The label is therefore not verified by an independent third party.

CHEMICAL-FREE
Definition by USDA Food Safety and Inspection Service

The term is not allowed to be used on a label.
"Chemical free" and "no chemicals added" are not official marketing claims, as there is no standardized definition. Such terms create confusion in the marketplace, as (for example) antibiotics are not considered chemicals by USDA.

CLONING/MEAT FROM CLONED ANIMALS
No legal or regulated definition

Cloning is the practice of creating an exact genetic replica of an organism. Cloning has many negative implications for animal welfare – for example, the mortality of newborn clones is very high – and potentially threatens the genetic diversity of our food supply. Food products from cloned animals are currently allowed to enter the food system unlabeled. Cloned animals cannot be Animal Welfare Approved.

CLOSED-HERD
No legal or regulated definition

Closed-herd implies that all animals – or at the least all females – are bred from the original herd. No animals are purchased from outside breeders or other sources to incorporate into the herd or flock. This system reduces the risk of bringing in new disease and allows the farmer to select and promote characteristics such as longevity, easy birthing and ability to thrive outdoors from the best of their own animals.

CONVENTIONAL
No legal or regulated definition

Conventional refers to standard agricultural practices that are widespread in the industry. It can (but does not necessarily) include the use of pesticides, synthetic fertilizers, "mono-cropping," feedlot and confinement systems, antibiotics, hormones and other chemical approaches. Conventional farming in the U.S. may also include the use of Genetically Modified Organisms (GMOs).

COOL – Country of Origin Labeling
Definition by USDA Food Safety and Inspection Service

The Country of Origin Labeling (COOL) program is neither a food safety or traceability program but rather a consumer information program. Food products, both imported and domestic, must meet the food safety standards of USDA's Food Safety and Inspection Service and the U.S. Food and Drug Administration. The COOL law requires retailers to notify their customers of the country of origin for all commodities covered under this law. Foods that must be labeled with their country of origin are:

terms and claims *(cont)*

- **Muscle cuts of beef (including veal), lamb, pork, goat, and chicken**
- **Ground beef, ground lamb, ground pork, ground goat, and ground chicken**
- **Farm raised fish and shellfish**
- **Wild fish and shellfish**
- **Perishable agricultural commodities**
- **Peanuts, pecans and macadamia nuts**
- **Ginseng**

For more information go to www.fsis.usda.gov/factsheets/COOL_Meat_and_Chicken/index.asp

CRATE-FREE

No legal or regulated definition

Two types of crates are commonly used in pork production: farrowing crates and gestation crates, defined below. It is important to note, however, that just because a label states that it is farrowing-crate free does not mean that it is gestation-crate free, and vice versa. In addition, even if a product is labeled crate-free it does not mean that the animals were raised outdoors.

- FARROWING CRATE: A cage or other strictly enclosed space in which a sow is confined to give birth to and suckle her piglets and where the sows' movements are restricted so she cannot turn around or otherwise have free movement. Farrowing crates are prohibited under Animal Welfare Approved standards.

- GESTATION CRATE: A cage or stall in which a sow is confined for the period of pregnancy and in which she has restricted options for movement. Gestation crates are prohibited under the Animal Welfare Approved standards.

CURED

Definition by US Food and Drug Administration

Meat and poultry are cured by the addition of salt alone or in combination with one or more ingredients such as sodium nitrite, sugar, curing accelerators, and spices. These are used for partial preservation, flavoring, color enhancement, tenderizing and improving yield of meat. The process may include dry curing, immersion curing, direct addition, or injection of the curing ingredients. Curing mixtures are typically composed of salt (sodium chloride), sodium nitrite, and seasonings. Cured meat and poultry products include bacon, beef jerky, smoked turkey, sausages, corned beef, pastrami, pig's feet and corned tongues.

DRY-AGED

No legal or regulated definition

"Dry-aged" meat (usually beef) is hung in a temperature- and humidity-controlled room for a period of weeks to develop flavor and tenderness. Under controlled temperatures the muscle fibers relax, yielding a less resilient piece of meat that is more tender. Most commercially available meat is "wet-aged," meaning it is wrapped in plastic, vacuum sealed and then refrigerated for a shorter period of time. No independent third party verification.

DRY-FARMED

No legal or regulated definition

Produce grown using a technique that seeks to retain moisture in the soil and to minimize or eliminate the use of irrigation. Dry farming works to conserve soil moisture during long dry periods, primarily through a system of tillage, surface protection, and the use of drought-resistant varieties. The production of some of the finest wines and olive oils in the world are accomplished with dry-farmed fruit. Today, California has dry-farmed vineyards up and down the coast. In addition to grapes and olives, a wide range of crops, including tomatoes, pumpkins, watermelons, cantaloupes, winter squash, garbanzos, apricots, apples, and potatoes, are dry farmed in California. No independent third party verification.

FAIRTRADE

Definition by the Fairtrade Foundation

Fairtrade is about better prices, decent working conditions, local sustainability, and fair terms of trade for farmers and workers in the developing world. By requiring companies to pay sustainable prices (which must never fall lower than the market price), Fairtrade addresses the injustices of conventional trade, which traditionally discriminates against the poorest, weakest producers, and enables them to improve their position and have more control over their lives.

FAMILY FARM

No legal or regulated definition

Includes any farm where the majority of the business is owned by the operator and individuals related to the operator by blood or marriage, including relatives who do not reside in the operator's household. Nevertheless, this claim means nothing in terms of specific production practices, sustainability or size. Unless the claim is defined and verified by an independent third party its meaning can vary greatly.

FARMSTEAD CHEESE

No legal or regulated definition

Farmstead cheese is made on a farm from milk produced on that farm. Farmstead cheeses are usually made in relatively small batches, often by hand. However, there is no formal definition for this term and it does not address the farm's husbandry practices or ensure outdoor access for the animals producing the milk. No independent third party verification.

FEEDLOT

No legal or regulated definition

A method of fattening cattle and other ruminants where animals are removed from pasture, confined in crowded conditions, and fed grain until they reach market weight. As cattle and other ruminants are not

biologically equipped to digest large amounts of grain, this can lead to the proliferation of pathogenic E. coli bacteria in the animals' gut, as well as other health and welfare issues such as liver lesions, as well as significant environmental issues. Feedlots are known to be the most environmental resource-intensive food system. Feedlots are prohibited under Animal Welfare Approved standards.
See also "CAFO".

FOOD ALLIANCE

Definition by Food Alliance Certified

Food Alliance is a nonprofit organization that certifies farms, ranches, and food processors and distributors for sustainable agricultural and facility management practices. By choosing Food Alliance Certified products, consumers and commercial food buyers support safe and fair working conditions, humane treatment of animals, and good environmental stewardship.

The Food Alliance livestock certification program uses both fixed and scored inspection evaluation criteria. While farms must comply with all fixed criteria, a farm may become certified based on their "average" score in some key areas. To ensure that all aspects of management that may be of concern are being met, consumers are encouraged to contact individual Food Alliance Certified producers about specific practices that are not included in the fixed criteria.

FOOD MILES

No legal or regulated definition
Claims about food miles relate to the distance traveled by a given food product before you consume it. Since much of the energy used in the U.S. food system is used in processing, packaging, transporting, storing and preparing food, many people want to reduce their carbon footprint by buying food with fewer "miles" – in other words, food that is locally grown and minimally processed. No independent third party verification.

FREE-RANGE/FREE-ROAMING

Definition by USDA Food Safety and Inspection Service (for poultry meat ONLY)

Producers must demonstrate to the Agency that the poultry has been allowed access to the outside.

Buyers should be aware that the type of outdoor access provided (such as pasture or dirt lot), the length of time the birds are required to have outdoor access, and how this must be verified is not legally defined and therefore varies greatly from facility to facility. Crowding is not uncommon.
No independent third party verification.

FREE-RANGE/FREE-ROAMING

(for any species aside from poultry meat)
No legal or regulated definition

Buyers should be aware that the type of outdoor access provided (such as pasture or dirt lot), the length of time animals are required to have outdoor access, and how this must be verified is not legally defined and therefore varies greatly from facility to facility. There is no requirement to demonstrate to the USDA that birds and animals have even had access to the outside, let alone any reference to other management practices. No independent third party verification

FRESH POULTRY

Definition by USDA Food Safety and Inspection Service

"Fresh" refers to poultry whose internal temperature has never been below 26 °F.

FROZEN POULTRY

Definition by USDA Food Safety and Inspection Service

Temperature of raw, frozen poultry is 0 °F or below.

FRYER-ROASTER TURKEY

Definition by USDA Food Safety and Inspection Service

Young, immature turkey usually less than 16 weeks of age, of either sex.

GAPS: GOOD AGRICULTURAL PRACTICES

Definition by USDA

Good Agricultural Practices (GAPs) are a collection of recommended principles for on-farm production, post-harvest processing, and storage of food that reduce risks of microbial contamination.

GENETICALLY MODIFIED ORGANISMS (GMOS)/ GENETICALLY ENGINEERED

No legal or regulated definition

GMOs are plants and animals whose genetic make-up has been altered to exhibit traits that they would not normally have, like longer shelf-life, a different color, or resistance to certain chemicals or pests. In general, genes are taken (copied) from one organism that displays the desired trait and transferred into the genetic code of another organism. There are significant concerns about the environmental impact of GM crops. Genetic modification is currently allowed in conventional farming and foods which contain GMO do not have to be labeled. The USDA also does permit the labeling of animal products from non-genetically modified animals, meaning the consumer has no way of knowing whether they are consuming products from genetically modified animals.

terms and claims *(cont)*

GLOBAL ANIMAL PARTNERSHIP

Definition by Global Animal Partnership

Global Animal Partnership brings together farmers, scientists, ranchers, retailers, and animal advocates with the common goal of wanting to improve the welfare of animals in agriculture.

The Global Animal Partnership (GAP) only has standards for beef cattle, pigs and broiler chickens, with pilot standards for turkeys. To qualify for the GAP 5-Step Animal Welfare program farmers simply have to meet the basic requirements of the step 1 level. In reviewing this qualification step, the renowned animal scientist Dr. Temple Grandin stated that in most cases the standards were the same – or only marginally better – than those found in industrial farming systems.

GRAIN-FED/GRAIN-SUPPLEMENTED/ GRAIN-FINISHED (ruminants)

No legal or regulated definition

Implies animals were fed grain exclusively or as a supplement to a forage diet. Not verified and not necessarily a positive claim in terms of welfare or meat quality. See also "FEEDLOT".

GRAIN-FED

(poultry)

Grain fed implies that birds were fed a vegetarian diet without actually specifying it. See "VEGETARIAN FED" below.

GRASS BASED FARMING

Definition by USDA

Grass-based production relies on pasture or rangeland to supply the protein and energy requirements of livestock. Grazing and forage feeding replace high grain diets, close confinement and feedlot-finishing during most or all of an animal's lifetime. The producer focuses on pasture plant and soil management, and proper stocking density and rotational grazing.

GRASSFED

Definition by USDA

100% of the diet of grass-fed animals consists of freshly grazed pasture during the growing season and stored grasses (hay or grass silage) during the winter months or drought conditions.

This term refers only to the diet of cattle, sheep, goats, and bison. It does not indicate if an animal has been given access to pasture, or if it has been raised in a feedlot and/or given antibiotics or hormones. The USDA definition goes on to state that "if for environmental or health of the animal reasons supplementation can be used if the producer logs the type and amount." Hence, feedlot cattle could be fed harvested forage and supplements, antibiotics and synthetic hormones and still bear the USDA grassfed label. The American Grassfed Association (AGA) has an independent third party certification program available to ranchers. The AGA certified program is recognized by FSIS (the USDA Food Safety and Inspection Service) and verifies a 100 percent forage diet, raised on pasture that has a minimum of 75 percent cover, no confinement, no antibiotics and no added hormones. Meat purchasers seeking truly grassfed meat should source AGA certified products.

GRASSFED

Definition by American Grassfed Association

All livestock production must be pasture/grass/forage based. Grass and forage shall be the feed source consumed for the lifetime of the ruminant animal, with the exception of milk consumed prior to weaning. The diet shall be derived solely from forage consisting of grass (annual and perennial), forbs (e.g. Legumes, Brassica), browse, or cereal grain crops in the vegetative (pre-grain) state. Animals cannot be fed grain or grain byproducts (starch and protein sources) and must have continuous access to pasture. All livestock produced under this standard must be on range, pasture, or in paddocks for their entire lives. This means that all animals must be maintained at all times on land with at least 75% forage cover or unbroken ground. AGA grassfed ruminant animals must not be confined to a pen, feedlot or other area where forages or crops are not grown during the growing season. Livestock produced under this standard may be fed hay, haylage, baleage, silage, crop residue without grain, and other roughage sources while on pasture during periods of low forage quality or inclement weather. AGA ruminant animals may not be given hormones or antibiotics.

GRASS FINISHED

No legal or regulated definition

Not to be confused with "grass fed", this term implies that animals are fed grass and forage for an undefined period before slaughter (the "finishing" period"), although they may have been given grains and other non-forage feeds for a large part of their lives. This feeding protocol is not verified and any prohibited feedstuffs and medications are also not defined.

GREEN FED

No legal or regulated definition

This term implies a difference to "grass fed" (see above). Animals are fed green feeds, including vegetables, grass and other forages. Not verified and not necessarily a positive claim in terms of environmental management, welfare or meat quality.

HALAL AND ZABIAH HALAL

Definition by USDA Food Safety and Inspection Service

Meat products prepared by federally inspected meat packing plants identified with labels bearing references to "Halal" or "Zabiah Halal" must be handled according to Islamic law and under Islamic authority.

For meat to bear the label "Halal" animals are often (but not always) slaughtered without being pre-stunned. There are organizations which audit and certify for halal practices but definitions and standards vary according to the certifying organization. USDA "halal" is not audited.

HEN OR TOM TURKEY

Definition by USDA Food Safety and Inspection Service

The sex designation of "hen" (female) or "tom" (male) turkey is optional on the label, and is an indication of size rather than the tenderness of a turkey.

HEIRLOOM

No legal or regulated definition

Heirloom crop varieties, also called farmers' varieties or traditional varieties, is a term used for unique plant varieties which are genetically distinct from the commercial varieties popularized by industrial agriculture. Heirloom varieties have been developed by farmers through years of cultivation, selection and seed saving, and passed down through generations. Generally speaking, heirlooms are varieties that have been in existence for a minimum of 50 years. Note, however, that this term does not refer to any specific farming practices, such as pesticide or fertilizer use. No independent third party verification.

HERITAGE

No legal or regulated definition

A term applied to breeds of livestock that were bred over time so that they are well-adapted to local environmental conditions, can withstand local diseases, or survive in harsh environmental conditions, for example. Heritage breeds generally have slow growth rates and long productive life spans outdoors, making them well-suited for grazing and pasturing. However, the term "heritage" does not guarantee animals were raised outdoors. No independent third party verification.

HORMONE-FREE/NO HORMONES

No legal or regulated definition

This phrase is not permitted for use on the labeling of beef, pork or poultry, as animal proteins contain naturally occurring hormones regardless of the production practice. See "NO ADDED HORMONES" below.

HUMANE/HIGH WELFARE

No legal or regulated definition

Buyers should be cautious about producers making claims of humane or high welfare treatment without having independent certifications (see "HIGH WELFARE CERTIFICATIONS" below). No independent third party verification.

HIGH WELFARE CERTIFICATIONS

See individual certification agencies for any legal or regulated definitions

There is no formal definition for humane or high welfare. However, there are a number of credible independent third party agencies that provide certifications to farmers that raise their animals in accordance with specific production practices, such as providing an environment in which they can engage in natural behaviors; being raised with sufficient space where they are able to lie down; having shelter and gentle handling to limit stress; and the provision of ample fresh water and a healthy diet without antibiotic growth promoters or hormones. Groups that provide certification to farmers who raise their animals in accordance with specific high welfare production practices include:

- **Animal Welfare Approved (AWA)**
  Animal Welfare Approved (AWA) is a national nonprofit organization that audits, certifies and supports family farmers who raise their animals according to the highest welfare standards, outdoors on pasture or range. One of only two seals that require audited high-welfare slaughter practices – and the only seal that requires pasture access for all animals – AWA is the most highly regarded food label when it comes to animal welfare, pasture-based farming and sustainability.

- **Certified Humane**
  Certified Humane is a third party accreditation that requires that ruminants have continual outdoor access; defines space requirements and bird and animal management, and has rigorous auditing to its published standards. One of only two seals that require audited high welfare slaughter practices.

For more information and a comparison of the different welfare standards of various animal welfare certification schemes visit: http://certifiedhumane.org/standardscomparisonchart.pdf

INSPECTED (USDA, STATE, CUSTOM/EXEMPT)

Definition by USDA

Inspection refers to which agency oversees a slaughter facility. Both state and federally inspected plants must follow the same guidelines, but state-inspected products may not enter into interstate commerce. Custom/Exempt processing activities are exempt from daily inspection and their products may not enter into commerce.

INTEGRATED PEST MANAGEMENT (IPM)

Definition by US EPA

Integrated Pest Management (IPM) is the coordinated use of pest and environmental information with available pest control methods to prevent unacceptable levels of pest damage by the most economical means and with the least possible hazard to people, property, and the environment.

Some programs and labels include IPM as a standard that farmers must meet before certification. However, not all these programs require IPM performance to the same degree, and some programs only incorporate minimal IPM requirements. There is no specific verification program for IPM alone.

terms and claims *(cont)*

IRRADIATION

Definition by Food Safety and Inspection Service

Food irradiation is the process of exposing food to radiant energy in order to reduce or eliminate bacteria, therefore making it more resistant to spoilage. Forms of radiant energy include: microwave and infrared radiation, which heat food during cooking; visible light or ultraviolet light, which are used to dry food or kill surface microorganisms; and ionizing radiation, which penetrates deeply into food, killing microorganisms without raising the temperature of the food significantly. Food is most often irradiated commercially to reduce the numbers of pathogenic microorganisms, to extend shelf-life, or to eliminate insect pests.

Irradiation is a process of using high-energy Gamma rays, electron beams, or X-rays to kill potential pathogens in food. The amount of radiation used can vary and the amount if pathogens affected by irradiation can be variable.

Food that has been irradiated must either have "irradiated" as part of the product name or be labeled with the claim "treated with irradiation" or "treated with radiation" and also display the Radura symbol. The FDA requires labeling on whole irradiated fruits and vegetables. However, the FDA does not require the "treated with irradiation" label on processed foods made with irradiated ingredients or on spices.

The USDA's rules regarding labeling of irradiated foods are similar to the FDA's regulations, but only apply to meat and poultry. However, unlike the FDA, the USDA requires that irradiated meat ingredients in multi-ingredient products, such as sausages, must be listed in the ingredients on the package.

KOSHER

Definition by USDA Food Safety and Inspection Service

"Kosher" may be used only on the labels of meat and poultry products prepared under Rabbinical supervision.

For meat to bear the label "Kosher" animals must be slaughtered without being pre-stunned.

LOCALLY-GROWN

No legal or regulated definition

Food and other agricultural products that are produced, processed and sold within a certain region, whether defined by distance, state border or regional boundaries. The term is, however, unregulated at the national level, meaning that individuals can define and regulate the term based on their own mission and circumstances.

NATURAL

Definition by USDA Food Safety and Inspection Service

A product containing no artificial ingredient or added color and is only minimally processed (a process which does not fundamentally alter the raw product) may be labeled natural. The label must explain the use of the term natural (such as - no added colorings or artificial ingredients; minimally processed).

As defined by the USDA, the term applies only to how meat from the animal is processed after it has been slaughtered. It is important to note that this commonly used term is used for meat or livestock products it does not refer in any way to how an animal was raised, so the farming system may have involved feedlot and confinement systems or the routine use of antibiotic growth promoters, for example. No third party verification.

NATURALLY RAISED

Definition by USDA

The naturally raised marketing claim standard states that livestock used for the production of meat and meat products have been raised entirely without growth promotants, antibiotics (except for ionophores used as coccidiostats for parasite control), and have never been fed animal by-products. The voluntary standard will establish the minimum requirements for those producers who choose to operate a USDA-verified program involving a naturally raised claim.

Buyers of products bearing this label should be aware that this definition does not explain if the animals were raised outdoors or confined in feedlots or cages.

NO ADDITIVES

No legal or regulated definition

"No additives" is a general claim that a product has not been enhanced with the addition of natural or artificial additives. The USDA and FDA define and regulate additives; however, as there is no USDA definition of the term "no additives," anyone using the term may or may not be referring to this legal regulation. No third party verification.

NO ANIMAL BY-PRODUCTS

No legal or regulated definition

For meat products this term implies that no products that derive from animals have been used in livestock feed. While the term "no animal by-products" might appear self-evident, there is no legal definition of what constitutes an animal by-product, so a variety of animal-derived ingredients, such as milk or fishmeal, may still be included under this label. No third party verification.

NO ANTIBIOTICS (red meat and poultry)

Definition by USDA Food Safety and Inspection Service

The terms "no antibiotics added" may be used on labels for meat or poultry products if sufficient documentation is provided by the producer to the Agency demonstrating that the animals were raised without antibiotics.

Antibiotics are given to animals, such as cattle, hogs, sheep, and chickens, to prevent or manage diseases. Although the USDA is accountable for proper use of these claims, there is no verification system in place.

NO HORMONES ADDED (pork or poultry)

Definition by USDA Food Safety and Inspection Service

Hormones are not allowed in raising hogs or poultry. **Therefore, the claim "no hormones added" cannot be used on the labels of pork or poultry unless it is followed by a statement that says "*Federal regulations prohibit the use of hormones.*"**

NO HORMONES ADMINISTERED (beef and dairy)

Definition by USDA Food Safety and Inspection Service

The term "*no hormones administered*" may be approved for use on the label of beef products if sufficient documentation is provided to the Agency by the producer showing no hormones have been used in raising the animals.

Hormones are commonly used in the commercial farming of animals such as cattle to speed the growth rate or to increase milk production. (In dairy cattle, see information on "rBST and rGBH" below).

NO NITRATES/NITRITES

No legal or regulated definition

Nitrites are commonly used to preserve meat and prevent the development of botulism food poisoning. However, some studies have linked the high intake of nitrites to an increased risk of stomach and pancreatic cancer. It is worth noting that some cured meat and bacon that is sold with the label "no nitrates added" has been cured with ingredients such as celery powder which is high in nitrates.

NO SPRAY/PESTICIDE FREE

No legal or regulated definition

While a farm may not be organic, "no spray" implies that no pesticides, herbicides or fungicides have been applied. However, unlike the term organic, this claim is not verified by a third party.

NO-TILL/MINIMUM TILL/CONSERVATION TILLAGE

No legal or regulated definition

A method of reducing soil erosion by planting crops using little or no tillage (plowing or other cultivation of the soil). This technique may rely on herbicides to control weeds. No independent third party verification.

OMEGA 3 ENRICHED

No legal or regulated definition

Eggs may be sold as being "omega 3 enriched". Omega 3 fatty acids are "good fats" that can improve the health of the heart and the brain. Enriched eggs come from hens fed a special diet of flaxseed, which is high in omega 3. True grassfed meat animals and pastured hens will naturally have higher levels of omega 3 without dietary additions.

ON-FARM SLAUGHTER

No legal or regulated definition

The practice of slaughtering and processing animals at the farm on which they were raised. Some states allow farmers to process animals on-farm for sale to the public, although there may be limits on the number of animals that can be processed.

ORGANIC/CERTIFIED ORGANIC

Definition by USDA Food Safety and Inspection Service

All products sold as "organic" must meet the USDA National Organic Program production and handling standards. Certification is mandatory for farmers selling more than $5,000 of organic products per year, and is verified by an accredited certifying agency.

In general, organic production limits the use of chemicals, pesticides, hormones, antibiotics and other inputs. However, it does not strictly define production practices related to space per animal or outdoor access requirements – for example, confinement areas are permitted to fatten organic beef cattle.

For information about the National Organic Program and use of the term "organic" on labels, refer to these factsheets from the USDA Agricultural Marketing Service:

- Organic Food Standards and Labels: The Facts
- Labeling and Marketing Information (PDF only)

PASTURED/PASTURE-RAISED

No legal or regulated definition

Implies that animals were raised outdoors on pasture. However, since the term is not regulated or certified, there is no way to ensure if any claim is accurate.

terms and claims *(cont)*

PESTICIDE-FREE
No legal or regulated definition

Implies that no pesticide residue can be found on the crop. It does not address if pesticides, herbicides, or fungicides were applied at other points in production. No independent third party verification.

QUALITY GRADE AND YIELD GRADE
Definition by USDA

The USDA primarily grades meat by the amount of marbling – or intramuscular fat – that is present. Cuts of meat with the greatest amount of fat within the grain of the meat are awarded the highest grades. Graders evaluate the amount and distribution of marbling in the rib eye muscle at the cut surface after the carcass has been ribbed between the 12th and 13th ribs. The top three grades are prime, select and choice. These terms are only valid if they are accompanied by the USDA shield.

Quality grades serve to identify the eating characteristics of the product. They are a guide to identify the tenderness and palatability of the meat. Quality grades exist for beef, pork, lamb veal and mutton.

A USDA factsheet on the inspection and grading of meat and poultry is available at www.fsis.usda.gov/factsheets/inspection _ & _ grading/index.asp

RAW
No legal or regulated definition

This term refers to foods, such as milk, cheeses, cider, vinegar, sauerkraut, or almonds, that have not been pasteurized (heat treated) to a minimum of 145˚F. No independent third party verification.

RAW MILK CHEESE
Definition by Raw Milk Cheesemaker's Association

Cheese produced from milk that, prior to setting the curd, has not been heated above the temperature of the milk (104˚F, 40˚C) at the time of milking and that the cheese produced from that milk shall be aged for 60 days or longer at a temperature of not less than 35˚F (2˚C) in accordance with US FDA regulations.

RBST-FREE/RBGH-FREE
No legal or regulated definition

rBST (recombinant bovine somatotropin) and rGBH (recombinant bovine growth hormone) are hormones used to boost milk production in dairy cattle and have been found to leave residue in the milk. This claim is not verified.

SOY-FREE
No legal or regulated definition

Soy has been shown to transfer through animal feed to food product. Some people wish to avoid soy for diet, allergy or other reasons.

SPECIAL-FED VEAL
No legal or regulated definition

The term special fed veal applies to beef/dairy animals that are fed controlled liquid diets which maintain the calf in a state of anemia, producing a pale fine-textured meat. Veal calves are unlikely to be offered any forage as this can affect the color of the meat. Calves are generally slaughtered at 15–20 weeks of age. These production systems often provide limited space, with no requirement for bedding or outside access, and are generally considered as providing extremely poor animal welfare. Also referred to as Formula-Fed, Milk-Fed or Nature Fed Veal.

SUBTHERAPEAUTIC/NON-THERAPEAUTIC USE OF ANTIBIOTICS
No legal or regulated definition

This term refers to the administration of antibiotics when animals or birds are not sick or injured, but for the purpose of promoting growth or overcoming disease challenges that are inherent in the system of farm management. For example, cattle on feedlots may be given low doses of non-therapeutic antibiotic treatments to try to prevent illness from liver damage due to the grain-based diet they are fed.

SULFITE-FREE/NO ADDED SULFITES /CONTAINS SULFITES (wine)
Definition by The Bureau of Alcohol, Tobacco and Firearms (ATF)

Sulfite or sulfur dioxide is commonly used as a preservative in wines, but can cause allergic reactions in some individuals. A wine can make the claim "Sulfite Free" if there are no detectable sulfites, or "No Added Sulfites – Contains Naturally Occurring Sulfites." However, if the total sulfites in the wine are above 10 parts per million the label must state "Contains Sulfites."

SULFURED/UNSULFURED
No legal or regulated definition

Many dried fruits are treated with sulfur to keep them from oxidizing during and after the drying process. This preserves their original color and acts as a preservative. Unsulfured fruits are often dark brown in color.

SUSTAINABLE AGRICULTURE
No legal or regulated definition

Sustainable farming is farming that is socially just, high welfare, economically viable, and environmentally sound. The term is unregulated. Sustainable agriculture was addressed by Congress in the 1990 Farm Bill. Under that law, "the term sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- satisfy human food and fiber needs
- enhance environmental quality and the natural resource base upon which the agricultural economy depends
- make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls
- sustain the economic viability of farm operations; and
- enhance the quality of life for farmers and society as a whole."

TRANSITIONAL

No legal or regulated definition

"Transitional" is an unofficial term implying that the farm is in the process of moving towards organic certification, and is occasionally used on products produced by farms in transition to organic certification. Farmers must practice organic methods for three years on a given area of land before the products harvested from that land can be sold or labeled as certified organic (see "ORGANIC/CERTIFIED ORGANIC"). No independent third party verification.

VEGAN/CERTIFIED VEGAN

Definition by Vegan Action

Foods with this label contain no animal products, such as meat, dairy, eggs, gelatin, or honey and have not been tested on animals. Not all vegan foods use the "Certified Vegan" logo. No independent third party verification even if "Certified Vegan" is displayed.

VEGETARIAN-FED/FED A VEGETARIAN DIET

No legal or regulated definition

Animals have been fed a diet free of animal products. This does not mean animals were raised outdoors on pasture or were fed a 100 percent grassfed diet. No independent third party verification.

VINE-RIPENED/TREE-RIPENED

No legal or regulated definition

Fruit that has been allowed to ripen on the vine or tree. Many fruits that are shipped long distances are picked while still unripe and firm, and later treated with ethylene gas at the point of distribution to ripen and soften them. This term does not mean the fruit is pesticide-free, organic, non-GMO, sustainable or family farmed. No independent third party verification.

Animal Welfare Approved audits, certifies and supports farmers raising their animals with the highest animal welfare standards, outdoors on pasture or range. Called a "badge of honor for farmers" and the "gold standard," AWA has come to be the most highly regarded food label when it comes to animal welfare, pasture-based farming, and sustainability. All AWA standards, policies and procedures are available on the AWA website, making it one of the most transparent certifications available.

AWA's online directory of farms, restaurants and products enables the public to search for AWA farms, restaurants and products by zipcode, keywords, products and type of establishment. Visit:
www.AnimalWelfareApproved.org/product-search

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Hugh E. Weathers
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123 Ballard Court
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803.737.9703 (FX)
www.agriculture.sc.gov

Information Sheet

In order to manufacture, prepare, repack or sell food to the public, you **must** follow these requirements:

1. Obtain a **Registration Verification Certificate (RVC)** from SCDA. In order to do so, you must use an **inspected and registered** facility. A home kitchen **IS NOT** an acceptable facility. You must register and get SCDA approval of the process, product, and facility. Contact Angie Culler at *aculler@scda.sc.gov* or 803-734-7321 to register with SCDA and schedule an initial visit/consultation. SCDA **does not allow any food items for public sale to be manufactured in a home domestic kitchen**. Go to SCDA Food Safety & Compliance webpage for requirements and registration information *http://agriculture.sc.gov/foodsafetyandcompliance*.

2. Prior to sale, firm must send any and all **canned/jarred/bottled foods** to **Clemson University**: Dr. Scott Whiteside, WWHTSD@clemson.edu (864-656-3397) or **N.C. State:** Dr. Fletcher Arritt, fletcher_arritt@ncsu.edu (919-513-2090) for product analysis. **Pickled foods** (chow-chows, some sauces, and pickled vegetables) are **acidified foods** and require attendance to a Better Process Control School, registration with the Food and Drug Administration, and a certified scheduled process; including proper and accurate record keeping. All of this is to prevent ***Botulism*** **poisoning**, which can and does happen. **Illegally Home Canned goods are considered hazardous and adulterated and will be removed from sale.**

3. **Eggs** that are sold at a location other than a growers residence or farm must be **properly labeled, inspected and graded by the grower according to USDA standards and kept at 45* F or below.** The producer must obtain an **Egg License** issued by our department. Unlabeled eggs or eggs off refrigeration are considered adulterated and will be removed from public sale. Violations of this law (including no SCDA issued License) are a misdemeanor and carry a fine.

4. Use an approved label that includes **Name of Product, Ingredient List, Name and Address of Manufacturer, and Net Weight** is required on all foods sold to the public. This is a state and federal law. All ***allergens*** must be disclosed in your ingredient list or in a separate advisory statement. Products that are not properly labeled are considered misbranded and therefore adulterated and will be removed from public sale.

5. **SC Meat and Poultry Inspection Division** (803-788-2260) **meat items: poultry, beef, pork, and lamb.**

6. **SC DHEC Dairy Division** (803-896-0644) will handle all regulations and requirements regarding Milk, Bottled Water and Soft Drinks.

7. **Seafood and Fish** that are whole and unprocessed will be under the Department of Natural Resources (DNR) 803-734-3447. Those wishing to sell to the public must have a Commercial Fisherman or a Wholesaler License. If the seafood or fish is processed, then the product must come from an inspected and registered source (see #1).

8. The Cottage bill allows individuals to produce **non-potentially hazardous baked goods and candy** in their home kitchen and sell **directly to the end-consumer at direct-to-consumer markets**, provided he or she does not produce more than $15,000 per year. Interested individuals must apply for and be granted exemption from inspection and labeling review. Application and Frequently Asked Questions can be found at http://agriculture.sc.gov/forms.

Please help us ensure that all food items sold to the public are safe and have been legally manufactured.

Food Safety Officers/Territory

State Manager/Midlands: Angie Culler
Low Country/Coastal: Charles Schuster
Upstate/Piedmont: Mark Burns
PeeDee: Terry Wessinger

Revised 9/24/12

Our Favorite Product

INGREDIENTS: ENRICHED FLOUR (WHEAT, NIACIN, THIAMINE, RIBOFLAVIN, FOLIC ACID), HIGH FRUCTOSE CORN SYRUP, CORN SYRUP, HONEY, MOLASSES, SOY BEAN OIL, SUGAR, CORN FLOUR, MALT SYRUP, WHEY (MILK), EGG WHITES, PECANS, SOY LECITHIN, CORN FLOUR, YELLOW #5 AND RED #40.

Manufactured for New Product Enterprises
Columbia, SC 29555

NET WT. 20 OZ. (567g)

♣Note: Net Content can also be by volume. NET CONTENT 20 FL OZ. (591ml)

♣Conversion Factors: 1 ounce = 28.35 grams ***or*** 1 fl. Oz = 29.57 ml

♣ Labels to be reviewed by SCDA **prior to printing** and use to ensure compliance with state and federal labeling laws. Products with labels that are not in compliance are subject to a stop sale.

♣ **Compliance with the Food Allergen Labeling and Consumer Protection Act.** Allergens must be disclosed by name in the ingredient statement and/or in a Contains Statement: **Wheat, Egg, Soy, Milk, Fin Fish (species), Crustacean Shellfish (species), Peanut, and Tree Nut (species).** If using a Contains Statement, **ALL** allergens contained in product are to be listed.

♣ A Nutritional Fact Panel is required for firms with 100+ employees and sales over 100,000 units

The Four *Basic* Label Requirements (Fair Packaging and Labeling Act)

1. Statement of Identity (Product Name) *shall* be in **BOLD** print, type size *must* be comparable to the most prominent printed matter (larger than other type). Must be placed on **Principal Display Panel (PDP)** along with the Net Wt.

2. List ingredients in **descending order** of predominance by weight (the ingredient that weighs the most is first and the ingredient that weighs the least is last). Must expand **ALL** sub-ingredients. Font size *shall* be at least **1/16 inch** (based on lower case "o") and place on the same panel as manufacturer's name & address. Lower case must be 1/16 inch font size.

3. Name and address of the manufacturer, packer, or distributor *shall* be added. Address *shall* include a street address (if not in a local directory), city or town, state, and zip code. Use the phrases *"manufactured by", "manufactured for"* or *"distributed by"* (if company is not the original manufacturer).

4. Net Weight *shall* be placed at **the bottom 30%** of the **Principal Display Panel(PDP)**, *shall* be in both **customary** (pound, ounce, fluid ounce, etc.), **and** *shall* be in **metric** (kilogram, gram, milliliter, etc.) weights, and have a minimum font size of (see below) based on the area of the principle display panel. **How to calculate PDP:** The width X height of the package face ***or*** height X circumference X 0.40 for a cylindrical container (i.e. Bottle, jar, can).

Minimum font size (inches)	Area of display panel (sq. inches)
1/16	5 sq. inches or less
1/8	5 sq. inches – 25 sq. inches
3/16	25 sq. inches – 100 sq. inches
1/4	100 sq. inches – 400 sq. inches

♣ Links to FPLA and FALCPA can be found at https://agriculture.sc.gov

www.clemson.edu/extension/food2market

Check out our website to find:

- Link to the product testing form
- Product testing and nutrition labeling fact sheets
- Food safety related educational opportunities
- FAQs
- Helpful resources/links

...and more!

CLEMSON
COOPERATIVE EXTENSION

Let us help YOU make that "Taste so good you should sell it" product a reality!

Food2Market

Questions? Contact us!

Kimberly A. Baker, MS, RD, LD
864-226-1581 ext. 115
kabaker@clemson.edu

A CLEMSON EXTENSION PROGRAM
Food2Market

Helping move your products from the kitchen to the market!

Assisting Aspiring Entrepreneurs in South Carolina with Educational Opportunities and Resources

What can Food2Market do to help YOU?

- Guide food entrepreneurs in the steps needed to begin production of a food product or business.
- Assist food entrepreneurs to ensure that their product complies with all local, state and federal regulations.
- Provide food entrepreneurs with assistance in business plan development, product testing, product packaging and marketing.
- Offer a variety of educational opportunities for food entrepreneurs to assist with business startup and continue to make their product successful.
- Provide connections to government, professional and educational resources to assist food entrepreneurs in making their business succeed.

FAQs

Can my product be made in a home kitchen?

Home kitchens are not permitted to prepare food that will be either served or packaged and sold to consumers unless their product meets the requirements of the cottage food exemption law.

See our website for more details on the cottage food exemption law and approved facilities.

What type of testing does my product need?

The three primary types of testing that are performed to ensure product safety include:

pH (measure of acidity)

water activity (measure of water available to microorganisms)

nutritional analyses (for nutrition label)

See our website for more details on these tests.

WORKSHOPS

October 14-15, 2013 the first *Food Safety Workshop for Food Entrepreneurs* was held at the Phillips Market Center, which is located at the State Farmers Market in West Columbia, South Carolina.

The workshop covered topics including:

- State and Federal regulations of food products
- What is an approved facility?
- Food safety planning
- Product testing
- Nutrition labeling
- Food processing 101
- Food packaging
- Documents and record keeping
- Traceability and recall
- Resources for business planning

Food2Market plans to continue providing similar workshops in the near future!

Frequently Asked Questions

1. **Who regulates the food that I sell?**
    a. Different agencies in South Carolina regulate food products depending on the type of food and/or how they are distributed to the end consumer. The following questions will help you decide on which agency will regulate your food product. Contact information is provided with each agency so you can obtain more specific information about their regulations.
        i. Are you planning to prepare and serve your food product onsite to the public?
            1. Contact the SC Department of Health and Environmental Control (DHEC) Food Safety Division at 803-896-0640 or http://www.scdhec.gov/environment/envhealth/food/
        ii. Are you planning to sell your food product directly to the public (retail) only?
            1. This requires a DHEC retail food establishment permit. Products for retail sale cannot be prepared in a home kitchen and rather require use of a kitchen that meets all regulatory requirements (including State inspections). You will also need to provide additional information on the preparation method and may need to meet the requirements of the SC Department of Agriculture or the SC Meat and Poultry Inspection Department. Contact SC DHEC Food Safety Division at 803-896-0640 or http://www.scdhec.gov/environment/envhealth/food/
        iii. Are you planning to manufacture, package and sell your food product to stores, restaurants or direct-to-consumer markets like farmers markets or flea markets?
            1. Does it contain more than 3% raw or 2% cooked beef, pork, chicken or lamb (except rabbit, which is regulated by SCDA)?
                a. Contact SC Meat and Poultry Inspection Department at 803-788-8732 or http://www.clemson.edu/public/lph/scmpid/
            2. Is your product a non-cheese dairy, soft drink or water product?
                a. Contact SC DHEC Food Protection Dairy Division at 803-896-0644 or

http://www.scdhec.gov/environment/envhealth/food/htm/dairy.htm

3. Is your product a shellfish product only?
    a. Contact SC DHEC Shellfish Division at 803-898-4267 or http://www.scdhec.gov/environment/water/shellfish.htm
4. Is your product an alcoholic product?
    a. Contact the Alcohol, Tobacco, Firearms Tax and Trade Bureau at 800-398-2282 or http://www.ttb.gov/
5. Is your product a cheese or any other type of food product not listed above?
    a. Contact the SC Department of Agriculture – Food Safety and Compliance Program at 803-737-9700 or http://agriculture.sc.gov/foodsafetyandcompliance

2. What regulations do I need to follow to manufacture, package and sell a food product in South Carolina that the South Carolina Department of Agriculture regulates?

a. Foods that fall under the jurisdiction of the South Carolina Department of Agriculture (SCDA) must meet the following regulations: (1) Prepared in an approved facility (a home kitchen is not approved); (2) Registered using a Registration Verification Certificate, which initiates an inspection by SCDA to verify the safety of your facility and food production process and that it meets all state and federal regulations; (3) Have your product label reviewed by SCDA; (4) Comply with regular unannounced inspections of your facility and process by SCDA. Additional regulations may be required depending on the type of food product that you are producing. For more information contact Kimberly Baker the Food Safety Associate for Clemson Extension's Food2Market program at kabaker@clemson.edu or Angie Culler the Food Safety and Compliance Manager for the South Carolina Department of Agriculture at aculler@scda.sc.gov.

3. What type of tests does my product need?

a. The three primary types of testing that is performed to ensure product safety include: pH (measure of acidity), water activity (measure of water available to microorganisms) and nutritional analyses (for nutrition label). Food products that are prepared to be shelf stable require pH testing. If the food product has high sugar content then a water activity test may also be required. These tests are also used to determine if a food product is classified as either an acid, acidified or low acid food. Products that are classified as acidified and low acid require the processor to have a Better Process Control School certificate and registration of their facility and process with the Food and Drug Administration. This is a requirement of the FDA and must be done before registering the product with SCDA. All food product testing results are written into a process control letter, which is required documentation to show proof of testing with the South Carolina Department of Agriculture. Nutritional analysis can also be performed on your product if you wish to have a nutrition facts panel on your label, however, this is not a requirement unless you are producing over 100,000 units per year or have over 100 employees. Some baked goods and other food products may require

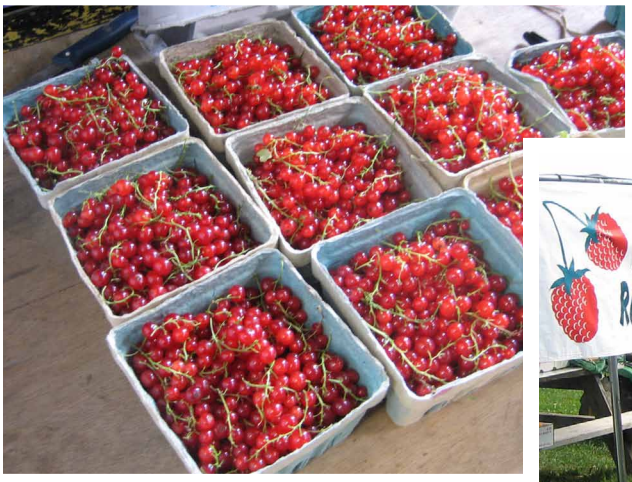
testing (pH and/or water activity) to determine if the product is a potentially hazardous food. Foods that are classified as potentially hazardous foods require refrigeration. To get more information about product testing please download the Product testing form and factsheet from the Food2Market website (www.clemson.edu/extension/food2market). If you have any additional questions about food product testing please contact Kimberly Baker the Food Safety Associate for Clemson Extension's Food2Market program at kabaker@clemson.edu.

4. **Can my food product be made in a home kitchen?**
    a. Home kitchens are not permitted to be used to prepare food that will be served or packaged and sold to consumers unless it is a food product that meets the requirements of the cottage food exemption law. Foods that meet these requirements are: baked cookies, baked cakes, baked high-acid fruit pies (apple, apricot, grape, peach, plum, quince, orange, nectarine, blackberry, raspberry, boysenberry, cherry, cranberry, strawberry and red currants), baked breads and candy. Note that moist quick breads like zucchini, pumpkin and banana may be potentially hazardous and may require product testing. To get more information about product testing please download the product testing form and factsheet from the Food2Market website (www.clemson.edu/extension/food2market). More information about the Cottage Food Exemption Law can be found on the South Carolina Department of Agriculture Food Safety and Compliance Website at http://agriculture.sc.gov/foodsafetyandcompliance.
5. **What regulations do I need to follow to sell jam and jelly at a Farmer's Market?**
    a. Jams and jellies are regulated under the South Carolina Department of Agriculture (SCDA). They are not regulated under the Cottage Food Law, and therefore cannot be produced in a home kitchen. In order to sell jams and jellies at a Farmer's Market you must meet the following regulations: (1) have jam or jelly prepared in an approved facility; (2) Apply for a Registration Verification Certificate, which initiates an inspection by SCDA to verify the safety of your facility and food production process and that it meets all state and federal regulations; (3) Have your product label reviewed by SCDA; (4) Comply with regular unannounced inspections of your facility and process by SCDA. Non-standard jams and jellies require product testing by a process authority to ensure product safety. To get more information about product testing please download the product testing form and factsheet from the Food2Market website (www.clemson.edu/extension/food2market). For more information contact Kimberly Baker the Food Safety Associate for Clemson Extension's Food2Market program at kabaker@clemson.edu or Angie Culler the Food Safety and Compliance Manager for the South Carolina Department of Agriculture at aculler@scda.sc.gov.
6. **I want to make and sell BBQ sauce. What do I need to do to get it ready for sale?**
    a. To make and sell BBQ sauce you will need to follow the South Carolina Department of Agriculture regulations, which includes: (1) Prepare BBQ sauce in an approved facility (a home kitchen is not approved); (2) Have the pH tested to ensure safety of the sauce and to receive a process control letter, which is required by the FDA; (3)Apply for a

Registration Verification Certificate, which initiates an inspection by SCDA to verify the safety of your facility and food production process and that it meets all state and federal regulations; (4) Have your product label reviewed by SCDA; (5) Comply with regular unannounced inspections of your facility and process by SCDA. To get more information about product testing please download the Product testing form and factsheet from the Food2Market website (www.clemson.edu/extension/food2market). For more information contact Kimberly Baker the Food Safety Associate for Clemson Extension's Food2Market program at kabaker@clemson.edu or Angie Culler the Food Safety and Compliance Manager for the South Carolina Department of Agriculture at aculler@scda.sc.gov.

Guide to Marketing Channel Selection:

How to Sell Through Wholesale & Direct Marketing Channels



Cooperative Extension
Tompkins County

Introduction to this guide

Market channel selection is as important as production decisions for the small to medium sized fruit and vegetable operation. This publication is a decision-making aid for new farmers and for those considering marketing through a new channel. The guide focuses on describing the marketing of fresh-market produce, however, many of the principles apply to the marketing of other agricultural products including cut flowers, meats, honey, maple syrup, and dairy products. While generalizations are made about the channels, exact details are subject to conditions with individual farms, their location, potential customer base size, and other factors.

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Table of Contents

INTRODUCTION TO MARKETING CHANNELS

Marketing channels are divided into two broad groups, direct and wholesale. These terms are often used inconsistently, however, the definitions used in this guide are below.

DEFINITION:

Wholesale Marketing: ***Selling a product to a buyer who is not the ultimate end user.***

Direct Marketing: ***Selling a product directly to the end user.***

The size and scale of a farming operation, number of years of operator experience, the demographics of the surrounding region, and the preferences of the farmer will determine which channels are best suited to the farming operation. A beginning farmer may choose to start out using direct channels, such as a farmers' market; however, depending on a farm's business model, growing fewer crops on a large scale for high volume buyers may be preferred. Understanding each channel, its benefits, requirements and limitations is an important starting point for channel selection. It is also important to know the volume of production required and average prices paid in order to assess the potential returns of a channel.

In marketing channel selection, farmers are faced with a dilemma: they can move large volumes of product through wholesalers at relatively lower prices or seek higher prices in direct market channels and run the risk of unsold product. Figure 1 is an illustration of the typical characteristics of the two types of channels.

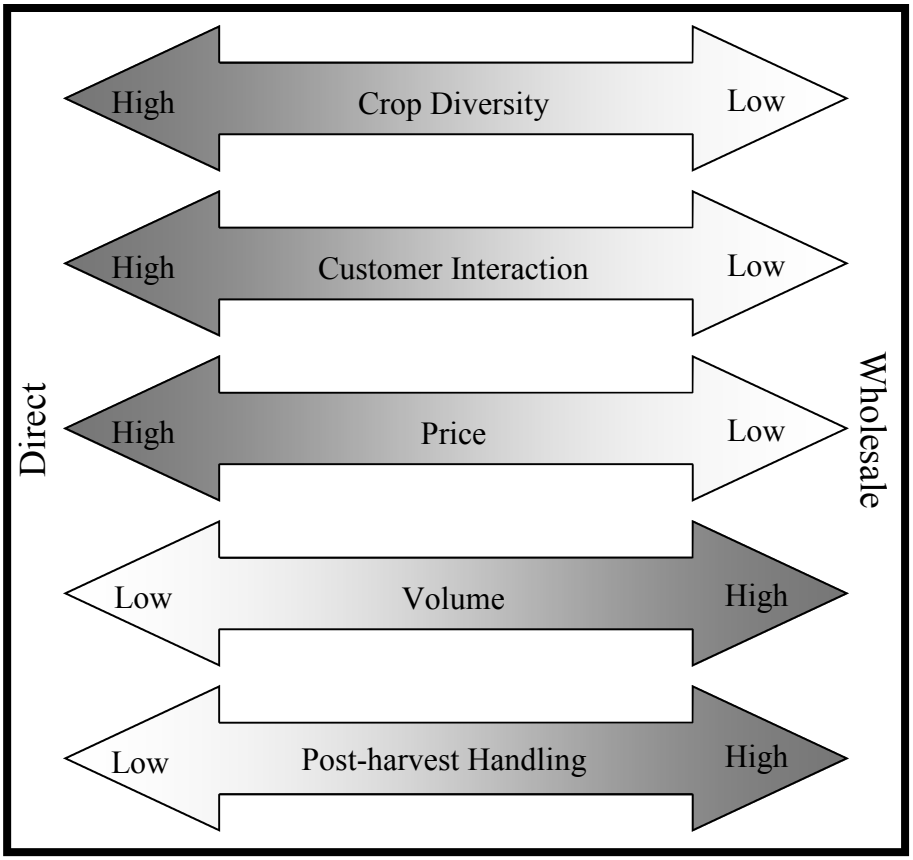


Figure 1: Generalizations about Wholesale and Direct Marketing Channels.

MARKETING CHANNEL CHARACTERISTICS

How to evaluate marketing channels

Choosing the right mix of marketing channels includes consideration of many factors, including sales volume, risk, lifestyle preference and stress aversion, labor requirements, and channel-specific costs. Below is a description of each of the factors that contribute to a channel's "performance." The importance assigned to each of these factors is unique to the individual farm. Additionally, the nature of highly perishable crops, along with the risks and potential sales volumes of particular channels, requires combining different channels to maximize gross sales in order to sell everything when it is ready. Appendix 1 summarizes the major characteristics to consider when evaluating alternative marketing channels.

CHECK IT OUT!

Evaluating Marketing Channel: Options for Small-Scale Fruit and Vegetable Producers: Case Study Evidence from Central NY. See the full study online:

http://aem.cornell.edu/outreach/extensionpdf/2009/Cornell_AEM_eb0903.pdf

Sales Volume and Price

The volume that can be sold through a given channel has an impact on profitability. The more perishable a crop, the more important it is to have a channel that can absorb the volume harvested as quickly as possible. As such, a channel's risk and potential volume are closely associated. Farmers are challenged to balance the lean and the plenty when selling through different channels. As one farmer described, the constant challenge is finding an outlet for the varying and sometimes unexpected harvest volumes, "Even if a whole field ripens at once, I am not going to pick it unless it is sold." While that may mean letting a crop spoil in the field, spoilage is less expensive than paying people to harvest produce that may not sell.

Optimizing sales of perishable crops requires the flexibility of combining different channels capable of absorbing unpredictable volumes. In general, wholesale distributors and retailers can be counted on to buy large quantities at once. Also, through direct marketing, Community Supported Agriculture (CSA) can consume a large volume. With a CSA, it is always possible to give members more in a share if a particular crop is plentiful, but this does not translate into more income, just less wasted produce and perhaps more satisfied customers.

Table 1: Comparison of price and volume for strawberries in direct and wholesale channels.

	Sale Price/Pint	Pints Sold	Total Gross Sales
Farmers' market	$4.00	36	$144.00
Grocery store	$1.50	300	$450.00

The volume that can be sold through other direct channels such as farm stands, u-pick, and farmers' markets depends on weather, location, advertising, drive-by traffic, and population size. Volume for these channels is more dependent on weather, customer numbers and location than wholesale channels.

The general tradeoff between relatively high and low-volume marketing channels is price. Table 1 gives an example of the quantities and prices paid for strawberries in both a direct and wholesale marketing channel. Despite lower prices, high volume channels offer the benefit of increased efficiency for harvest and post-harvest labor. Additionally, wholesale buyers make large purchases in as little as a five-minute phone call once a relationship is established.

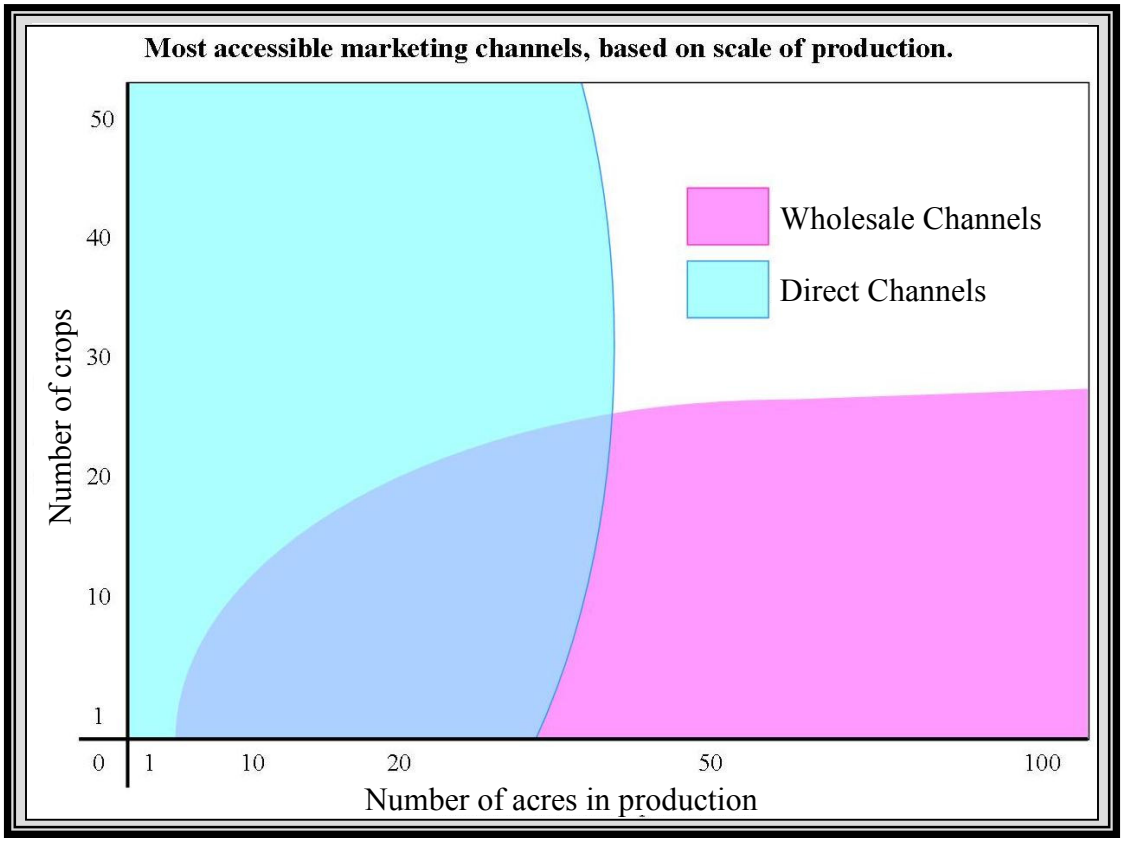


Figure 2: Direct and/or wholesale channels are the best marketing choice depending on the number of crops and scale of production for each crop. (Figure is an estimation).

Risks and Lifestyle Preferences

In addition to regular production risks such as weather and pests, each marketing channel offers a set of risks to the producer. Marketing risk comes in many forms, including market demand for a crop, price, competitors, failure to offer a diverse selection, and low volume sales. Additional risks include the possibility of low customer turnout due to weather, such as at farmers' markets, farm stands, or u-pick businesses resulting in unsold perishable products. Risks for any channel that allows customers on the farm are injuries, crop damage, litter, and other problems.

In a survey conducted with Central New York vegetable farms (results shown in Table 2), farmers were asked what they felt were the primary risks with each channel. The responses are categorized into seven basic challenges: low volume sales, high labor and marketing costs, the ability to provide product of consistent quantity and quality, buyer failure to fulfill commitments, competition, unpredictable customer turnout, and low price risk.

Table 2: Frequency of Mentions for Risks and Challenges associated with Marketing Channels, from survey of fourteen Central New York fruit and vegetable producers.

Risk or Challenge	CSA	U-pick	Farm Stand	Farmers' Market	Restau-rant	Dis-tributor	Grocery/ Retail
Low sales volume, unsold produce	1			3	1		
High labor and other marketing costs			3	7	2	5	2
Ability to provide quality & quantity consistently	2	1		2	2	1	2
Market competition				1			1
Unpredictable customer turnout		2	2	2			
Low prices & profits						4	1
Buyer back-out, failure to fulfill commitments					1	1	1
Other	1	1	1			1	1

The two main reasons given for avoiding a particular marketing channel were lifestyle preferences and stress aversion. Wholesale channels tend to create stress because they require higher levels of preparation (e.g., washing, grading, packing, and delivery), product specifications, and volume commitments. Distributors were also perceived to be very demanding, where producers must accept dictated prices, deadlines, and delivery logistics. Alternatively, direct marketing channels were perceived as ones that imposed relatively low levels of stress on producers. This was particularly mentioned with the CSA channel where customers share the risks and may have lower expectations in terms of washing, sorting and packaging.

As expected, questions about direct marketing channels, except for CSA, provoked concerns over customer turn out. Factors such as weather, location, and the availability of parking are all risks when direct marketing.

The most frequently cited concern regarding all marketing channels was high labor and marketing costs. Among the direct channels, "high marketing costs" was most frequently mentioned for farmers' markets because they tend to be labor intensive and carry additional marketing costs, such as market fees, advertising, and travel. Sales to distributors were cited as having the highest marketing costs. Respondents mentioned a high level of labor needed to solve the "logistical headaches" of delivery, the high level of quality control work, and the added "time and energy for good service" when selling wholesale.

Labor Requirements

In general, wholesale channels require more labor devoted to harvesting, washing, sorting, and packing due to the high volume of product marketed while direct channels tend to require higher levels of sales time and customer interaction.

While many farmers enjoy customer interaction and feedback, some prefer not to deal with customers. Farmers' market, farm stand, and u-pick generally require a high degree of customer interaction and are channels that reward a tidy appearance and welcoming display. Of course, farm stands and u-pick sales can be conducted using honor system payment, but some minimal level of customer interaction is inevitable. CSAs require customer interaction during weekly pick-up times, however, CSAs also may have newsletters or email updates for

their members. Community Supported Agriculture sales, though done off-season, require customer interaction as well.

Wholesale customers require less customer interaction, except when discussing orders or making deliveries. Once a relationship is established with a wholesale buyer, sales calls take less time. Wholesale accounts allow more anonymity; however, promotion in the form of cases of free sample product is common.

Other Channel-Specific Costs

While some operational costs are common among all marketing channels (utilities, equipment, insurance, licenses and certifications, vehicles, and buildings etc.), each channel has costs and requirements that are specific to that channel. Due to the potential for large variations in the scale of sales through each channel, and the operator's chosen level of marketing management and staffing, it is difficult to compare the channels in regard to these costs in this guide. However, associated costs should be considered when individual operations decide on their optimal marketing channel mix. A list of associated costs by marketing channel is summarized in Table 3.

Illustration 1:Multiuse plastic crates are cost effective and reusable.

Reusable plastic crates, like the one in Illustration 1, are used for harvest, storage, and transport of produce. They are convenient and cost effective (around $14 each) because they are durable, washable, and can be stacked when full of produce.

Crops are harvested directly into the plastic containers in the field, then moved into a cooler, and brought to the direct marketing site. In contrast, with wholesale channels, the container is lost into the supply chain, so cardboard boxes are used, adding cost. In addition to boxes, an assortment of other marketing supplies are purchased, including quart and pint containers, plastic bags, twist ties, and rubber bands. These supplies are usually purchased in large quantities once or twice per year.

Table 3: A sample of the costs commonly associated with different marketing channels.

	Farmers' Market	CSA	U-Pick	Farm Stand	Wholesale: Restaurant, Grocery, & Distributor
Reusable plastic crates	R	X	O	R	R
Single use boxes	O	O	O	O	X
Packaging Materials	X	O	NA	R	X
Customer shopping bags	X	O	X	X	NA
Farm sign (s)	X	X	X	X	NA
Building/Tents, tables, tablecloth, chairs	X	X	X	X	X
Cash register/box, scale, calculator	X	NA	X	X	NA
Pricing signs	X	NA	X	X	NA
Market fees	X	NA	NA	NA	NA
Brochures & flyers	O	R	R	O	O
Advertising	NA	R	R	O	NA
Transport/Delivery	X	NA	NA	NA	X
Washing & sorting equipment	O	O	NA	O	R

KEY: **X** = Necessary **R** = Recommended **O** = Optional NA = Not applicable

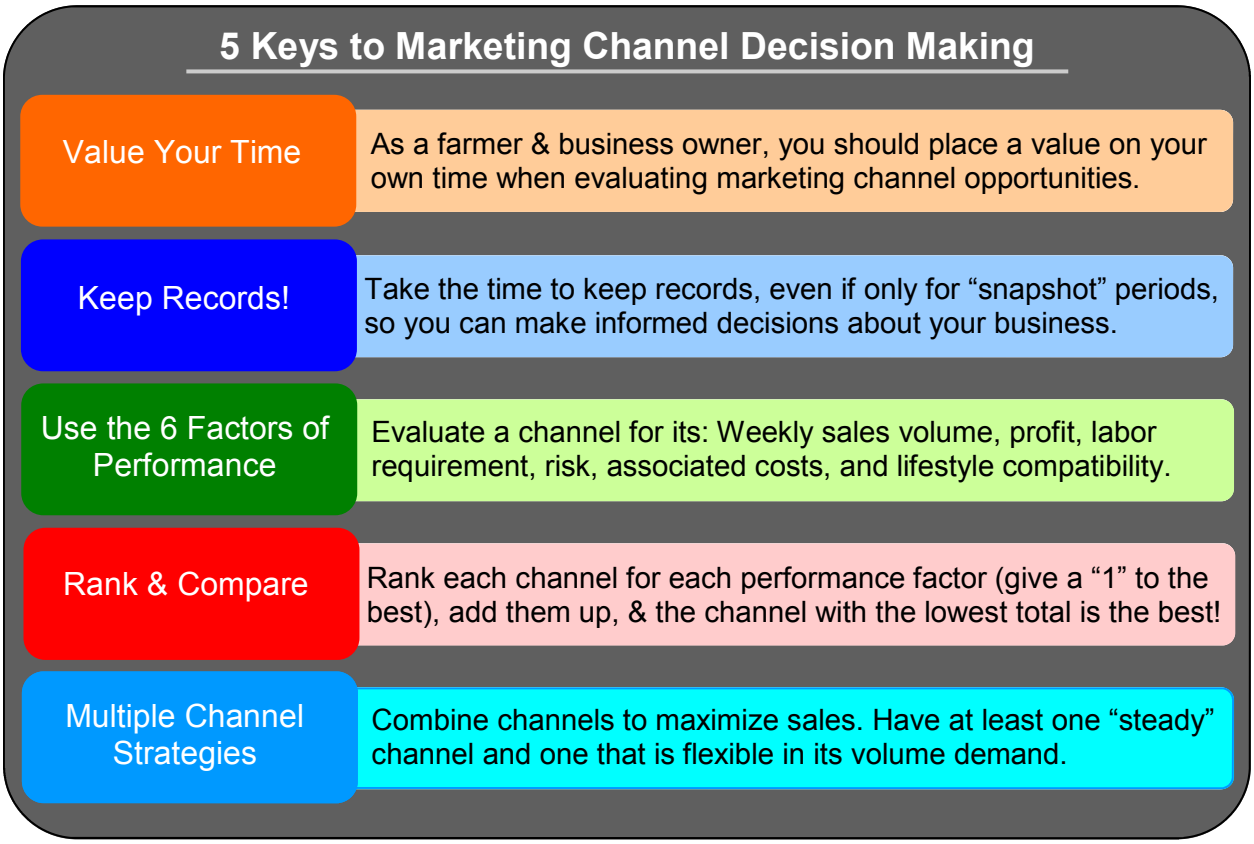
Some costs specific to farmers' markets are membership fees and daily market fees. In addition, a tent, along with tables, a scale, shopping bags, and signage with the farm's name and prices are all common supplies and equipment needed for most markets. In addition, brochures, business cards and other point-of-purchase materials may be used to promote sales. A benefit of membership in a farmers' market is that the advertising is done by the market. Individual farms do not need to advertise, but must maintain a high level of product quality and variety to attract customers to their booth.

CSAs require advertising, generally through a combination of brochures, print ads, websites, and signage. Presence at a farmers' market and word of mouth are also

useful ways to sell memberships. CSAs require a high level of organization and administration in selling memberships, as well as having a suitable location for member share pick-up.

The u-pick and farm stand channels have varying levels of associated costs depending on the scale of the operation and the marketing skills of the operator. Some stands involve a simple, inexpensive tent and table set-up, with one roadside sign at the location and a cashbox for money. Larger operations may include specialized buildings, walk-in storage coolers, refrigerated display cases and tables, a cash register, bags, boxes and staff. The choice of whether or not to staff a stand or u-pick will have a large impact on the operation's profitability.

Wholesale channels involve significantly fewer associated costs. While the number of these costs may be fewer in number, the level of these costs can be high. Fuel costs for delivery, refrigerated equipment, training and certifications for food safety, packaging, and washing and sorting equipment are all anticipated costs for the producer selling wholesale.



Marketing Channel Combination

Channel combination strategies allow a farm to maximize sales and help to reduce some risks. Figure 3 illustrates some marketing channel strategies used by real farms allowing them to diversify the sources of their income, as well as optimizing sales of unpredictable levels of harvest. Each farm has a "steady" marketing channel with a relatively consistent demand. This channel represents the farm's first priority for the weekly harvest. Once that channel is satisfied, the farm's other channels can be supplied with additional harvest. For example, Farm #3's priority is its weekly CSA distribution. Once sufficient produce is available for CSA members, the farm can market "extra" products to its farmers' market and wholesale customers. In contrast, Farm #1 first satisfies wholesale orders, then bring surplus product to the direct channels of farm stand and farmers' market.

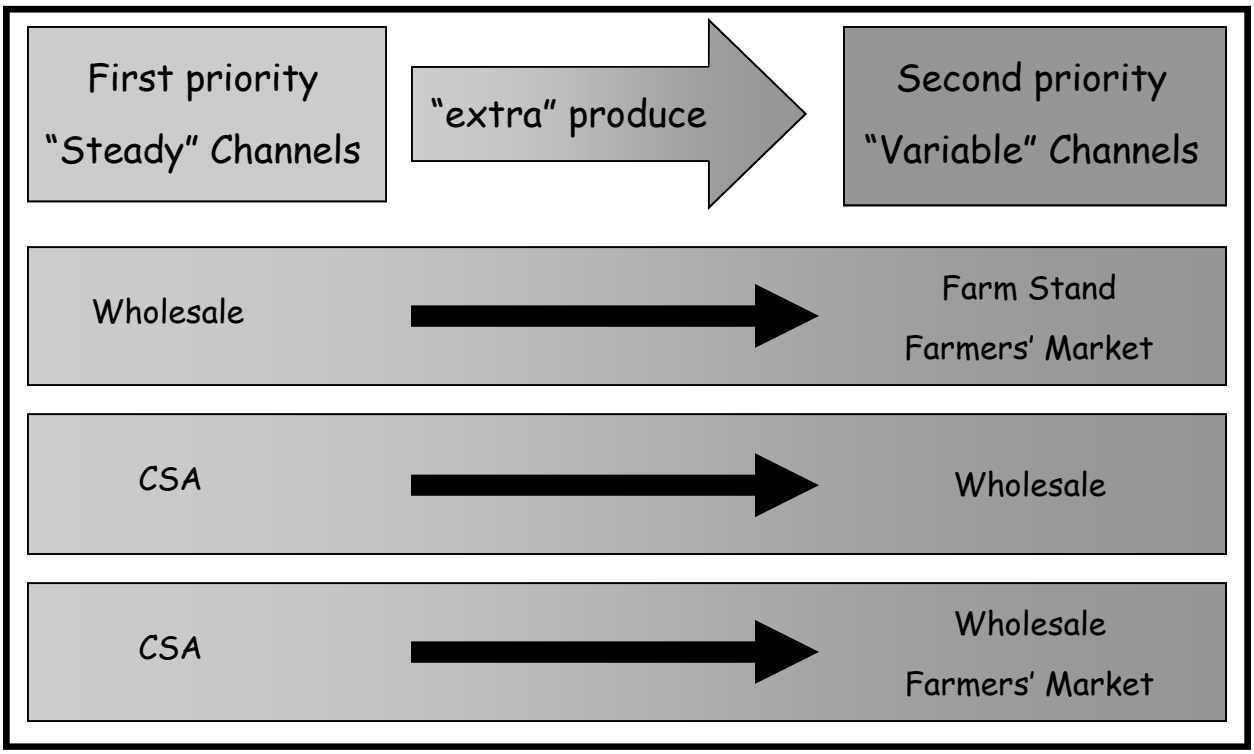


Figure 3 : Examples of marketing channel combination strategies.

Wholesale Marketing Channels

Wholesale channels typically require the ability to move large quantities of produce quickly, usually, but not always, at a lower price than through direct channels. Wholesale marketing channels include selling directly to restaurants and retailers (without the use of a broker or distributor), distributors, produce auctions, processors, and produce brokers. Selling to processors and produce brokers is not specifically addressed in this guide.

Wholesale Buyer Expectations

Farmers wishing to enter wholesale channels should take the time to learn about the expectations and requirements of typical wholesale buyers. The most common expectations and requirements are summarized below. Wholesale customers, in general, require a high and consistent level of washing, sorting/grading and packing.

Interviews with produce distributors revealed that quality, consistency, and proper packing were the top concerns with product cleanliness, ripeness, and sorting for size also mentioned as important.

Wholesale Buyers Expect:

- ★ High Quality
- ★ Proper packing
- ★ Timely delivery
- ★ Clean product
- ★ Sorting for size
- ★ Consistency
- ★ Communication

Wholesale Buyers May Require:

- ● GAPs certification
- ● Liability Insurance
- ● Promotional products
- ● Vendor permits
- ● Refrigerated trucks

Communication is Critical

Wholesale buyers do not like to be surprised. They depend on quality produce, complete orders, and timely delivery. When this is not possible, advance notice can make all the difference. In fact, wholesale buyers say that it is more important that a farmer clearly communicate the quality and quantity of produce available than it is to maintain a steady supply. Buyers want to be kept informed of how crops are doing, so that in the case of shortage, crop failure, or poor quality, they have time to source a replacement. Clear communication done in advance can make the difference between losing an account with a wholesale buyer, and maintaining a good working relationship.

Illustration 2: Clear communication is key when dealing with wholesale buyers. Here, the farmer drops off an order and reviews paperwork with a grocer.

Post-harvest handling

Washing & Food Safety

Wholesale buyers demand produce which has been cleaned and absent of soil or other foreign materials. Increasingly, wholesale buyers also require some level of food safety assurance, such as the national voluntary Good Agricultural Practices (GAPs) program. GAPs is a food safety program which includes farmer education, a written food safety plan for each farm, and third-party inspection for certification. Even in the absence of an official food safety requirement, proper washing and chilling of produce is necessary for successful wholesaling to preserve crop quality and shelf life.

CHECK IT OUT!

For more information on Good Agricultural Practices visit: www.GAPs.cornell.edu

Food safety assurances that farmers should consider:

- Educate farm workers about proper hygiene.
- Wash and sanitize containers, tables, and packing equipment.
- Keep domestic and wild animals away from washing and packing areas.

Illustration 3: Carrots and salad greens are thoroughly washed for wholesale customers.

To keep produce looking and tasting its best:

- Harvest at the right stage of ripeness.
- Leave room for air to circulate around produce in storage.
- Don't pack too tightly or too deep in harvest containers.
- Avoid impact injury to produce caused by throwing or dumping.
- Shade produce from direct sunlight.
- Remove field heat quickly and store properly.
- Avoid chilling injury by checking thermostats and thermometers in coolers.
- Don't store incompatible produce in the same cooler.

CHECK IT OUT!

For more information on handling and storage, get Produce Handling for Direct Marketing, NRAES-51. Available at www.nraes.org

Sorting & Grading

Typically, wholesale customers expect produce to meet standardized or uniform size, color, maturity, grade, and shape. Sorting is necessary with crops that vary in size such as tomatoes, potatoes, eggplants, squashes, melons, and apples as well as many others. For many crops there are standards and definitions for size and quality grades. For example, apples are graded on a scale ranging from "extra fancy" to "utility".

An example of USDA quality grades:

Apple: Extra Fancy, Fancy, No. 1, Utility.

CHECK IT OUT!

A description of the standards for a full range of fruits and vegetables is available from the USDA Agricultural Marketing Service (AMS) on their website.

For Vegetables:
http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&page=FreshMarketVegetableStandards

For Fruits:
http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateN&page=FreshMarketFruitStandards

Packaging

Wholesale customers also expect standard packaging sizes so they can manage inventories and compare pricing. Grocery, retail, and distributor customers will most likely expect standardized packing, however, restaurant customers may have more flexibility.

An example of standardized packing requirements:

Radishes: Radishes should be well-formed, bright and crisp. Tie 8 to 12 in a bunch so that 20 bunches fill a 1/2 bu. or 40 bunches a 1 1/9 bu. box.

CHECK IT OUT!

For specific information on industry standards for packaging vegetable crops visit:

http://agmarketing.extension.psu.edu/Wholesale/ProdPkgGuide.html

Five important steps for successful wholesale relationships

Step 1: Make the Connection

To approach a wholesale buyer, call first and ask with whom you should speak about buying produce from your farm. Be sure that you talk with the decision maker when negotiating sales. Once you have identified with whom you should talk, give a brief description of your farm and products and ask for an appointment to meet them in person and discuss your products. When you meet with them, bring samples of your products.

Step 2: Define Expectations

Ask buyers about their expectations in terms of delivery, ordering, billing and payment, quality, size, and volume. Find out what products interest them and how much they need, what they want the produce/products to look like, and what packaging is desired. Does the buyer require: refrigerated trucks for delivery, Good Agricultural Practices (GAPs) certification, liability insurance, vendor permits, or free cases of promotional products?

Step 3: Establish Schedules

Ask buyers their preferences for how and when they would like to place orders and when they prefer deliveries. Set up an order schedule (standard day per week) and specify when orders must be placed so you have time to harvest products before delivery. Ask exactly when and where to deliver the products, and be sure to follow those instructions. Make it clear that you need a certain number of hours or days notice for special orders. Be on-time with your deliveries and supply exactly what you have promised. Reliability is a must!

Step 4: Establish Pricing and Payment

Consider establishing a consistent price throughout the season rather than fluctuating up and down. Be sure to consider your production and marketing costs (including delivery time and mileage) when formulating your prices. Make sure that prices and payment terms are clear in advance; ask about the billing and payment schedule. If the payment terms will not work for you, discuss possible changes.

Step 5: Partners in Promotion

Help your buyers communicate your local, homegrown quality to their customers. You might want to provide farm literature for them to distribute to customers. Offer to be available for in-store or restaurant appearances. Offer to educate the sales team or other staff about your products and to take them on a tour of your farm. Show them the freshness of your product and give them a sense of how things are grown or made.

Avoid Common Mistakes!

- **Don't just "show up"** when trying to win a new customer, call to make an appointment. Wholesale buyers, whether at a distributor, grocery store, or restaurant are busy and a "drop in" can ruin an otherwise promising opportunity.
- **Communicate**, if a crop falls short of expectations, tell the buyer immediately. Wholesale buyers report that giving them adequate warning is more important than falling short on an order. If they are aware of your situation in advance, they can seek alternative sources and still have a good relationship with you. If you leave them short without notice, it will likely destroy the relationship.
- **Know your potential** – make realistic projections before you make commitments.

Distributors

Distributors are wholesale buyers who specialize in managing inventory and delivery logistics. They carry a broad array of products, from produce, dairy, meats, and dry goods to paper and cleaning products. Distributors sell their products to restaurants and retail stores, as well as to institutional buyers such as schools, hospitals, and nursing homes. While sales to distributors are typically characterized by low prices, they are able to buy large volumes of product. In addition, distributors serve the role of sales and delivery, which are time consuming for farms distributing on their own. Distributors usually require that the product be delivered to their site, though some are willing to pick-up at the farm.

Distributors have high expectations for quality, proper packing, and keeping schedules. It is not unusual for distributors to refuse a load of produce if it is not in keeping with their expectations. This high level of service and risk discourages many small-scale farms from selling to distributors. In fact, surveyed farmers cited distributors as the most risky and stressful of the wholesale channels, citing the high level of labor needed, the pressure to deliver quality and

Snapshot: Distributors

Finger Lakes Organic/Regional Access (FLORA)

FLO is an organic produce growers cooperative which wholesales its goods and partners with Regional Access for distribution. Regional Access is a distributor supplying restaurants and stores with foods made in Central NY as well as specialty foods from other regions. Regional Access purchases produce directly from farms, and is easier to work with than large distributors due to their flexible catalogue and pricing. On their website, Regional posts what is available and at what price and their customers order accordingly.

quantity in a timely manner, and the risk of "buyer back-out" as sources for stress. "When dealing with distributors, you are powerless and it is stressful", said one farmer during an interview. "Distributors call all the shots, like price and pick-up time, and require extra labor for grading, sorting and packaging."

Despite the negative perceptions, distributors are an efficient way for a farm to move large quantities of product to many wholesale customers. Also, distributors can be an easy "shortcut" to buyers seeking local produce by eliminating barriers such as vendor permits, insurance requirements, delivery by refrigerated truck, and others. Distributors also vary in their buying policies and business procedures. Large scale, national distribution companies may be less small-farm friendly and smaller, regional distributors may be more flexible and willing to work with local farms, however both generalizations present exceptions. Some distributors have a sales team and promote sales of your product while others do not, in which case the farm may still need to engage customers to create demand for their products. In addition, distributors are increasingly sourcing locally produced foods in response to requests and pressures from their customers.

Snapshot: Distributors

Maines Produce Express

Maines is a high volume produce distributor associated with the national Maines Paper and Food distributors. Maines is a traditional distributor, serving restaurants and retail stores with a consistent supply of produce sold at typical wholesale pricing. Maines has begun to seek an increasing amount of locally and regionally grown produce to serve customers that demand local. In order to work with regional farms, Maines offers to pick produce up at the farm, a nice touch not offered by many other high volume distributors. In addition, Maines requires GAPs certification for all farms from which it buys.

Restaurant Sales

Although wholesale marketing is typically associated with moving products on a large scale, this is not always the case. Restaurants, for example, may require small quantities of products relative to other wholesale customers.

In a 2008 study of two 18 acre Central NY produce farms selling directly to restaurants, the farms sold to an average of 14 restaurants weekly, with sales averaging $86 per restaurant, and some sales as low as $17/week/restaurant. However, many restaurants will pay a premium for quality local products. At a minimum, restaurants typically pay 10% over wholesale for standard items, and higher percentages for specialty items (those that can not be readily found from other wholesale sources).

Many chefs (especially from high-end restaurants) are looking for fresh, local products to feature in their menus. Develop a personal relationship with chefs, find out what they want and grow a wide range of products for them for as long a season as possible. You need to offer clean, high quality products and reliable, timely delivery.

SPECIFIC POINTERS:
RESTAURANTS

- You will find that chefs are as busy as farmers. Call during the restaurant's "downtime" not during mealtime or preparation before meals (avoid 10 am-2 pm for lunch and 4 pm-11 pm dinner).
- Provide chefs with your farm's harvest schedule so they can plan their menus around it.
- Chefs especially appreciate when orders are delivered per their specific instructions, such as in the walk-in cooler, on a shelf in the kitchen, etc.
- Chefs often move from restaurant to restaurant, so center your business agreement on the restaurant and not only the chef.
- When you make your delivery, make it a habit to speak with the staff as well as the chef so they can talk knowledgeably to customers about your products.

Grocery Stores and Food Retailers

Increasingly, food retailers are interested in sources of locally/regionally grown food. Such retailers vary from farm stands, farm stores, natural food stores, independent grocery stores, and large grocery chains. Many farm stands and stores do not grow all that they sell and will seek additional local products to purchase. Generally, retailers will pay wholesale prices found at regional markets.

Snapshot: Grocery & Retail

Wegmans

Wegmans is a large chain of grocery stores which has a long history of working with local producers at the individual store level. Wegmans is open to products from area farms and food producers and uses signage to draw attention to local specialties. They use a computerized buying system and use market pricing as a benchmark when buying from local vendors. Relationships are created in the off-season, discussing what items to grow. Then, during the growing season, stores rely on the electronic procurement system to order from the farm. Wegmans, like an increasing number of wholesale buyers, requires GAPs certification.

Large chain stores each have their own unique methods and requirements for purchasing. Some purchasing decisions are made at the local store level, but most require approval from regional or central management. Try starting with someone in the produce department, and ask to whom you should speak.

Food retailers expect local prices to be in line with regional wholesale prices. Understand buyer expectations and prices before agreeing to delivery. Retailers reserve

SPECIFIC POINTERS: GROCERY & RETAIL

- Work your way into a retailer by offering quality and/or hard to find items; then build up the order by educating buyers about what other products you can supply.
- Call before you leave the farm to make a delivery to confirm the order and to ask if there are any other products they could use.
- If you anticipate a shortage, call at least two weeks in advance to warn the store.

the right to reject a delivered load of produce based on its quality or if their supply needs have changed. One advantage of selling to food retailers is that you can move more volume to fewer buyers, reducing your marketing labor and "face time" with customers. Also, they are regular, weekly purchasers. A disadvantage is that it can be a fickle, price-driven market. A good strategy is to spread your marketing risks by selling in more than one channel.

Snapshot: Grocery & Retail

GreenStar Cooperative Market

GreenStar is a natural foods cooperative in Ithaca, NY with two stores currently owned by it's over 7400 members. GreenStar is committed to local farmers and producers and gives preferential pricing and placement to local products and assists producers with developing and marketing their products. GreenStar is committed to a local economy and ensuring that the relationships between farmers, producers, shoppers and the co-op are most beneficial to all parties. GreenStar has a long history of working with local farmers and has developed a clear and consistent contract system so both parties know what to expect in a given season. Weekly orders are discussed over the phone or by email. Payment comes from the store on a net 10 basis. GreenStar carries both organic and conventional produce. Organic foods require certification.

Institutional & Food Service Buyers

There is increasing interest in local foods among institutional buyers. The institutional food service marketplace is opening to local producers; however, farmers must be prepared to serve this market that deals in high volume and low prices. Schools are very interested in local purchasing as a way to increase fresh fruits and vegetables in the diets of children. Some schools, colleges, nursing homes, hospitals, and prisons can purchase products from local farms. However, many are part of a buying consortium, and have a single goal: keeping costs low. Foods served at institutions are often pre-prepared or ready to serve, using few fresh ingredients.

Sales to institutions also come with institutional barriers, including regulations, requirements, and permits that dictate their

purchasing practices. Their purchases are often made via contracts that specify how the food is delivered. Many institutions must follow federal food safety (HACCP) regulations and require delivery via a refrigerated truck. Liability insurance is also required, which farmers should have regardless of their marketing strategy. It may be easier for farmers to deliver to distributors who meet the requirements for selling to institutions. While this approach adds a middleman and reduces returns, it simplifies the marketing process for the farm. Even when working through a distributor, farms can approach institutional buyers and ask them to request their products.

Produce Auctions

A unique wholesale marketing channel is the produce auction. Produce auctions are a highly flexible wholesale channel. Unlike other wholesale channels, auctions will accept variable quantities of produce, sporadic supplies, as well as variation in quality grade and size. As with other wholesale channels, produce should be washed, sorted, and packed in a professional manner in order to command the best price. Farm stand operators are common customers at produce auctions.

Price is the riskiest aspect of selling through a produce auction. Several factors including season, volume, produce quality, buyer attendance at the auction, and the quantity of competing produce can affect prices. Aside from price risk, produce auctions can be a way for a farmer to "move" large quantities of perishable goods quickly and potentially a way to salvage the loss if a crop would otherwise go unsold.

Direct Marketing Channels

Direct marketing channels include farmers' markets, seasonal farm stands and farm stores, u-pick (also called pick-your-own) and Community Supported Agriculture (CSA). Some also consider "direct to restaurant or retailer" as direct marketing however, for the purposes of this document both retail and restaurant sales are considered wholesale because the farmer is not selling direct to the end user. Direct marketing also includes internet and mail order, however, those channels are not addressed in this guide. Direct marketing channels generally offer higher prices than wholesale and may require a greater diversity of products, though usually in smaller quantities. Because direct marketing involves more producer-customer interaction it consumes more time and demands customer- oriented skills of the producer.

Farmers' Markets

With the growing popularity of "local" foods, the health and wellness movement, the surge of organic, natural, and eco-friendly foods, and the proliferation of "foodie" culture, farmers' markets have seen growth in popularity. Many consumers and farmers believe that farmers' markets deliver higher profits to farmers because they eliminate the "middle man". However, farmers' markets are also labor intensive for producers and usually result in sales volumes which are lower than wholesale. The combination of high prices, low volume, and high time demands can contribute to relatively low profits.

Illustration 4: A typical set up for a farmers' market.

However, farmers' markets do offer benefits beyond simple cash income. For example, they provide advertising for the farm's other channels, including u-pick, CSA, farm stand and even wholesale. In addition, they offer exposure to area chefs which may result in sales to restaurants. The opportunity to interact face to face with customers provides farmers with direct feedback on product demand, quality expectations and customer satisfaction, which helps farmers hone their marketing skills. Additionally, the opportunity to observe and interact with more experienced farmers at farmers' markets is an ideal setting for a beginning farmer to learn about marketing. Competition at a market helps farmers identify a niche that works for them.

A successful farmers' market vendor will grow crops for as long a season as possible in order to have a weekly presence at a market or several markets. A diversity of crops is generally needed, however, in a busy market, single crop producers can also be successful. For example, fruit producers may come for a few weeks only but because they are offering a high demand product for a short period of time, their sales can be significant. Additionally, a market is a good place to promote u-pick at their home farm.

The low barrier to entry in farmers' markets is a double-edged sword. Backyard and hobby growers can easily sell there, making the farmers' market a good channel for new farmers. On the negative, the accessibility of this channel to hobby farmers who may not need to maximize profit may drive down prices for larger scale "career" growers.

Prices vary at farmers' markets, some have a reputation for having high prices, others low prices. Visit several markets before choosing where to sell. Learn about the rules, evaluate customer traffic, products and prices being offered, estimate sales per vendor and then decide which market will meet your product and sales goals. By visiting several times during the season you can also determine if the traffic is steady throughout.

The potential for waste poses a challenge for producers marketing through the farmers' market. When preparing for a farmers' market, growers harvest crops in anticipation of a high volume sales day, but there is always the risk of low attendance (and resulting poor sales) due to bad weather or other factors. In studies, such losses have been measured or estimated to be as much as 20% or more of the produce brought to the farmers' market. Another factor that

contributes to high losses when selling through a farmers' market is the popular strategy of keeping the sales table stocked with large quantities of produce. "Stack it high and watch it fly" is a strategy based on the assumption that a display of large quantities and variety of produce is appealing to consumers and increases sales. However, this strategy requires keeping the display well stocked, even when the market day draws near to closing. Thus, producers are apt to bring more to market than they expect to sell, adding costs from the associated production, harvest and prep labor.

Sales on the Farm

Farm Stands, Stores and U-Pick

Roadside farm stands and u-pick operations vary in their requirements depending on the scale of the operation. Each of the two channels can be managed as intensively or minimally as a producer's time and resources allow. However, to be successful and profitable, quality factors such as freshness and variety of the produce must be maintained at a high level. Each of these channels can be managed as staffed, with a sales representative tending to the customers, or unstaffed. Whether staffed or not, a well managed, well stocked u-pick or farm stand brings steady repeat business while a poorly managed one will not. The sales volume that can be sold through these channels varies depending on the level of

Illustration 5: A seasonal roadside farm stand.

drive-by traffic, location, price, and degree of advertising, as well as other factors such as weather and competition. Such variation in sales volume makes these channels appropriate for a wide range in the scale of production.

Potential risks and problems with these channels include factors that affect customer turn-out, theft, in the case of honor system payment, and inefficient harvest in the case of u-pick.

For successful on-farm retailing, you must enjoy having people on the farm and in your fields picking crops. Some farmers are not comfortable with this level of invasion and the liability risks presented with "people on the farm". Building a loyal clientele is the key to successful on farm sales and this can take many years to build. Incremental growth based on realistic customer numbers and sales projections must be built into a farm retail business plan.

Work to develop a reputation for high quality produce. Word of mouth is the primary means by which consumers learn about local farms. Pay attention to what customers are looking for and start to build a product line based on what they want. Farm stands located on a busy road may attract enough customers to generate sales that warrant investing in improved facilities and staff. When considering locations, you can research traffic counts on your road or nearby roads.

Farm Stands & Stores

Selling farm products at your farm can involve a simple self-serve stand to a full-scale farm store with multiple departments, as well as a u-pick operation, or combination of u-pick and farm store/stand. Farm stores bring higher overhead and staffing costs which usually means slimmer margins, however when managed well, stores also bring more customers and returns. Self-serve stands are a good way to assess the potential draw from drive-by traffic. Crops that stop traffic include strawberries, sweet corn, tomatoes, peaches, and pumpkins.

U-Pick

U-pick is a cost effective way to expand direct marketing. U-pick presents the risks of bad weather during short crop seasons. Generally a pick-your-own operation will offer some products picked for the convenience of customers.

One u-pick business owner pointed out that u-pick is an inefficient marketing channel, in his opinion, because "amateur" pickers only "cherry pick" the biggest, easy to find produce. Much of the harvestable crop then spoils in the field. However, it is

possible to salvage such potential losses by regularly harvesting u-pick crops for a farm stand or other channel.

Table 4: "Pro's" and "Con's" to consider with on-farm retailing

	Pro	Con
Farm Stand & Farm Store	♦ Low pressure for crop availability, consistent supply compared to wholesale. ♦ No people in the fields.	♦ Potentially high overhead costs.
U-pick	♦ Customers provide the harvest labor.	♦ Lost crop, crop left in fields, timing of customers and crop readiness. ♦ Liabilities of people on the farm. ♦ Weather sensitive marketing.

	Pro	Con
Staffed	♦ Delivers a high level of customer service.	♦ High labor costs.
Unstaffed	♦ Low-overhead ♦ Flexible market	♦ Location is critical. ♦ Potential theft of produce and cash.

Community Supported Agriculture

Community Supported Agriculture (CSA) is a marketing channel which, like farmers' markets, has seen a tremendous surge in popularity in the past 10 years. CSA operations have experienced a dramatic rise, expanding from an estimated 60 operations in 1990 to approximately 1,100 operations by 2006 according to the USDA Agriculture Marketing Service (AMS).

CSA has been gaining momentum since its introduction to the US from Europe in the mid-1980s. The CSA concept originated in the 1960s in Switzerland and Japan, where consumers interested in safe food and farmers seeking stable markets for their crops joined together in economic partnerships. With a CSA, consumer members purchase "shares" of the farm's produce. Shares are purchased before the growing season begins and in this way, the risk of crop failure is shared among the members and the farm owner. Once harvest begins, members pick up their share of fresh produce once a week, usually at the farm.

Illustration 6: A typical set-up for "free choice" CSA share pick-up.

There are two main types of shares used: boxed shares and free-choice shares. While definitions vary, free choice shares mean that the member can take a variety of produce in the quantities that they choose. For example, at one CSA, members can each fill one regular grocery bag with any combination of available produce. If limited quantities of a certain crop are available, a sign will note it and members will be asked to limit what they

take. Boxed shares are pre-packed for the member and the variety and quantity of produce in the box is set by the farmer. Additionally, farms offering free choice shares ask members not to "split" shares and ask that they only take what their family can consume in one week.

CSA's require a large variety of crops and season long production in order to supply weekly shares and satisfy customer expectations. In Central NY, most CSA's run for 20-22 weeks. Farmer interactions are highly valued by CSA customers, so farmers will need to be customer oriented and enjoy interacting with their members. Many CSA farms host special events or family days to strengthen the bond between farmer and consumer.

A Sample of produce offered in one week's CSA share:

1 lb. Field Mix Salad Greens

1 Bunch basil

1 lb. Spinach

2-3 Summer Squash

1-2 Broccoli heads

2-3 Onions

1 Bunch Scallions

2-3 Cucumbers

A benefit of the CSA channel is that farmers are paid at the beginning of the season. In this case, they are paid even if a crop fails. Customers share the risk and enjoy whatever products are available on a weekly basis.

CSA share prices range from as low as $250 for a small share to as high as $600 per season. Depending on the share options offered, farmers can plan production to meet the weekly share needs and price according to their costs of production plus margins they wish to achieve. Through good recordkeeping of yields and labor, CSA farmers can assess whether the price they charge is covering their costs. Additional outlets may be needed if the CSA does not meet the income goals or absorb all of the farm's products. A farmers' market or restaurant sales are compatible channels for CSA farmers who seek full-time income.

The degree of marketing labor through the CSA channel is relatively low since the customers are satisfied with lower levels of packaging and washing as compared to other channels. Additional marketing expenses for a CSA include delivery, if offered, and the costs of recruiting and managing members. If farmers fail to deliver, customers can be dissatisfied and may not join the CSA the

next season. Retaining customers is a plus since it is costly to recruit new customers.

Suggested marketing materials for a CSA include a website, brochure, and possibly a newsletter. The sales time required for a CSA is highly variable, but can be relatively small compared to other direct marketing channels, especially considering the volume of produce that can be distributed during one pick-up time.

Besides time spent selling memberships, which occurs during the off-season, CSA requires the coordination of one or two days weekly for members to pick-up their shares. Farmers report that a pick-up day entails about four hours of "sales time," spent meeting and directing members as they pick-up their shares.

IDENTIFYING YOUR MARKETING CHANNEL STRATEGY

Choosing the right channels for your farm

This guide has identified the most important factors to consider when evaluating a marketing channel and given a brief overview of wholesale and direct marketing channels. Whether you are a beginning farmer, or an experienced farmer looking to improve your farm's marketing, this guide is intended to orient you to marketing channels and aid in decision making.

In order to select the marketing channels that best suit your farm and your personal preferences take some time brainstorming. Consider which channels are practical in your area, say within a 10-20 mile radius of your farm's location. For example, if the farm is in a very rural location, u-pick may not be a good fit.

Once you identify some marketing channels that interest you, visit other farms or marketplaces of that type. How are their prices? How many customers are there and what is the volume of produce being sold? What overhead costs and amount of labor are necessary for those farms to sell there? When you visit, take notes and try to rank each marketing channel for your perceptions of how well they fit your goals in terms of: risk, lifestyle preferences, volume sold, prices and profit, labor required, and associated costs.

Marketing Channel Assessment Exercise

Using the table below, write in each marketing channel that you currently use and those that you are considering. Next, rank the channels against each other. A "1" is given to the channel that is the "best" for each criteria. In other words, a "1" for Price means the highest prices you receive, a "1" for Risk means the least risky channel. Channels that you feel are equal for a certain criteria get the same score and the next number in the rank is skipped (see Labor Required for example). In the Total Score column, simply add across for each channel. For Final Rank, give the channel with the lowest score a "1", this is the best channel. A blank table is included in Appendix 2.

Marketing Channel	Volume	Price	Risk	Labor Required	Assoc. Costs	Total Score	Final Rank
Self-serve farm stand	1	2	2	1	2	8	1
Farmers' Market	2	1	2	3	1	9	2
Restaurant	3	2	1	1	2	9	2

Appendix 1 : Major characteristics of marketing channels to consider.

	Farmers' Market	CSA	Farm Stand	U-Pick	Distributor	Grocery	Restaurant
Risks	Low customer turn-out, price competition, leftover unsold product.	Farmer commitment up- front, customers share the risk.	Low customer turn-out.	Low customer turn-out. Weather. People on the farm.	Distributors "call the shots." Inconsistent orders, buyer back-out.	Inconsistent orders, buyer back-out.	Unpaid debts, buyer back-out. Can be slow to pay.
Prices & Profit	Prices varies. Can be highest among the channels. Labor costs relatively high.	Price is similar to wholesale, however, profit is generally higher.	Prices vary, but high profit potential. Location is a big factor in price.	Prices vary, high profit potential. Location is a big factor in price.	Price is low: Producer is a "price taker." Wholesale prices are generally low.	Price is low: Producer is a "price taker." Wholesale prices are generally low.	Prices vary. Usually higher than other wholesale prices.
Volume	Varies with market. Low to medium.	High: It is possible to "move" all the produce harvested.	Medium to low: location and competition dependant.	Medium to low: location and competition dependant.	High	High to variable.	Variable, usually small.
Level of Marketing Management Required	High: Many hours dedicated to selling. Most markets run 3-5 hours/day.	High: Must sell memberships & facilitate weekly share pick-ups. Less post-harvest work.	Variable: Ranges from unstaffed honor system to staffed stores.	Variable: Ranges from unstaffed honor system to staff supervision. Must advertise.	Low: Relatively quick & easy for volume sold. Must meet packing standards.	Low: Relatively quick & easy for volume sold. Must meet packing standards.	Variable: A high level of service for the volume sold.
Associated Costs	Market fees, equipment, travel, hired labor.	Packaging materials, advertising, brochures.	Road side signs and other advertising. Sales staff is optional.	Road side signs and other advertising. Sales staff is optional.	Washing, cooling & packing equipment for high volumes. Delivery costs.	Washing, cooling & packing equipment for high volumes. Delivery costs.	Washing, cooling & packing equipment for high volumes. Delivery costs.
Farmer Stress	Low: "Show up or don't show up."	Low to medium. Must meet customer expectations weekly.	Variable: Depending on overhead & scale.	Low	High: Distributors cited as highest stress customers.	Medium to high.	Medium to high.

Appendix 2 : Marketing Channel Assessment Exercise

A rank of "1" is given to the "best".

Marketing Channel	Volume	Price	Risk	Labor Required	Assoc. Costs	Total Score	Final Rank

Appendix 3 : List of sources and resources:

LeRoux, M.N. 2009. Marketing channel options for small-scale diverse vegetable and fruit producers." Unpublished thesis. Department of Applied Economics and Management, Cornell University, Ithaca, NY

Hendrisckson, J. 2005. Grower to grower: creating a livelihood on a fresh market vegetable farm. Center for Integrated Agricultural Systems. College of Agriculture and Life Sciences, University of Wisconsin– Madison. Available at website http://www.cias.wisc.edu/wp-content/uploads/2008/07/grwr2grwr.pdf (verified April 6 2010)

Penn State University Agricultural Marketing Website
http://agmarketing.extension.psu.edu/Wholesale/ProdPkgGuide.html

Rangarajan, A. et al. 2000. Food Safety Begins on the Farm: A grower's guide. Good Agricultural Practices for Fresh Fruits and Vegetables.

Good Agricultural Practices Program website www.GAPs.cornell.edu

LeRoux, M.N. and Schmit, T.M. 2009. Choosing the right marketing channels for small-scale vegetable producers. Smart Marketing March 2009.Department of Applied Economics and Management, Cornell University, Ithaca, NY.
Available at http://marketingpwt.aem.cornell.edu/SmartMarketing/pdfs/LeRouxSchmit-0409.pdf (verified April 7 2010).

2006 Marketing Strategies for Farmers and Ranchers. A publication of the Sustainable Agriculture Research and Education program. Available at www.sare.org/publications/marketing.htm

Gibson, E. L. 1994. Sell what you sow! The growers guide to successful produce marketing. New World Publishing

Direct Marketing Options, a fact sheet from the Guide to Starting a Farm Business in New York, Cornell University Small Farm Program website, available at www.smallfarms.cornell.edu/pages/resources/businessmanage/guide.cfm (verified April 27, 2010).

Grubinger, V. P. 1999. Sustainable vegetable production from start-up to market. Natural Resource, Agriculture, and Engineering Service (NRAES).

Thompson, J. , Kader, A., and Sylva, K. Compatibility Chart for Fruits and Vegetables in Short-term Transport or Storage. Available at http://postharvest.ucdavis.edu/Pubs/postthermo.shtml (verified May 19, 2010).

Guide to Farming in NYS: What Every Ag Entrepreneur Needs to Know. Cornell Small Farms Program. Available at http://www.smallfarms.cornell.edu/pages/resources/businessmanage/guide.cfm (verified May 19, 2010).

Guide to Marketing Channel Selection

NY *farm viability* INSTITUTE

Cooperative Extension Tompkins County

For additional copies contact Cornell Cooperative Extension of Tompkins County
at (607) 272-2292 ● Email:tompkins@cornell.edu ● http://ccetompkins.org

Product Testing Fact Sheet

Introduction to Product Testing

It is important to test your food product to make sure that it will be safe to eat once it is purchased by your customers. Foods that do not meet certain specifications can encourage the growth of bacteria which can cause people to get sick (foodborne illness). A law by the Food and Drug Administration (FDA) called Title 21 provides specifications for different food products to minimize bacterial growth. The SC Department of Agriculture (SCDA) is contracted by FDA to ensure safety of SC foods. This fact sheet provides important information about the Title 21 requirements, and gives detailed instructions for getting your product tested through Clemson University.

Objective of Product Testing

- To make sure consumers get a safe food product that does not encourage the growth of bacteria, leading to foodborne illness.
- To protect you and your business: If someone gets sick after eating your product you can be held responsible (a lawsuit could be brought against you).

Description of What is Being Analyzed During Product Testing at Clemson University

- **Acidity and water activity** provide information about the potential for bacteria to grow in food. The more acidic the food (low pH) and the less water available in the food (low water activity), the less likely the food will promote bacterial growth. Federal and state food regulations state that a shelf-stable product that does not require refrigeration must have a water activity ≤ 0.85 and a pH ≤ 4.6.
    - **Acidity** – measurement of the pH of the food. (pH ranges of some common foods)
        - pH: ≤ 4.6 – "acidic food" (Prevents the growth of harmful bacteria)
        - pH: ~7.0 – neutral
        - pH: ≥8.0 – alkaline
    - **Water Activity** – amount of "free" water (water available to grow bacteria) – Goal is ≤0.85. (Examples of the amount of water activity found in common foods)

- **Nutrient Analysis** – nutritional content of the food product's ingredients and quantity are analyzed using a food ingredient database which will then generate a nutrition label with all the necessary information in the correct format. We will send you the label in a format that you can take to a printer and use on your product.

Submitting a Food Product for Testing

- If you are sending any products that are perishable, refrigerated or frozen please contact Kimberly Baker at kabaker@clemson.edu or 864-226-1581 ext. 115 to let us know when you are sending samples. Please mark on the outside of the package if the box needs to be refrigerated or frozen upon arrival.
- Please note that products cannot be accepted when the Product Testing Laboratory is closed. Make sure that samples are not scheduled to be delivered on holidays, weekends or on the following dates:
    - December 9, 2013 – January 5, 2014
    - March 17 – 21, 2014
- The Product Testing Laboratory is not responsible for lost, spoiled or broken samples.
- Print and complete the "Product Testing and Nutritional Labeling Request Form" available online at the Clemson Extension Food2Market website: www.clemson.edu/extension/food2market.
- Mail the completed "Product Testing and Nutrition Labeling Request Form" along with one sample from four different batches (4 samples total per product) and check made payable to "Clemson University" to: Clemson University, Department of Food, Nutrition and Packaging Science, C/O Product Testing Laboratory, 223 Poole Agricultural Center, P.O. Box 340316, Clemson, SC 29634-0316.
- Products must be mailed to the address listed above. No in-person deliveries of product samples will be accepted.
- Cash cannot be accepted for payment of product testing. Only checks made payable to "Clemson University" can be accepted at this time.
- Product samples do not need to be sent with the form and payment when only a nutrition analysis is being performed on your product. Samples are required for pH and water activity testing only.
- Testing four batches allows us to demonstrate to SCDA that the product is consistent from one batch to the next. Examples of a sample: 1 sample = 1 cup salsa, BBQ sauce, etc. or 1 item such as 1 muffin, 1 piece of candy, etc.

Test Results

- Tests will be conducted once per week. (Please keep this in mind when you make mailing arrangements so samples do not arrive on weekends or holidays.)
- Please allow 3 weeks for testing to be completed and results to be returned.
- A copy of your results will be sent to you and the SCDA via e-mail by default or by mail if e-mail is not available. Maintain a copy of these results for your records as the SCDA can audit your process at any time and you will be held liable if you do not have evidence of your product testing.

Interpreting Your Results

- Products classified as an acidic food (pH ≤ 4.6) can continue to be produced and marketed within an inspected and approved facility.
    - A co-packer is a food processing plant that will produce and package your food product for you (AKA co-packers) List of Co-Packers
    - You may rent space from a co-packer in order to make your product or you can hire workers at the co-packer to make the product for you.
    - Production of food products in home kitchens is not permitted.
- If your food product is not classified as 'acidic', you will receive recommendations about how to proceed which may include, but are not limited to, product heating, use of sterilized bottles for packaging, and attendance at a Better Process Control School. You will also be required to schedule your process with the FDA.

Parisi[1], M. A., E. L. Steinberg[2], and J. K. Northcutt. 2012. Product testing and nutrition labeling factsheets. Prepared for the Department of Food, Nutrition and Packaging Sciences, Clemson University. [1]Assistant Professor, Winthrop University, Rock Hill, SC and Adjunct Assistant Professor, Clemson University; [2]Graduate Research Assistant, Clemson University; [3]Professor, Clemson University.

Product Testing and Nutritional Labeling Request Form

Name:_____

E-mail address: _____**Phone number:**_____

Mailing address:_____

_____

Name and type of product to be tested:_____

(Complete separate form for each product type. Name of product might be 'Dr. N's Secret Sauce'; Type of product might be 'BBQ sauce.')

Package description: _____

(i.e. pint glass jar, pouch, plastic bottle, etc.)

Describe processing and packaging method *(i.e. how is product prepared and packaged)***:**

_____

_____

_____

_____

_____

Please choose the product test(s) you would like performed on your product:

- ☐ pH - $100
- ☐ A_w (water activity) - $100
- ☐ Nutrition Label - $100

*****Please note that Clemson does not perform shelf-life studies on these samples*****

Recipe Specifications

To ensure accuracy of nutrition facts panels please include the brand name of each ingredient if applicable. Include copies of each ingredient's nutrition facts panel, ingredients and allergen statement if possible. In the "additional information" column include any additional information about the ingredient that would help describe the ingredient (i.e. no added salt, gluten free, from concentrate, etc.)

Ingredient List		
Name of Ingredient	**Amount (unit)**	**Additional Information**

1. Recipe makes _____ (cups, quarts, ounces, number of items, etc.) → i.e. How much total volume/weight is in 1 jar or package?

2. Serving size _____ _____ (cups, ounces, etc.) → i.e. How much of your product do you consider one serving?

3. Total number of servings in one package ____ _____ Ex: 2 cups total in a jar; 1 serving is ½ cup; so will get 4 servings/jar.

Mail this completed "Product Testing Form" along with one sample from four different batches (4 samples total per product) and check made payable to "Clemson University" to:

Clemson University
Department of Food, Nutrition and Packaging Science
C/o Product Testing Laboratory
223 Poole Agricultural Center
P.O. Box 340316
Clemson, SC 29634-0316

Please note that products cannot be accepted when the Product Testing Laboratory is closed. Make sure that samples are not scheduled to be delivered on holidays, weekends or on the following dates:

- December 9, 2013 – January 5, 2014
- March 17 – 21, 2014

Products must be mailed to the address listed above. No in-person deliveries of product samples will be accepted.

Cash cannot be accepted for payment of product testing. Only checks made payable to "Clemson University" can be accepted at this time.

The Product Testing Laboratory is not responsible for lost, spoiled or broken samples.

*** FOR IN-HOUSE USE ONLY (ANALYST TO COMPLETE AND FILE IN PRODUCT TESTING FOLDER) ***

Sample	pH 1	pH 2	A_w 1	A_w 2
1				
2				
3				
4				

Department of Horticultural Science

Horticulture Information Leaflet 801

4/95 -- Author Reviewed 7/99

POSTHARVEST HANDLING AND COOLING OF FRESH FRUITS, VEGETABLES, AND FLOWERS FOR SMALL FARMS

Part II: Cooling

L. G. Wilson, Extension Postharvest Horticulturist, NCSU
M. D. Boyette, Extension Biological & Agricultural Engineer, NCSU
E. A. Estes, Extension Agricultural & Resource Economist, NCSU

Field heat should be removed from fresh fruits, vegetables, and flowers as quickly as possible after harvest. Each commodity should be maintained at its lowest safe temperature. Cooling and storage requirements for specific commodities are presented below, in NC Cooperative Extension Service Publication AG-414-1, and USDA Agricultural Handbook No. 66.

Proper postharvest cooling can:

- Suppress enzymatic degradation (softening) and respiratory activity
- Slow or inhibit water loss (wilting)
- Slow or inhibit the growth of decay-producing microorganisms (molds and bacteria)
- Reduce the production of ethylene (a ripening agent) or minimize the commodity's reaction to ethylene

In addition to protecting quality, postharvest cooling enhances marketing flexibility by making it possible to market fruits, vegetables, and flowers at more optimum times. The ability to cool and store commodities minimizes the need to market immediately after harvest. This can be an advantage for high-volume growers as well as pick-your-own (P-Y-O) operators and those who wish to supply restaurants and grocery stores.

Field heat removal method choices depend on several factors, including:

- **Temperature of commodity** – when harvested.
- **Nature of the commodity(ies)** – type of product (e.g., leafy greens, flowers, fruit) respiration rate(s), cooling requirements, lowest safe temperature, tolerance of exposure to water.
- **Product packaging requirements** – box, bin, or bag; because packaging materials and design configurations affect method and rate of cooling.
- **Product flow capacity** – volume of commodities which must be handled per unit of time will determine the appropriateness of cooling methods and systems.
- **Mix of commodities** – compatibility depends on their **nature** with regard to sensitivity to odors and volatiles, such as ethylene.
- **Economic constraints** – construction and operating costs vary among methods; expense must be justified by volume and/or price increases related to cooled products.
- **Market requirements or expectations** – e.g., top-icing broccoli.

Common Produce Cooling Methods

Room Cooling – Placing commodities in an insulated room equipped with refrigeration

units to chill the air. This method can be used with most commodities, but is slow compared methods discussed below. Used refrigerated truck bodies make excellent small storage rooms.

Forced-air cooling – Used in conjunction with a cooling room is effective for most packaged commodities, and is 75 to 90% faster than room cooling. Fans should be equipped with a thermostat that automatically shuts them off as soon as the desired product temperature is reached. **Do not operate forced-air fans after the commodity has been cooled to its optimum temperature.** A low-cost, portable, forced-air pallet cooling system has been developed for small quantities of a commodity (see reference).

Hydrocooling – Can be used on most commodities that are not sensitive to wetting. Water removes heat about 5 times faster than air, but is less energy efficient. Mechanical refrigeration is the most efficient method of cooling water. A thermal storage immersion hydrocooler system can be economically fabricated for various volume needs. Ice in water will also provide a source of coolant. Used, stainless steel bulk farm milk coolers may be excellent options for some growers. If hydrocooling water is recirculated, it should be chlorinated to minimize disease problems.

Top or liquid icing – May be used on a variety of commodities and is particularly effective on dense and palletized packages that are difficult to cool with forced air. Because of its residual effect ice methods work well with high respiration commodities such as sweet corn and broccoli. One pound of ice will cool about three pounds of a commodity from 85 ^{0} to 40 ^{0}F.

Refrigerated trucks are not designed to cool fresh commodities. They can only maintain the temperature of loaded products, so **cool commodities before loading.**

Alternate Cooling Sources

Field heat removal is a function of exposing products to an environment which has a temperature lower than that of the commodity. When the above-mentioned cooling methods are neither practical nor expedient to employ, alternatives that will often suffice, especially for smaller volumes of commodities, include the following:

- **Well water –** Temperatures are usually in the 50 ^{0} to 60 ^{0}F range.
- **Night-time –** Air temperatures are usually cooler from sundown to sun-up, good time to harvest some commodities.
- **Streams –** Water temperatures are usually cooler than air, especially if flowing from mountains. Test to be certain that this water is free of contaminants.
- **Altitude –** If easily accessible, higher elevations can provide cooling.
- **Cellars/Caves –** Generally maintain fairly constant, cooler-than-air temperatures.
- **Discarded truck bodies, etc.** – Can be buried in hillsides for storage of some commodities.
- **Shade –** If refrigeration is not available, at least keep commodities from warming up.
- **Time of harvest –** Mornings are preferred, when commodities are usually coolest.

Cooling and Storage Requirements of North Carolina Commodities

Commodity	Suitable Cooling Method(s)*	Optimum Temp. ^{0}F	Freezing** Temp. ^{0}F	Optimum Humidity %	Normal Storage Life
Apples	R,F,H	30-40	29	90-95	1-12 months
Asparagus	H,I	36	31	95-100	2-3 weeks
Beans, snap	R,F,H	40-45	31	95	7-10 days
Beans, butter	R,F,H	37-41	31	95	5-7 days
Beets, topped	R	32	30	98-100	4-6 months
Blueberries	R,F	32	30	90-95	2 weeks
Brambles	R,F	32	30	90-95	3-5 days
Broccoli	I	32	31	95-100	2 weeks
Cabbage	R,F	32	30	98-100	1-6 months
Cantaloupes	H,I	32-40	30	95	2 weeks
Cucumbers	F,H	45-50	31	95	2 weeks
Eggplant	R,F	45-54	31	90-95	1 week
Green onions	H,I	32	30	95-100	3-4 weeks
Herbs	R	37-38 #	31	95-100	5-7 days
Leafy greens	H,I	32	30	95-100	1-2 weeks
Okra	R,F	45-50	29	90-95	7-10 days
Peaches	F,H	32	30	90-95	2-4 weeks
Peas	F,H	32	31	95-98	1-2 weeks
Peas, field	F,H	40-41	30	95	6-8 days
Peppers	R,F	45-50	31	90-95	2-3 weeks
Potatoes	R,F	38-40	31	90-95	5-8 months
Squash, soft-shell	R,F	45-50	31	95	1-2 weeks
Strawberries	R,F	32	31	90-95	5-7 days
Sweet corn	H,I	32	31	95-98	5-8 days
Sweetpotatoes	R	55	31	90	6-12 months
Tomatoes, pink	R,F	46-50	31	90-95	1 week
Turnips	R	32	30	95	4-5 months
Watermelons	R	50-60	31	90	2-3 weeks

* R = room cooling; F = forced air cooling; H = hydrocooling; I = icing

** CAUTION: Chilling injury may occur in some commodities at 10 ^{0} to 20 ^{0}F above freezing

\# Optimum for most herbs; basil 48 ^{0} to 50 ^{0}F, arrugula 35 ^{0} to 37 ^{0}F.

POSTHARVEST HANDLING AND COOLING OF FRESH FRUITS, VEGETABLES AND FLOWERS FOR SMALL FARMS

Part III: Handling

L. G. Wilson, Extension Postharvest Horticulturist, NCSU
M. D. Boyette, Extension Biological & Agricultural Engineer, NCSU
E. A. Estes, Extension Agricultural & Resource Economist, NCSU

The most important key to quality maintenance of fresh fruits, vegetables, and flowers is careful handling – Tender Loving Care! Symptoms of injuries incurred during harvesting, handling, grading, and packaging usually are not evident until the products reach retail or consumer levels – too late to do anything about your quality image. Bruises and other mechanical damage not only detract from the appearance of the product, but are good avenues of entrance for decay organisms. Postharvest rots are more prevalent in fruits and vegetables that are bruised or otherwise damaged than in undamaged products. For instance, decay has been shown to be greater in bruised areas of apples than in unbruised areas. Severely bruised prunes developed 25% decay, whereas unbruised prunes developed 1.3% during storage. Mechanical damage also allows increased moisture loss. The rate of moisture loss may be increased by as much as 400% by a single bad bruise on an apple. Skinned potatoes may lose three to four times as much weight as non-skinned potatoes.

Postharvest disease management starts in the field and continues throughout harvesting, handling, and marketing. Sanitation is critical because decayed debris is an excellent source of inoculation. **Harvesting buckets, packing lines, and storage areas should be frequently cleaned up and sanitized.**

No postharvest treatments or miracle chemical exist which can overcome inferior quality resulting from poor production practices or improper handling.

Most fruit and vegetable postharvest losses can be related to improper, even abusive, postharvest handling practices. "Quality" and "condition" of fresh fruits and vegetables are major factors in market inspectors' determination of grades and standards. "Bruising" is a major component of these factors.

Damage Reduction Recommendations

The key to damage reduction is simply TLC, tender loving care. Fresh commodities should be seen and not heard. Keep this in mind as you design and implement postharvest handling facilities and practices. Sound recommendations should include the following:

- Train harvest labor to handle products gently.
- Harvest at the proper stage of maturity; harvest dry if possible.
- Handle each fruit or vegetable no more than necessary; **field pack if possible**.
- Trim fingernails and/or wear cotton gloves.

- Use padding in the bottoms of picking containers.
- Install padding materials on the sides and bottoms of bulk bins.
- Do not overfill bulk bins.
- Minimize drop heights when transferring products from picking containers or bulk bins.
- Packing line operations:
  - Use water dump system to float products out of bins if possible.
  - Keep lines as level as possible.
  - Minimize drop heights.
  - Use decelerator strips – to control the velocity of products.
  - Cushion (pad) all impact surfaces, and sharp edges.
  - Operate near full capacity.
  - Synchronize components.
- Use strong, standard sized packages that will adequately protect contents.
- Do not overpack (or underpack) containers.
- Palletize containers to minimize handling of individual units.
- Load containers carefully into transport vehicles.

Conclusions

Postharvest handling is the ultimate stage in the process of producing quality fresh fruits and vegetables – getting these unique packages of water (fresh commodities) to the supper table. Production costs, plus postharvest handling, packaging, cooling, transportation, and marketing costs are the same whether the fruits, vegetables, and flowers that leave the farm are sold and/or consumed or not. Considering such investments, growers should do everything they possibly can to assure the quality maintenance of their commodities — and the satisfaction of those who purchase them. **Remember, marketing is extremely competitive.**

References: See Part V, Horticulture Information Leaflet 804.

Department of Horticultural Science

Horticulture Information Leaflet 803

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POSTHARVEST HANDLING AND COOLING OF FRESH FRUITS, VEGETABLES AND FLOWERS FOR SMALL FARMS

Part IV: Mixed Loads

L. G. Wilson, Extension Postharvest Horticulturist, NCSU
M. D. Boyette, Extension Biological & Agricultural Engineer, NCSU
E. A. Estes, Extension Agricultural & Resource Economist, NCSU

At times, it is necessary to transport or store different commodities together. In such mixed loads it is very important to combine only those commodities that are compatible with respect to their requirements for:

- Temperature
- Relative humidity
- Atmosphere; oxygen and carbon dioxide
- Protection from odors
- Protection from physiologically active gases, such as ethylene

Odors

There is a **cross-transfer of odors when commodities are stored together**, and such a transfer between certain commodities is not desirable. Combinations that should be avoided in storage rooms are apples or pears with celery, cabbage, carrots, potatoes, or onions; celery with onions or carrots; and citrus with any of the strongly scented vegetables. Odors from apples and citrus are readily absorbed by meat, eggs, and dairy products. Pears and apples acquire an unpleasant, earthy taste and odor when stored with potatoes. Green peppers will taint pineapples. It is recommended that onions, nuts, citrus, and potatoes each be stored separately.

Ethylene

Many commodities produce ethylene as a natural product and this gas can have undesirable effects, such as causing abscission of leaves and flower petals, yellowing, russetting, and senescence. Thus, commodities sensitive to ethylene should not be mixed with those producing the gas.

Commodities that are affected by ethylene include cabbage, carrots, lettuce, various greens, watermelons, kiwifruit, nursery stocks, and some kinds of flowers and florist greens.

Commodities that are known to produce considerable ethylene are apples, avocados, bananas, pears, peaches, plums, cantaloupes, honey dew melons, and tomatoes. *Penicillium digitatum* (green mold of citrus) and probably other decay organisms also produce ethylene, so decayed produce should be removed promptly from storage rooms.

Ethylene also induces ripening of many fruits and vegetables. This ripening effect generally is negligible at 32°F, but may cause harm at higher temperatures. For this reason, products such as cucumbers, peppers, and acorn squash, which need to be stored at a minimum temperature of 45° to 50°F and in which retention of green color is desired, should not be stored with apples, pears, tomatoes, or other ethylene-producing products.

References: See Part V.

COMPATIBILITY OF SELECTED FRESH PERISHABLE COMMODITIES

Commodity	Temp. °F	% RH	Ethylene *	Odor #	Chilling @	Shelf Life
Apples	32-34	90-95	P	+	-	90-240 days
Asparagus	32-35	95-100	-	-	-	10-21 days
Beans, snap	40-45	95	-	-	+	7-10 days
Blueberries	32	90-95	-	-	-	10-18 days
Brambles	31-32	90-95	-	-	-	3-5 days
Broccoli	32	95-100	S	-	-	10-14 days
Cabbage	32	98-100	S	+	-	90-180 days
Cantaloupes	38-40	90	P	-	+	10-14 days
Carrots	32	98-100	S	+	-	28-180 days
Cauliflower	32	90-98	S	-	-	2-3 weeks
Cucumbers	45-50	90-95	S	-	+	10-14 days
Eggplant	45-54	90-95	S	-	+	10-14 days
Onions	32	65-70	-	+	-	30-180 days
Green Onions	32	95-100	-	+	-	7-10 days
Herbs	37-38	95-100	-	-	-	5-7 days
Leafy greens	32	95-100	-	-	-	1-2 weeks
Okra	45-50	90-95	S	-	+	7-10 days
Peppers	45-50	85-90	S	+	+	8-10 days
Peaches	32	90-95	P	-	-	14-21 days
Peas	32	95-98	S	-	-	7-10 days
Potatoes	45-50	90	-	+	+	56-140 days
Sprouts	34-36	85-90	-	-	-	5-10 days
Squash, soft-shell	45-50	90-95	S	-	-	1-2 weeks
Strawberries	32	90-95	-	-	-	5-7 days
Sweet corn	32	95-98	-	+	-	5-8 days
Sweetpotatoes	55-60	85-90	S	-	+	120-210 days
Tomatoes; Green	60-70	85-88	S	-	+	21-28 days
Ripe	46-50	85-88	S	-	+	7-14 days
Watermelons	50-60	90	S	-	+	14-21 days

* Ethylene; P = Produces, or S = Sensitive to

Odor; + = produces or is sensitive to; - = generally not a problem

@ Non-freezing temperature injury (described in Part I)

Department of Horticultural Science

Horticulture Information Leaflet 800

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POSTHARVEST HANDLING AND COOLING OF FRESH FRUITS, VEGETABLES, AND FLOWERS FOR SMALL FARMS

Part I: Quality Maintenance

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M. D. Boyette, Extension Biological & Agricultural Engineer, NCSU
E. A. Estes, Extension Agricultural & Resource Economist, NCSU

Fresh fruits, vegetables and flowers must be in excellent condition and have excellent quality if maximum shelf life is desired. **The best possible quality of any commodity exists at the moment of harvest.** From that point on, quality cannot be improved, only maintained. Remember that **shelf life begins at harvest.**

Commodities that will be stored should be harvested at optimum maturity, because storage life may be reduced if they are immature or overmature. The proper maturity for optimum storage life of products is discussed under individual commodity requirements in USDA Handbook No. 66. All commodities destined for storage should be as free as possible from skin breaks, bruises, spots, rots, decay and other deterioration.

Fresh fruits, vegetables, and flowers may be infected with various pathogens which are not visible prior to storage but will cause decay and rot during storage and transportation. The amount of developing infection should be determined prior to storage, by examining samples for cuts, severe bruises, and rotting tissue. Only lots free of infection should be considered for long-term storage because damaged and decaying products can infect those that are sound and may possibly result in losses of entire lots.

Deterioration of fresh commodities can result from physiological breakdown due to natural ripening processes, water loss, temperature injury, physical damage, or invasion by microorganisms. All of these factors can interact, and all are influenced by **temperature**.

Fresh fruits, vegetables, and flowers are **highly perishable because they are alive.** They breathe (just like humans), release heat from respiration, and, consequently, **lose moisture**, which may detract from their appearance, salable weight, and nutritional quality. They can become sick, deteriorate, and die. Dead fresh fruits and vegetables are not marketable!

Water/Relative Humidity

Fresh horticultural commodities are unique packages of water! In fact, **freshness is water, and freshness sells! Water loss** is one of the main causes of deterioration that reduces the marketability of fresh fruits and vegetables. Profitability in fresh fruit, vegetable, and flower sales depends on the ability to deliver as much of this water as possible to consumers.

Effects of water loss – Many fruits, vegetables, and flowers become shriveled after losing only a small percentage of their original weight due towater loss.

Severe desiccation results in considerable losses; e.g., wilted leafy vegetables may require excessive trimming to make them marketable, and grapes may shatter loose from clusters if their stems are severely dried. Seriously shriveled fruits, vegetables, and flowers are unmarketable and must be discarded. **Water loss represents salable weight loss and reduced profits.**

Factors affecting water loss – Relative humidity, the temperature of the product and its surrounding atmosphere, and air velocity all affect the amount of water lost from fresh fruits, vegetables, and flowers. Water loss from warm products to warm air is particularly serious under windy conditions or during transport in an open vehicle.

Maintaining high relative humidity is sometimes difficult due to the fact that refrigeration removes moisture. Humidification devices can be used in storages; e.g., spinning disc aspirators, etc. Keeping the floor wet is also helpful, but is messy and may harbor disease organisms on old produce on the floor. Therefore, frequent sanitizing procedures should be employed; e.g., cleansing frequently and rinsing with a weak solution of chlorine bleach. Commodities that can tolerate direct contact with water can be sprinkled to promote high relative humidity. Enveloping commodities in plastic films will also help maintain high relative humidity.

Respiration/Heat

Respiration is the process by which stored organic materials (carbohydrates, proteins, and fats) are broken into simple end products with a release of energy. This process uses oxygen and produces carbon dioxide and water vapor. The respiration rate of a product determines its transit and postharvest life. Stored food reserves are lost during respiration, which means; less food value, loss of flavor, loss of salable weight, and more rapid deterioration. Respiration rates of commodities are directly related to product temperature; the higher the temperature, the higher the respiration rate. Rapid cooling to the commodity's lowest safe temperature is most critical for those with inherently higher respiration rates (see table below).

Temperature Management

For each 18°F increase above the optimum temperature for any given fruit, vegetable or flower, the rate of its deterioration doubles or triples. For example, the optimum temperatures for cabbage and sweetpotatoes, as presented in the tables in Horticulture Information Leaflet numbers 801 and 803, are 32^0F and 55 ^{0}F, respectively.

Classification of Sample Horticultural Commodities According to Respiration Rates

Class	Commodity
Very low	Dried fruits, nuts
Low	Apples, garlic, grapes, onions, potatoes (mature), sweetpotatoes
Moderate	Apricots, cabbages, carrots, figs (fresh), lettuce, nectarines, peaches, pears, peppers, plums, potatoes (immature), tomatoes
High	Artichokes, brussels sprouts, cut flowers, green onions, snap beans
Extremely high	Asparagus, broccoli, mushrooms, peas, sweet corn

Temperature injuries – Temperature is the most significant environmental factor that influences the deterioration rate of harvested commodities. Fresh products exposed to extremes of heat or cold may sustain serious physiological damage, leading to rapid deterioration. Exposure to alternating cold and warm temperatures may result in moisture accumulation on the surface of commodities (sweating), which may enhance decay development.

Commodities exposed to direct sunlight or excessively high temperatures can be damaged. **Symptoms of heat injury include:** bleaching, surface burning or scalding, uneven ripening, excessive softening, and desiccation (water loss). For short term storage, higher-than-recommended temperatures may be satisfactory for some commodities.

Chilling injury occurs at temperatures above freezing in some commodities (especially those of tropical origin); including cucumbers, eggplant, okra, pumpkins and squashes, potatoes for processing, sweetpotatoes, and mature green tomatoes. **Recommended temperatures for these products** (tables in Horticulture Information Leaflet numbers 801 and 803) **should be adhered to strictly.** Some chill susceptible products can sometimes be held briefly at lower temperatures (non-freezing) without injury. However, keep in mind that chilling injuries are accumulative; the product of all the time a commodity is exposed to chill-inducing temperatures.

Symptoms of chilling injury include: pitting, surface decay (snap beans, cucumbers), internal browning (apples, sweetpotatoes), surface scald (eggplants), objectionable flavor (watermelons), watersoaking (tomatoes – ripe), poor color when ripe (tomatoes – mature-green), sweetening (potatoes), and hard when cooked (sweetpotatoes).

Summary

Proper Postharvest Temperature Management Recommendations:

- Harvest during the coolest times of the day; mornings are usually best.
- Keep harvested commodities and loaded vehicles in the shade to minimize heating.
- During transport, cover loaded vehicles with tarpaulins to minimize heating and sun injury.
- Grade, sort, and pack with TLC (Tender Loving Care).
- Thoroughly cool ASAP (as soon as possible).
- Maintain proper storage and/or transit temperature.
- Ship ASAP.
- Maintain proper display temperature (in retail store).

References: See Part V, Horticulture Information Leaflet No. 804.

PRICING YOUR FARM PRODUCTS

HOW DO I SET MY PRICES?

New farmers often struggle with how to determine the value of their farm products. Pricing decisions are complex, and are directly linked to production costs, the demographics and socio-economic status of customers, scale of production, what's produced and how it's differentiated in the marketplace, and any philosophical principals that guide business decisions.

Here are some considerations to keep in mind, and resources to help give you a basis for your decisions.

These suggestions have been compiled by the Rutland Area Farm and Food Link, based on input by:

- Jessie Schmidt, Coordinator for Community & Agriculture Programs at UVM Extension
- Wendy Sue Harper, Ph.D, Vegetable and Fruit Technical Assistance Advisor at NOFA VT
- Vern Grubinger, Vegetable and Berry Specialist - University of Vermont Extension
- Mandy Davis, Agricultural Development Services, Intervale Center
- Sona Desai, Food Hub Manager, Intervale Center
- Beth Holtzman, Outreach Education Coordinator, Women's Agricultural Network

A STEP - BY - STEP APPROACH

#1 - CALCULATE YOUR COST OF PRODUCTION

#2 - INCREASE PRICING FLEXIBILITY: LOWER PRODUCTION COSTS

#3 - SET YOUR PRICE RANGE & IDENTIFY YOUR CUSTOMERS

#4 - MONITOR MARKET TRENDS

#5 - ACKNOWLEDGE THE "BIG PICTURE"

RAFFL works to increase access to local foods and supports the economic viability of area farms through education of the public and by facilitating new and expanded markets, distribution mechanisms, and processing infrastructure for farms and farm products in the Rutland Region.

Our New Farmer Initiative connects beginning farmers with local, state and national resources to help them succeed. This program is supported by the John Merck Fund.

www.rutlandfarmandfood.org , www.raffl.wordpress.com
PO Box 561, E Poultney VT 05741

Remember!

Pricing is complicated, keep each of these considerations (and more) in mind!

When calculating costs, include **all** costs over the life of the product - from field prep and seeds to harvest labor to advertising and transportation costs to get the product to its final market.

Identify the tools you need to increase efficiency and decrease labor costs. While there is more upfront cost in mechanizing certain tasks, sometimes investing in the right tool can save you enormous amounts of labor time and bring your production costs down dramatically!

Scale of Production figures into the mechanization equation and cost of production. Make sure you determine how much you need to produce to have mechanization investments pay-off.

Tax write offs may be available if you donate product to the food shelf or other charity, but only if you can calculate your cost of production (ask your accountant about the specifics).

Calculate the costs of transportation and distribution time, especially when marketing further from home.

Never de-value your Products! Ever had a bumper crop of a perishable product? Don't lower your prices to move it! Instead, look for a wholesale outlet like Black River Produce, compost it, or donate it to an emergency food site through Grow an Extra Row. You want customers to follow you based on quality, not prices! (Gifting to encourage repeat customers is different - trying to get rid of celariac? Give one away, along with a recipe card, and folks will come back to buy more at the next market.)

#1 - Calculate your Cost of Production

Always cover you cost of production! Create an **Enterprise Budget** for your farm to determine the cost of production for at least your top five products. This will allow you to set your prices to provide a profit margin that sustains your farm and your family. Pricing products so low that your farming operation is unsustainable does your community and other farmers a disservice.

#2 - LOWER YOUR PRODUCTION COSTS

This will give you more flexibility in pricing, allowing you to lower prices for those in need or net a greater profit on your products. These are just a few ideas for cost-sharing and increasing your efficiency.

Order your supplies through a farmer group: NOFA-VT offers group pricing for fertilizer and supplies (non-members pay an additional 10% on their orders)

Join a co-op: Marketing, Distribution and Equipment are all types of co-ops

Grow for a Multi-farm CSA: Administration, marketing and crop planning time and costs can be shared by all farms.

Access Affordable Land: Look into alternative tenure arrangements like long-term leases, work-land barters with another farmer, purchase of land with an existing "Option to Purchase at Agricultural Value" or OPAV, etc.

RESOURCES

- **Check out this Pricing Webinar:**
  - http://www.uvm.edu/newfarmer/?Page=webinars/webinar_recordings.html&SM=webinars/sub-menu.html
- **Learn more about Enterprise Budgets:**
  - www.uvm.edu/extension/community/enterprisebudgetfactsheet.pdf
- **Run your numbers using "real life" examples of farm enterprise budgets as a guide:**
  - http://www.uvm.edu/vtvegandberry/budgetexamples.html
  - http://www.uvm.edu/vtvegandberry/factsheets/enterprise%20budget%20worksheet.pdf
- **Learn from Local Growers:**
  - Richard Wiswall, owner of Cate Farm (East Montpelier) has written about his approach to farming in the The Organic Farmer's Business Handbook:
    - http://www.chelseagreen.com/bookstore/item/the_organic_farmers_business_handbook:paperback%20with%20cd-rom
  - Paul and Sandy Arnold at Pleasant Valley Farm (Argyle, NY) are very experienced with enterprise budgeting and set a minimum net profit per acre and make growing decisions based on this.

FOOD FOR ALL

Help feed your whole community and reach customers in need by:

Selling "at cost" to your local school cafeteria,

Pricing CSA shares so that you can offer 10 at reduced costs....(you HAVE to know your cost of production so that when you donate or reduce prices, you understand how much product you are moving at no-profit)

Make sure your customers know you accept EBT and farm to family coupons.

Donate extra to the food shelf (or RAFFL's Grow an Extra Row program). Some folks may not be able to afford your prices, but you can help them access your food in other ways.

TOP DOLLAR SALES

To capture the highest value for your products, think about:

Identifying urban markets in Boston, NYC and other metro areas. Begin networking and figure out how you'll distribute - CSA shares, restaurants, Farmers' Markets, etc.

Joining a co-op, like Vermont Quality Meats have cultivated markets in metropolitan areas outside the state.

Growing speciality items that are unique and hard to find.

Differentiating your products. Think about how you describe your product to your customer and tell the story of its value. The better the customer understands what sets your products apart, the more they'll be willing to pay.

Value-Added opportunities to increase your product's value and introduce year-round availability and sales.

#3 - Set your Price Range & Identify your Customers

Once you know your cost of production, you can begin to value your product based on profit goals and customer demographics. Target your pricing for different consumers and create price tiers based on the buyer: farmers' market, direct-to-restaurant, direct-to-retail, and commodity wholesale. This happens all the time - check the same grower's prices at the Dorset, Manchester, Fair Haven, Poultney and Rutland markets for example (or the price difference for the same product sold in Rutland County and Boston or NYC).

#4 - Monitor Market Trends

Keep tabs on the "going rate" for farm products

UVM Extension posts a Direct Market Produce Price Report every-other week http://www.uvm.edu/vtvegandberry/ProducePriceReports.html

Boston Terminal (where fruits and veggies come into the east coast for distribution) posts daily price reports: http://www.terminalmarkets.com/bostonterminal.htm

Rodale Institute publishes a Daily Organic Price Report: http://www.rodaleinstitute.org/Organic-Price-Report

MOFGA Organic Price Reports are monthly http://mofga.org/Publications/OrganicPriceReports/tabid/260/Default.aspx

#5 - Keep the Larger Picture in Perspective

Accept that we are working in a **dysfunctional system**! It's hard to address the concern for pricing products for all consumers without getting into the troubles with our entire food system (which artificially lowers food prices through subsidies, employment of illegal workers, large scale mechanization, and the externalized environmental, social and health care costs....). Farmers living on the edge of financial ruin to prop up this dysfunctional system won't help anyone in the long run!

- Instead of lowering the bar on prices for your products, work to educate your customers about the true costs of food and how that relates to your sustainably grown products. Helping your customers understand the expenses associated with farming in Vermont, and the importance of the farmer making a living wage should be part of this education.
- If you want to survive as a farm, you have to operate like a business. If you operate efficiently and effectively, over time you will find ways to reach all corners of our community.

Selling Directly to Restaurants and Grocery Stores # 3

There is a second category of direct marketing in which a farmer sells directly to retail operations such as restaurants and grocery stores. While restaurants, and grocery stores are not considered "consumers," information about sales directly to these types of venues are included in this handbook. These strategies describe marketing in which farmers personally sell their products to a retail operation, avoiding the use of a broker or a wholesaler and increasing their own revenue potential.

This fact covers:

- selling to restaurants; and
- selling to grocery stores.

Selling to Restaurants

Restaurants and caterers can be a great place to sell products that are high quality, interesting, or unusual. Washington State has many innovative chefs looking for unique products that they can incorporate into outstanding meals.

While many caterers offer only a limited number of pre-planned menu options, specialty caterers provide an excellent opportunity for farmers to sell products and form custom grower relationships. Many caterers will do forward contracting with producers for significant quantities of specialty crops and flowers at premium prices.

For restaurants, small, independent ones in your community are the best place to start. There are roughly 12,500 restaurants in Washington according to the Washington Restaurant Association. A good percentage of these are independently owned and operated. Seattle Chefs Collaborative members run numerous restaurants and food service operations and more than 100 buyers networked with small farms to purchase products at the 2009 Farmer Chef Connection Conference.

While most chain restaurants depend solely on large distributors and have standard menus that depend on regular deliveries of a limited number of fresh ingredients, the opportunity to provide for the needs of an independent restaurateur are much greater. Seek out those establishments that offer daily or weekly specials or seasonal menus to increase the likelihood of finding a good partner. A chef that values the benefits of local sourcing and is willing to take the extra steps to develop a relationship with the farmer is the best guarantee of success. However, the producer must understand their responsibilities in this association. Whether providing a single ingredient for a special event or supplying a vast array of produce for the menu, the grower needs to understand the interdependence of supply and expectations in the kitchen.

If there is a more challenging business than farming with the whims of weather, crop and market uncertainties, disease, and pests, then it is definitely the restaurant trade. A strong partnership is enhanced when the farmer tends toward "under promising and over delivering." When a chef has certain expectations and a dining room filled with anxious diners, you do not want to be the cause for added stress. Quality and consistency are the keys to success.

Chefs are best approached in the morning by calling ahead and making an appointment. Do not call at meal times. At your appointment take samples for the chef and be sure to share what products you have available, how long you will have it, and the quantity, timing, and price. Developing a spreadsheet or list of the products you will have throughout a year and highlighting what you have fresh each week are also valuable communication tools.

Chefs will often be interested in your growing practices and the story of your farm and may highlight these on their menu. Growers that have unusual products and products that are available early or late in the season or through the winter may find restaurants a good, strong market. Restaurants typically utilize smaller quantities than a grocery store.

Farmers selling to restaurants will need to establish good bookkeeping systems that include clear invoicing and accounts receivable. Most restaurants will not pay on delivery and may pay monthly. It is important to keep track of deliveries and always be sure to get a signed invoice in duplicate. File one copy for yourself.

Benefits of Selling Directly to Restaurants

- Great market for smaller quantities of high quality items.
- Creates an opportunity to build a strong relationship between the farm and chef.
- Farm may be highlighted on the menu and in the media.
- Higher price point is often available.
- Can take non-standard sizes and products may not have to be graded.

Challenges of Selling Directly to Restaurants

- Farms need to be in constant communication with restaurants which can take a lot of time.
- It may be difficult to match delivery times with restaurant needs.
- Farm must deliver high quality product every time.
- Farm may not be able to sell enough quantity to make it work.
- Must be able to have clear invoicing and detailed accounting.

The annual Farmer Fisher-Chef Connection Conference hosted by the Seattle Chefs Collaborative brings together regional food producers and buyers for business-to-business networking, presentations and workshops. The conference is typically held in February or March in Seattle. Please see: www.seattle.chefscollaborative.org.

Selling to Grocery Stores

Grocery stores come in all sizes: from the very small with one store or co-op, to regional chains with a few stores, to the national chains with hundreds of stores. Specialty food stores, natural food stores, co-ops, or full service grocers on a neighborhood scale are often independent and will have more flexibility to work directly with farms.

Small stores can be a great place to start with grocery sales. As they work with you, they may offer feedback and support. Larger grocery retail may be a better fit for medium sized farms and orchards.

Washington has twenty-one food co-ops according to the National Co-op Directory at www.coopdirectory.org and more than 500 independent grocers according to the Washington Food Industry. In fact, Washington ranks # 2 in the United States for the greatest number of independent grocers. These stores may buy anywhere from one case to multiple pallets of product from farmers.

To find a buyer in a grocery store, you can call ahead or visit the department and ask for a buyer. Setting up an appointment is recommended.

As with restaurants, having high quality products and delivering what you said you would when you said you would are imperative for a successful relationship with a grocery buyer.

Be sure to share your product samples, a product list for the full season, and pricing with the grocery store. It is also good to bring your business license, and any other certifications you might have such as Organic Certification or Good Agricultural Practices (GAP) certificate.

Grocery stores can offer you higher volume sales, and generally require deliveries in boxes that are labeled with your farm name, and product description. The product description should include the product's quantity if bunched and sold by the each, or weight if bulk and sold by the pound. Ask the buyer what sort of packaging or labeling requirements they prefer before you deliver.

Products may also need to be sized or graded to industry standards and may require a UPC or PLU code.

To set your prices, consider subtracting 35-45% from your retail or farmers market price to create a wholesale price for a grocery store. It is vital to be able to explain your prices to the grocer so that they are more likely to pay what you need and can explain it to the end customer. Grocers may pay more if there is a good reason such as a special flavor, variety, or something else that makes your product special.

It is also critical to have a clear system for invoicing grocery stores. They are used to working with distributors and often do not have time to dedicate to handling individual farmer invoices. A good, clear, or professional invoicing system could set you apart from other vendors.

Farmers may increase sales at the store by creating point of sale signage that highlights your farm and growing practices with pictures. Be sure to talk to the grocer about what size of signage would work best in the store. Sampling by the producer has been found to significantly increase sales.

Grocery store point of sale (POS) technology at the cash register may require a PLU (product lookup number) or UPC code (Universal Product Code that is represented by a barcode) on products.

Most grocers use the universal PLU numbers to identify bulk produce, herbs and nuts. Growers, packers and shippers are reminded to check before ordering PLU labels to ensure PLU information for their use is current. A complete list of Global PLUs is available on the Web at www.plucodes.com. Look under Produce Coding.

UPC codes are used to identify primarily packaged products. A UPC code is a unique 8 or 12 digit number accompanied by a barcode that identifies a manufacturer and their product. A UPC code can be purchased from a UPC generating business. UPC codes can be expensive, so check with the grocery store to make sure they are required. Be sure to plan ahead that there is plenty of a supply of the sizes of packaging and flavors you want to use in order to minimize the long term costs. For example, if you were to have a UPC code for jam you produce, the product number would vary to represent each different size of the same flavor and to distinguish flavors of the same size.

Farmers selling to grocery stores will need to establish good bookkeeping systems that include clear invoicing and accounts receivable. Most grocery stores will not pay on delivery and may pay monthly. It is important to keep track of deliveries and always be sure to get a signed invoice in duplicate. File one copy for yourself.

Benefits of Selling to Grocery Stores

- Great market for larger quantities of quality items.
- Opportunity to reach a larger customer base and educate consumers about your products.
- Can be a strong outlet when harvest is more abundant than planned.
- Possibility for long term relationship and feedback for new products.
- Opportunity for custom growing.

Challenges of Selling to Grocery Stores

- Communication with buyer needs to be constant, and may need to be daily.
- Must meet orders and deliver deadlines.
- May not be able to sell enough quantity for profitability.
- May need standard sizes; labeling and packaging.
- May need to get a PLU or UPC code on your product.

Recommended Fact Sheets: Food Processing, Insurance, Licensing

For further assistance or to make suggestions on how to improve this fact sheet, please email smallfarms@agr.wa.gov or call (360) 902-2057 or (360) 676-2059.

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EMERGING AGRICULTURAL MARKETS TEAM
UW COOPERATIVE EXTENSION

Selling Directly to Restaurants

Bill Wright

As competition increases among restaurants, chefs at many "white linen" style restaurants are more interested in buying directly from farmers. This allows them to cook with field-ripened vegetables and tree-ripened fruits difficult to find through food brokers. In addition, by purchasing directly from growers, they can often find specialty items such as Russian fingerling potatoes, edible flowers, a variety of meat products, eggs, dairy and much more.

For farmers, there are several advantages to selling directly to restaurants. First, restaurants provide a steady market throughout the production season. If you are selling a quality product, restaurants are willing to pay top dollar, especially for those items that they cannot find elsewhere.

Another advantage of selling directly to restaurants is the personal relationships you can build with owners, managers and chefs. By working directly with them, you can gain a marketing edge by becoming acquainted with the latest ideas and trends in the restaurant industry and by tailoring your product to specifically fit their needs.

Finally, restaurants offer the opportunity for you to create brand recognition. Restaurants like to emphasize locally grown products and will often mention the name of farm suppliers on their menus.

As with every marketing niche, there are certain challenges. Most restaurants have limited cooler space and therefore may require deliveries several times per week. This can mean more time spent on driving, invoicing, paperwork and more time spent away from the farm.

Another point to consider is the restaurant's normal payment schedule. Unlike a farmers' market where you leave each day with cash in hand, you may wait anywhere from two weeks to 45 days or more before receiving payment. Product liability insurance will be another cost. Take additional costs for delivery, time, insurance, sales volume, etc. into consideration to make sure you are making a profit selling to restaurants.

Where do I begin?

The best place to begin is to research the restaurants in your area using the yellow pages or restaurant guides. Look for restaurants that feature natural or organic foods, regional specialties, fresh salads and homemade soups. Make a list of these restaurants and then call to make an appointment to meet the head chef. Just "dropping by" the restaurant may not be viewed as professional and you may not be welcome if the staff is busy.

Spend some time preparing for your meeting with the chef. First, be prepared to tell your farm's story, where it is located, how long you have been in business, what types of crops you grow, what your farm practices are, (including what makes your operation unique such as organic, grass-fed, all-natural, antibiotic/hormone-free, etc.), and why your products are fresher or better.

Be prepared to tell your farm's story, what types of crops you grow, what your farm practices are, and why your products are fresher or better.

If you haven't already done so, now is the time to prepare a brochure about your farm. The brochure should include all of the information mentioned previously as well as your name, address, telephone number(s) and e-mail address. If you have established a web site, be sure to include it in the brochure. Also, if the time of year is right, don't forget samples. The best way to sell a product is to let the customer feel, smell or taste it. The importance of samples cannot be overstated.

In addition to meeting the chef and providing samples and other information, you will also be on a fact-finding mission during your visit. The information that you want to gather includes:

- What is the ordering cycle?
- What are the receiving hours?
- What are the receiving days?
- What are the invoicing procedures?
- How must the product be packaged?
- What are the quality standards?
- Do they currently buy locally?
- What types of products would they be interested in purchasing?
- What are the quantities they use per week?

Having a thorough understanding of the restaurant's operating procedures will give you a greater ability to successfully serve the account and build a lasting relationship with the chef.

Building a lasting relationship

The most important part of building any successful business relationship is to always deliver what you promise. That includes consistent quality, on-time deliveries and in the agreed-upon quantities. Always keep your customers advised of your production schedule. As farmers, we have very little control over weather and other factors, so it is extremely important to advise customers as far in advance as possible of any factors that will alter agreed-upon deliveries.

Another element in building a lasting relationship is the creation of a clear invoicing procedure. The invoices should show your complete contact information, date of delivery, products delivered, quantities delivered, unit prices and total cost.

As in any relationship, communication is the key to success. Talk to the chefs periodically to keep informed of the restaurant's needs, changes, problems and opportunities. Use these discussions to inform chefs about the same type of information regarding your business. You may also want to consider inviting the chef and restaurant staff out to your farm so they can see first-hand how your business operates. The extra effort taken to build a good relationship with your chefs will pay off in additional sales opportunities in the future.

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UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Marketing Fresh Produce to Restaurants

Introduction

A 2006 survey of Kentucky restaurateurs revealed substantial interest from restaurants across the state in purchasing typical local products such as tomatoes, bell peppers, greens, and melons.[1] The same survey also documented interest in sourcing less widely cultivated crops, such as shiitake mushrooms, asparagus, herbs, berries, and table grapes. Restaurateur and chef interest in serving locally grown cuisine was one of the most commonly documented trends in the American restaurant industry during the 2000s.

Three general reasons for purchasing locally grown produce commonly given by chefs include:[2]

- Locally grown foods are fresher and have a higher or better quality
- Customers have requested local products, especially after the restaurant has previously carried local foods for a period of time
- Unique or specialty products are available locally

Many chefs interviewed for a 2009 producer training curriculum for restaurant marketing also viewed locally produced items as being safer than those purchased from traditional wholesale channels. The chefs surveyed frequently cited a greater trust for produce that is grown locally — even if the chef has never set foot on the farm where the produce was grown. Chefs also tend to trust a grower who is willing to develop a personal relationship with the restaurant and shows an interest in producing excellent food. While many chefs say they believe that locally sourced produce is of higher quality and safer than non-local produce, growers marketing to restaurants must take every care to maintain the safety of the food they deliver.

A greater focus on local food appears to be a lasting trend across the foodservice industry for the 2010s. Produce growers wanting to explore the restaurant market will need to:

- Develop **relationships** with chefs
- Understand the effects of pricing on their financial **returns**
- Manage potential **risks** from a new or developing market channel
- Prove their **reliability** by offering consistent product quality and superior service to chefs and restaurants

Relationships

A key for marketing produce at any level is developing a good relationship with the customer. When selling to a local restaurant, it is critical that you get to know

Crop Diversification & Biofuel Research Education Center

the person who will be buying and using your products. This is most often the restaurant's chef, but it might also be the business manager, kitchen manager, owner, or even a pastry chef.

You may already know a restaurant's chef or personnel from your local community. If you are approaching a restaurant with which you are unfamiliar, always remember that you are a salesman for your farm's products. Strategies that help begin a sales relationship with a restaurant include:

- Dressing professionally and presenting yourself honestly
- Making an appointment at a time when the chef is not busy
- Finding out as much as possible about the restaurant before you visit — signature dishes, target clientele, awards won, chef's background, and education, etc.
- Developing a neat and professional handout or brochure about your farm/market garden that describes you and your products
- Bringing samples of your produce for the chef to taste or prepare
- Making sure the chef knows when and how to contact you
- Asking the chef or restaurant manager what the best ways are to contact him/her in the future
- Providing additional information about your farm, production practices, and/or products through communication channels requested by the chefs. Common methods used for communication are farm Web sites, e-mail, Web-based social networks, mobile phones/ voicemail, and direct e-mailed price lists.

Returns

Local producers can sometimes demand a premium above the wholesale prices that restaurants usually pay for produce. These premiums commonly range from 5% to 25% (and sometimes more) above the current wholesale market price. Specialty or hard-to-find items may be grown locally at a lower cost and that savings may be passed on to wholesale customers. In general, chefs are often willing to pay a little more than wholesale for high-quality, reliable local produce.

Producers should realize, however, that selling to restaurants is a wholesale market; retail prices (such as those received at a farmers market) are usually unrealistic to expect from restaurants. It is important to understand the wholesale prices that restaurants are accustomed to paying for produce. Growers can find links to various price reports at the USDA Fruit and Vegetable Market News Web site.

There may be additional costs affiliated with marketing to restaurants. Growers that are spending extra time preparing a product specifically to a chef's specifications should set a price that accounts for their extra production time. Another "hidden cost" can include the expenses of time and fuel required in delivering the produce to the restaurant. A *properly prepared production budget* will help a grower determine if additional profits from selling to restaurants cover the additional costs of delivery. In less common instances, smaller restaurants may be willing to pick up produce when a grower is in town at a farmers market.

There can be non-financial returns for growers selling to local restaurants. Some establishments, including Kentucky's state resort park restaurants, may feature the name of the farm or grower who supplied certain items on their menu, thus providing free advertising. Producers who establish good relationships with chefs may find that they are able to generate additional sales. For example, the chef may be willing to purchase lower-grade produce for soups, sauces, salsas, and other processed foods.

Some restaurants may demand highly perishable specialty crops. High-end restaurants are sometimes willing to pay whatever it takes for a producer to deliver hard-to-find specialty produce. *A producer may find that offering a product a restaurant cannot get anywhere else is a good way to build new markets*. Growers marketing to restaurants may need to adapt their production system and products to supply exactly what the chefs are looking for.

Squash blossoms and other edible flowers, pawpaws, specialty peppers, organically grown vegetables, raspberries, shiitake mushrooms, and heirloom tomatoes are examples of specialty crops that have been successfully marketed to restaurants by Kentucky producers.

Risks

The most significant risk when marketing to local restaurants is *losing the customer by repeatedly failing to deliver on time or delivering poor quality product.* A grower simply cannot deliver an inferior product to the chef, who is often purchasing the product for its quality. Similarly, you need to realize that chefs are depending on you to deliver products when you say you will. Failure to communicate with chefs about delays in delivery can result in the loss of a customer.

Fortunately, many chefs understand the risks of producing high-quality produce. Chefs may understand that producers can encounter disease, bad weather, or other production problems; it is just critical that growers take the initiative to notify the restaurant as soon as they are aware of a problem.

Another risk for producers is *slow customer payment*. Some restaurants will pay monthly; others pay on delivery. When Kentucky's state resort park restaurants started purchasing produce directly from farmers in 2004, they advertised payment within a week. Producers may reduce the risk of slow or default payments by having a *well-organized invoicing system* and keeping all accounts current. *Both the seller and the buyer should have a clear understanding at the start of the season regarding how payments will be handled*. In some cases, a simple contract or written agreement may prove an effective tool for both the restaurant and the grower.

Certain customers may request a grower carry product liability insurance (PLI). Others may presume the grower is insured for product liability. PLI, which usually costs a few hundred dollars for $1 to $2 million in liability protection, is one of the most comprehensive means available for protecting yourself from potential product liability when selling to foodservice institutions.

Reliability

Selling Your Produce

Selling to restaurants can be both personally and financially rewarding for growers. Marketing to local restaurants also offers growers the opportunity to develop their direct marketing skills, perhaps leading to other market opportunities. To emphasize our previous points, the two most important factors for successful produce sales

to restaurants are (1) *growing high-quality, tasty crops* and (2) *growing good relationships* with chefs.

Servicing Your Product

"Servicing" your product can be as simple as keeping in regular contact with the chef, or whoever makes the purchasing decisions. In addition to their scheduled delivery time, most growers who successfully market to restaurants are in contact with the chef at least once more per week. Below are other ways growers can "service" produce they have grown.

Provide Product and Seasonal Updates

Restaurants may not only purchase your product because of its superior quality, but also because offering locally grown products is attractive to customers. Providing news about how the produce is grown and how the season is going can provide the restaurant with information useful to marketing its food. It can also help you keep a good marketing relationship going in the face of extraordinary weather or pest problems that might interrupt your planned harvest schedule.

Good Business Practices

Restaurants will appreciate your providing a simple method of billing. Use consistent, straightforward invoices. If the restaurant has the option to pay you by direct deposit using an electronic fund transfer, this will save them the expense of delivering you the check — and could result in quicker payment for you. Some restaurants may also be interested in using third-party payment services (such as PayPal) that are readily available to producers. Restaurants are used to paying wholesale vendors monthly, so it is realistic to expect a restaurant client to pay you that frequently.

Suggestions for New Products

Once you have established sound relationships with your customers, they will be more likely to consider purchasing new products or services from you. For example, showing a restaurant that you can deliver consistently fresh tomatoes may make them open to trying a higher-priced heirloom variety.

Producer Networking

You may know other producers that offer crops you do not. Suggesting these suppliers to a restaurateur may help them serve up even more local options. Be sure to recommend growers that you are confident will not try to undercut you or sell produce you are already supplying. If there is the opportunity for you to coordinate the transport of these products in a consolidated delivery or at a single time, investigate those options. Chefs and restaurants tend to be favorable to receiving more products in fewer deliveries. Some producers have even added profit to their existing restaurant marketing by charging other growers a reasonable fee for delivering their produce to restaurant clients at the same time as their own products.

MarketReady Training

Producers who are considering or developing a market to restaurants can obtain valuable instruction through the University of Kentucky Food Systems Innovation Center's MarketReady Training Program. Those already selling product to restaurants will have an opportunity to explore ways to improve and expand their business. The unit on restaurant sales includes a panel of chefs and restaurant buyers. Issues such as food safety, insurance, pricing, invoicing, storage, product quality, and traceability risks are addressed during this unique training opportunity. For more information about the program, as well as training locations and dates, visit MarketReady on the Web.

Selected Resources

- Food Systems Innovation Center (University of Kentucky)
http://www.uky.edu/fsic/index.php
- Kentucky MarketMaker
http://www.marketmakerky.com
- Kentucky Proud (Kentucky Department of Agriculture)
http://www.kyproud.com/
- Kentucky Restaurant Produce Buyer Survey (University of Kentucky, 2006)
http://www.uky.edu/Ag/cdbrec/restaurantsurvey.pdf
- MarketReady (University of Kentucky)
http://www.uky.edu/fsic/marketready/index.php
- ABCs of Marketing to Restaurants (Rodale Institute)
http://newfarm.rodaleinstitute.org/features/0802/restaurant.shtml
- Approaching Foodservice Establishments With Locally Grown Products (University of Nebraska-Lincoln, 2003)
http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1000&context=fpcreports
- Direct Marketing (ATTRA, 1999)
https://attra.ncat.org/attra-pub/summaries/summary.php?pub=263
- Fruit and Vegetable Market News (USDA Agricultural Marketing Service)
http://www.marketnews.usda.gov/portal/fv
- Local Food Connections From Farms to Restaurants (Iowa State University, Revised May 2008)
http://www.extension.iastate.edu/Publications/PM1853B.pdf
- Selling Directly to Restaurants and Retailers (University of California SARE, 2003)
http://www.sarep.ucdavis.edu/sfs/files/selldirect.pdf
- Selling Directly to Restaurants (University of Wisconsin, 2005)
http://www.mosesorganic.org/attachments/productioninfo/uwrestaurants.pdf
- Selling to Restaurants (ATTRA, 2004)
https://attra.ncat.org/attra-pub/summaries/summary.php?pub=266
- Tips for Selling to Restaurants (ATTRA, 2012)
https://attra.ncat.org/attra-pub/summaries/summary.php?pub=388

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[1] Woods, Tim, Matthew Ernst, and Jeffrey Herrington. "2006 Kentucky Restaurant Produce Buyer Survey." http://www.uky.edu/Ag/cdbrec/restaurantsurvey.pdf

[2] Zumwalt, Brad. 2003. "Approaching Foodservice Establishments With Locally Grown Products." Food Processing Center, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln. p. 4. http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1000&context=fpcreports

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