

WHOLESALE SUCCESS

**A Farmer's Guide to Food Safety, Selling,
Postharvest Handling, and Packing Produce**



**edited by
Jim Slama
and Atina Diffley**



Third Edition

WHOLESALE SUCCESS Acknowledgments

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**A Farmer's Guide to Food Safety, Selling,
Postharvest Handling, and Packing Produce**

Third Edition

**Edited by Jim Slama
and Atina Diffley**



Special thanks to our sponsors





Jim Slama

FamilyFarmed.org is pleased to publish the Third Edition of *Wholesale Success: A Farmer's Guide to Food Safety, Selling, Postharvest Handling and Packing Produce*.

Our goal with Wholesale Success is to build the capacity of farmers to meet the burgeoning demand for locally/regionally grown fruits and vegetables. Adopting best practices in food safety, postharvest handling, packing, and business management will help farmers be more efficient and profitable. It will also give buyers an incentive to increase their purchases of locally grown food.

Over the past few years FamilyFarmed.org has performed more than forty Wholesale Success trainings in collaboration with some of the country's leading organizations offering technical assistance to family farmers. Our primary trainer, organic vegetable farmer, Atina Diffley, took the lead in editing and authoring much of this new edition. We are grateful for her hard work and the tremendous manual that has resulted! It's also important to acknowledge collaboration with the Minnesota Institute for Sustainable Agriculture, which played a key role in the development of this edition. In addition, the United States Department of Agriculture Risk Management Agency is the lead funder on many of the Wholesale Success trainings and a great partner in supporting family farmers.

About FamilyFarmed.org

FamilyFarmed.org's mission is to expand the production, marketing, and distribution of locally grown and responsibly produced food, in order to enhance the social, economic, and environmental health of our communities. Here is a description of some of our programs that support family farmers:



Food Safety

FamilyFarmed.org's On-Farm Food Safety Project has created the leading tool for small to mid-scale fruit and vegetable farmers to help them create a personalized on-farm food safety plan that can help them get GAP certified. www.onfarmfoodsafety.org

The Good Food Festival and Conference

The Good Food Festival and Conference is a trade show, school food summit, financing and food policy conference, and celebration of local and responsibly-produced food. The purpose of the event is to link local farmers and family-owned producers of food and farm products with the public, trade buyers, and leaders in the field to foster relationships that facilitate the growth of local food systems.

Food Hubs

Food Hubs provide infrastructure to get local food from farms to wholesale buyers and give smaller producers greater market power. FamilyFarmed.org is a national leader in food hub development and has done extensive work researching and developing facilities that aggregate and/or process food from local farmers and commercial customers. We partnered with the Illinois Department of Commerce and Economic Opportunity and the University of Illinois to publish *Building Successful Food Hubs: A Business Planning Guide for Aggregating and Processing Local Food in Illinois*, a "how to" guide for food entrepreneurs.

Connecting Wholesale Buyers with Producers

Connecting Wholesale Buyers with Producers is a key program for FamilyFarmed.org. More than 99% of agricultural products consumed in America are purchased through wholesale channels, so creating new wholesale markets for family farmers is key to building local food systems. We work with many leading buyers of local food including Whole Foods Market, Chipotle, Goodness Greeness, Sysco, Compass Group, Chartwells-Thompson Hospitality (Chicago Public Schools), and other national and regional buyers.

Good Food Business Accelerator

FamilyFarmed.org is pleased to launch the Good Food Business Accelerator, which will help create, stabilize, and grow nascent food businesses. It gives project Fellows expert mentoring and technical assistance to strengthen the foundational elements of their business. Fellows will also be connected

with potential investors and lenders that may provide initial or follow-up funding.

Farm to School

Farm to School is an important program of FamilyFarmed.org. Through a strategic partnership with Chicago Public School's food service provider Chartwells-Thompson Hospitality, FamilyFarmed.org has helped develop local food procurement programs that provide fresh fruits and vegetables to urban children. In the past three years Chartwells-Thompson Hospitality has purchased over \$7 million in food from local farmers in the FamilyFarmed.org network.

Thanks for your help in growing the market for Good Food!



Jim Slama
Founder and President, FamilyFarmed.org



Photo: Bill Kelley Photography



Photo: Atrna Diffley



Photo: Bill Kelley Photography

Farmer Training Opportunities

Please contact us to discuss Wholesale Success and On-Farm Food Safety speaking engagements and training opportunities: Email info@familyfarmed.org or call 708-763-9920.



Photo: John Beske

WHOLESALE SUCCESS

A Farmer's Guide to Food Safety, Selling, Postharvest Handling, and Packing Produce

Introduction

As consumer demand for locally grown produce increases, more farmers are selling their products to supermarkets, distributors, restaurants, and institutions seeking to meet the demand of their customers. This manual is a guide to successful wholesaling as a small or mid-scale producer. It is a tool to help you build a number of skills that are key to success in this marketplace including: postharvest handling, cooling, packing, buyer-seller relations, contracts, USDA grade standards,

certification opportunities, food safety, and more. Ultimately, the information in this guide will help you develop new profitable business relationships, increase product quality, maximize shelf life, and successfully manage wholesale sales.

One of the most important aspects of wholesaling is proper postharvest handling, which can and often does make the difference between securing business relations or losing them based on the consistency and quality of harvested produce. Proper postharvest

Requirements for Selling Into Wholesale Markets

Field heat must be removed with proper cooling.

The “cold chain” must be maintained from the field to the customer with refrigerated storage of most fruits and vegetables.

Products must be sorted uniformly to match USDA grades.

Food safety procedures must be followed including necessary record keeping.

Many wholesale buyers need large quantities.

Production should yield a consistent supply.

Producers must build relationships with wholesale buyers and stay in touch regularly to communicate issues such as timing, quantity, price, quality, etc.

handling and packing techniques are a necessary part of any farming operation involved in wholesale, large or small.

The single most important aspect of postharvest handling of produce is lowering the core temperature of fruits and vegetables immediately after harvesting. Removing the “field heat” within a few hours after harvest makes the difference between a carrot which will keep for five days and one which will still be good five months later. While cooling infrastructure such as refrigerated storehouses and refrigerated hydrocooling systems can be very useful, there are a number of very workable solutions for

farmers who may not have the financial resources to purchase this sort of equipment. For example, harvesting in the early morning hours or even overnight takes advantage of the naturally lower air temperature. There are also ways to build your own cooling units and other postharvest equipment, which are detailed later on in this manual.

In addition to the technical side of preparing your produce for wholesale buyers, this manual offers important advice on the marketing and business aspects, with input from both wholesale buyers and farmers who have been involved in regional wholesale markets. This manual discusses business relations, contracts, long-term financial planning strategies, and more.

In order to apply this information to your farm and the crops you grow, the second half of the manual offers 101 in-depth crop-specific profiles, including basic information such as cleaning methods, optimal storage conditions and standard package sizes, and also more complicated topics such as sensitivity to ethylene.

While the photos and examples given in this manual are predominantly from Midwestern farms, the information and systems are relevant for small- and mid-sized farms nationally.

Mention of companies or commercial products does not imply recommendation or endorsement by FamilyFarmed.org over others not mentioned.

Selling into wholesale markets presents an entire set of new opportunities and challenges compared to direct marketing or selling on the open market at a fairly fixed price. Carefully consider what you are looking for as a farmer and for what your farm operation is best suited. This guide provides an easy-to-use resource to help farmers grapple with new demands of selling, sorting, sizing, packing, shipping, cooling, and more.

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Apples



HARVEST

Quality: Avoid bruised fruit and unripe (lack of flavor) or overripe (mealy) apples.

Harvest tips:

- Use Brix test for sweetness, a starch index, and a pressure test. These are indicators of ripeness (depending on variety), and can also be useful information that a buyer may want before agreeing to buy your apples.
- Twist apples to harvest instead of pulling straight down.
- Water flumes used for conveying fruit should have sanitized water slightly warmer than the apples.
- Computerized sorting systems give the ability to sort by specific sizes and colors.

HANDLING/PACKING

Grades: Dec. 19, 2002

- **U.S. Extra Fancy:** Clean, mature but not over-ripe, fairly well formed. Apples of this grade must be free of the following: decay, internal browning and breakdown, soft scald, scab, freezing injury, visible water core, broken skins, injury from bruises, brown discoloration, russetting, sunburn or spray burn, limb rubs, hail, drought spots, scars, disease, insects, bitter pit, Jonathan spot, stem cracks. Furthermore, apples must be free of invisible water core damage after January 31, except for the Fuji variety. Tolerance: 10% (5% for serious damage, and 1% for decay).
- **U.S. Fancy:** Same as U.S. Extra Fancy, with differences in color uniformity.
- **U.S. No. 1:** Same as U.S. Fancy, except for color, russetting and water core.
- **U.S. No. 1 Hail:** Same as U.S. No. 1, except that hail marks where the skin has not been broken and well healed hail marks where the skin has been broken, are permitted, provided the apples are fairly well formed.
- **U.S. Utility** (also known as U.S. No. 2): Same as U.S. No. 1, except apples do not have to be fairly well formed, only not seriously deformed.
- **Combination Grades:** Any "adjacent" pairings are allowed (e.g. U.S. Extra Fancy and U.S. Fancy, but not U.S. Fancy and U.S. Utility), such that at least 50% of the apples meet the requirements of the higher grade.

Cooling: Cool apples as quickly as possible to 32-36° F (depending on variety. For Honeycrisp you should store around 60° F for a week before cooling to 36° F).

- Forced-air cooling

Cleaning: Apples can be brushed (to polish) or washed before marketing. They should not be washed before storage.

Waxing: Apples can be waxed to improve shelf life. There are approved waxes for organic production.

Apples

Carton sizes:**Weights:**

- 1 bu. cartons (weight depends on variety)
- 40-lb. cartons w/ 8 5-lb. bags
- 36-lb. cartons w/ 12 3-lb. bags
- 3-, 5-, 6-, 7-, 8-, or 10-lb. PETE/cello bags
- Tri-wall bins
- 600-lb. tote bin / 300-lb. half tote bin (with bags)

Counts:

- Extra-large: 48, 56, 64, or 72
- Large: 80, 88, or 100
- Medium: 113, 125, or 138
- Small: 150, 163, 175 (no fruit smaller than 175/ct. is marketed fresh)

Diameters:

2 ¼" – 198; 2 ½" – 175; 2 ⅝" – 138; 2 ¾" – 125; 3" – 100; 3 ½" – 80.

Materials: Apples are most often packed on soft fiberboard trays made from recycled newspaper, or sometimes soft polystyrene. Cartons are often unvented, but this slows the rate of cooling which is detrimental to the longevity of the fruit; as a result, vented cartons are starting to become more common.

STORAGE

- Temperature: 32° F-34° F (0-1.1° C).
- Humidity: 80-90% (higher humidity would require misting which would encourage disease)
- Respiration: 1-3 mL/kg hr at 0° C (32° F)
- Atmosphere composition: Varies by apple variety. In general <5% CO₂, 1.5-4.5% O₂ but check for your specific variety. Fuji, Braeburn and Granny Smith varieties do best when O₂ is reduced only after the apples are chilled to their storage temperature, and when CO₂ is kept lower than O₂. MCP is also becoming more commonly used, although this is not permitted in organic production. Ethylene scrubbing is also sometimes used.
- Ethylene producer: Yes; 2-12 µL/kg·hr at 32° F (0° C)
- Damage potential: Freezing injury, bruising
- Shelf life: 90-240 days (with refrigeration)

PESTS/DISEASES

Plum curculio

Codling moth

Corn borer

Apple maggot: At harvest, watch for tiny streaks.

Refer to Michigan State University's Fruit Management Guide for more detail on pests and diseases (can be ordered online at <http://web2.msue.msu.edu/bulletins/intro.cfm>)