Market Opportunities for Alternative Crops – Module 3

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Objectives

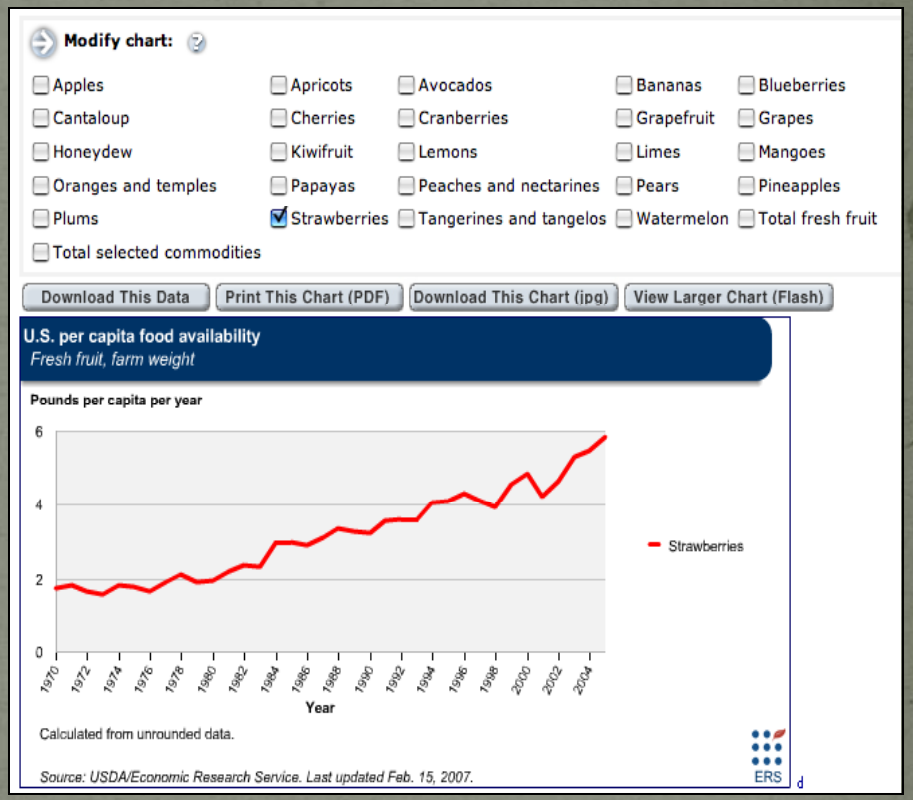
- Understand how to access USDA online data to evaluate the potential market base for a given product
- Understand the various market opportunities and methods of product distribution
- Examine the factors that are important to appropriate product pricing
- Identify the characteristics used to estimate profit potential

Market Size

- One of the most important factors in evaluating the economic viability is market size
  - Too small: not enough sales to cover startup, capital, and operating costs
  - Too large: not a niche market, direct competition from commodity markets will likely prevail
- Examining current and historical consumption patterns can be helpful
- Average annual consumption levels for hundreds of foods in the US can be found on USDA's Economic Research Service (USDA-ERS) website

Consumption Data from ERS

- At right is an example of consumption data for "fresh fruit by farm weight" for strawberries
- http://www.ers.usda.gov/Data/FoodConsumption/



Estimating Market Size

- Consider the example of a strawberry producer thinking about turning 3 acres of his operation into a U-pick field
- Estimates that each acre will yield 10,000 berries
- ERS data shows that for the most recent year, the average annual consumption of strawberries per person was 6 pounds
- Can use the following equation to determine the appropriate market size:

$$\frac{\text{(Acres in operation)*(Output per acre)}}{\text{(Average consumption per person/year)/(52 weeks/year)}} = \text{Market size required}$$

- This means the producer will need a market size of 260,000 consumers to make the project economically viable

Using Estimated Market Size

- When performing this calculation, consider that the product may be sold at a discount (relative to supermarket price level)
  - Therefore consumers might buy more than their average consumption levels
    - Selling at a discount allows consumers to purchase more of the product for the same amount of money
- Imperative to consider whether or not enough consumers can be found to meet the market size requirement
- Also important to note that ERS data is for standard, conventional products
  - Market for a differentiated product will likely be different

Demographic Factors

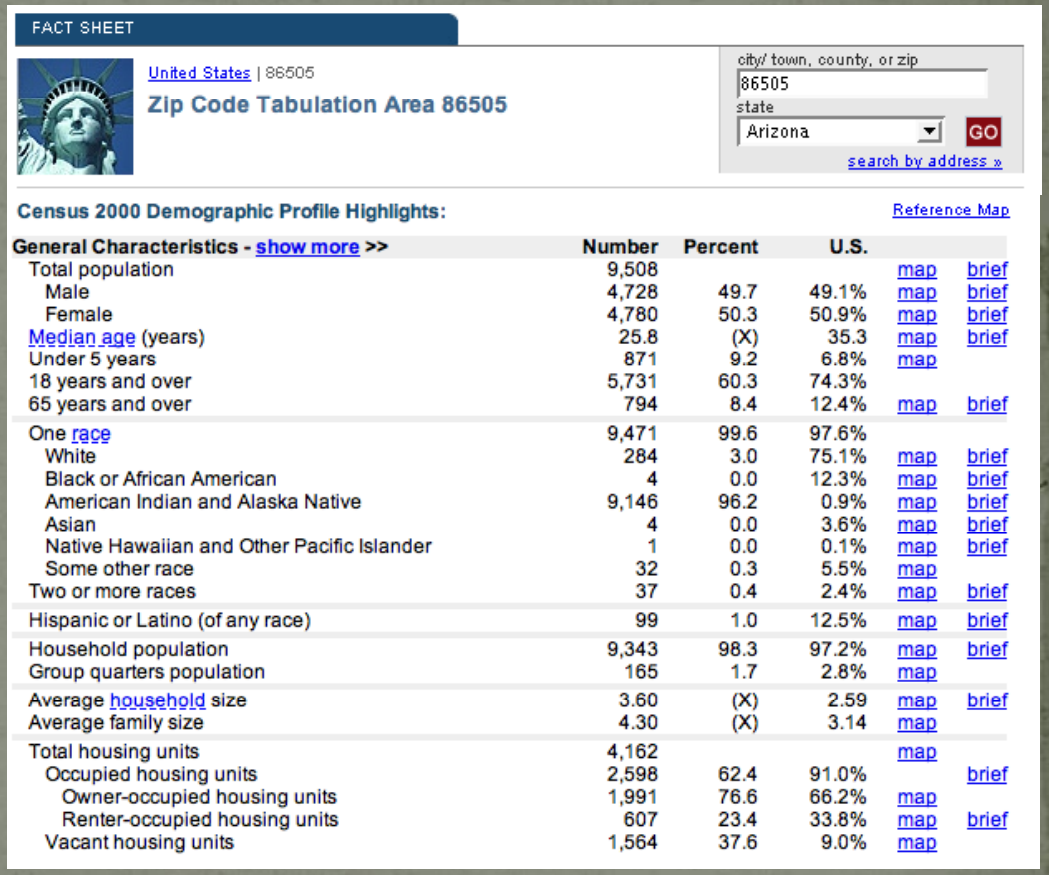
- Consumer demographics are a crucial component of market size
- If planning to sell items directly from your farm or ranch, consider how far you can expect customers to travel
- The USDA Forest Service's National Survey on Recreation and the Environment found the average distance U.S. individuals drove to visit a farm in 2000 was 80 miles
  - But this also included family members visiting farms that were in their family from several hundred miles away
  - Most paying consumers will be drawn within a 50 miles radius unless no other farm visiting alternatives are available to them
- Some areas in the West find the majority of their consumers traveling over 75 miles to participate in U-picks, farm festivals, and related farm activities
  - Because no other closer alternatives exist for their metro area

Demographic Factors, cont.

- Demographic characteristics a key aspect in assessing a niche market
- In the U-pick strawberry example, the producer may be interested in targeting families
  - Would be helpful to know if the farm area has families enough to make up a generous portion of the 260,000 consumers needed to make the U-pick operation feasible
- Demographics from the most recent U.S. Census can be searched online by state and by zip code
  - Ages of people in the area, household and family size, income, ethnicity, etc.
  - All of which can provide information as to the characteristics of potential customers in the local and surrounding area

U.S. Fact Finder at census.gov

- http://factfinder.census.gov/home/saff/main.html
- Info for Window Rock, AZ (zip code 86505)
- Can click on the "maps" to see this information shown on a map (next slide)



FACT SHEET

United States | 86505

Zip Code Tabulation Area 86505

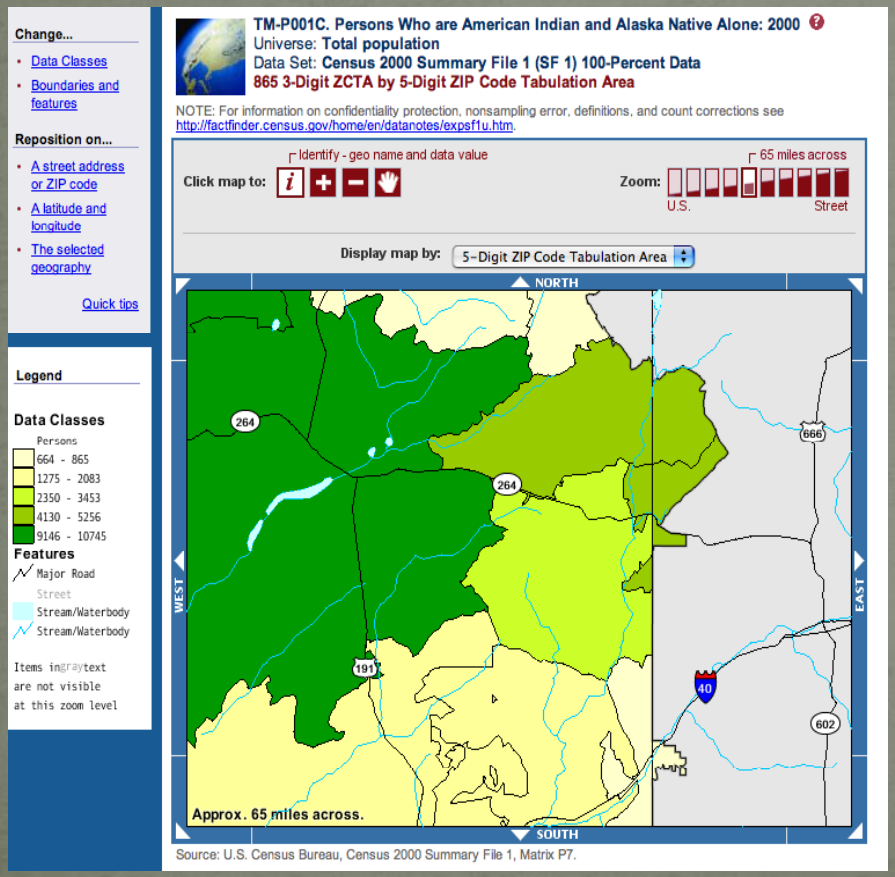
city/ town, county, or zip: 86505
state: Arizona GO
search by address »

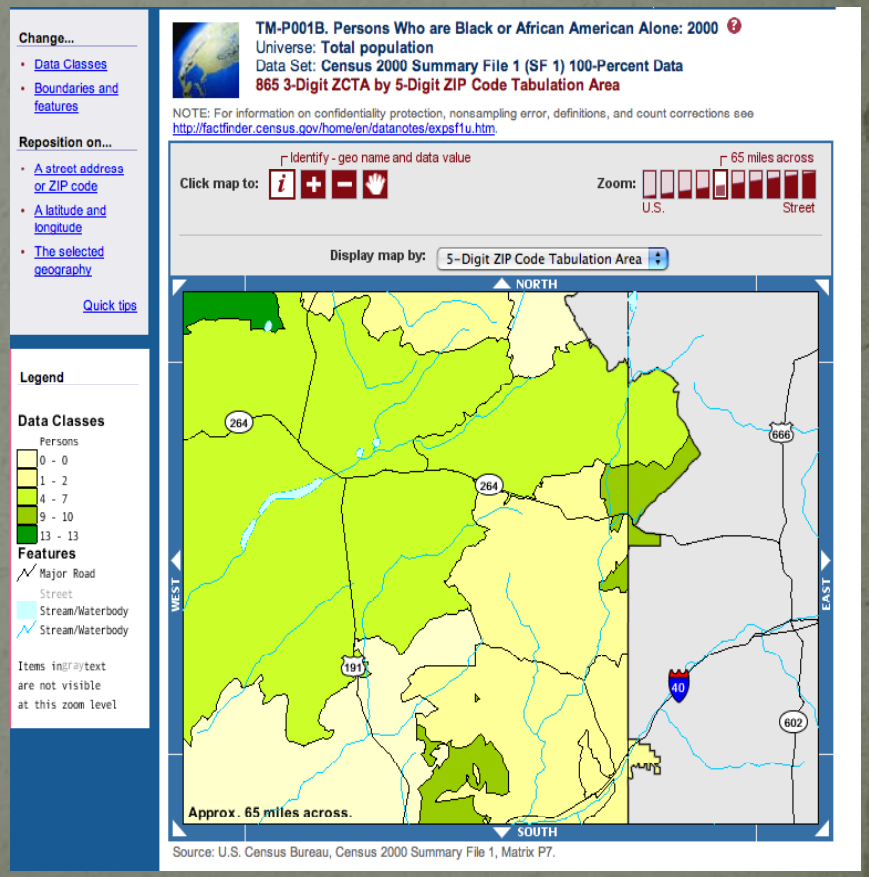
Census 2000 Demographic Profile Highlights: Reference Map

General Characteristics - show more >>	Number	Percent	U.S.		
Total population	9,508			map	brief
Male	4,728	49.7	49.1%	map	brief
Female	4,780	50.3	50.9%	map	brief
Median age (years)	25.8	(X)	35.3	map	brief
Under 5 years	871	9.2	6.8%	map	
18 years and over	5,731	60.3	74.3%		
65 years and over	794	8.4	12.4%	map	brief
One race	9,471	99.6	97.6%		
White	284	3.0	75.1%	map	brief
Black or African American	4	0.0	12.3%	map	brief
American Indian and Alaska Native	9,146	96.2	0.9%	map	brief
Asian	4	0.0	3.6%	map	brief
Native Hawaiian and Other Pacific Islander	1	0.0	0.1%	map	brief
Some other race	32	0.3	5.5%	map	
Two or more races	37	0.4	2.4%	map	brief
Hispanic or Latino (of any race)	99	1.0	12.5%	map	brief
Household population	9,343	98.3	97.2%	map	brief
Group quarters population	165	1.7	2.8%	map	
Average household size	3.60	(X)	2.59	map	brief
Average family size	4.30	(X)	3.14	map	
Total housing units	4,162			map	
Occupied housing units	2,598	62.4	91.0%		brief
Owner-occupied housing units	1,991	76.6	66.2%	map	
Renter-occupied housing units	607	23.4	33.8%	map	brief
Vacant housing units	1,564	37.6	9.0%	map	

U.S. Fact Finder Maps

- Clicking on “maps” on the previous screen





Overview

- Evaluating the market size of a niche agricultural product and/or farm experience is fundamental to the financial success and growth of the business
  - If market size is too small→ it will be unable to cover costs investments, and will not be economically viable
  - If market size is too large→ will likely meet competition from other competitors
    - Unless the product is differentiated or truly targeted at a niche market segment
- Starting relatively small with new products and variations in products can be a good way to test the waters and verify consumer response and feedback

Direct Marketing Alternatives

- Farmers' Markets
- Roadside Stands
- Community Supported Agriculture Programs
- Institutional
  - Farm-to-School/College
  - Farm-to-Hospital
- Restaurants

Traditional Markets

- Distributors
  - Bonanza , etc.
- Grocery
  - Raley's, Scolaris
- Brewery/Winery

Grocery Market Issues

- Large quantity for wholesale market
  - Focus on one or two products
- Equipment to make large deliveries
- Maintain regular delivery schedule
- Potential need for cold storage
- Labor and/or equipment to harvest and clean large quantities
- Specific cleaning and packaging requirements

Sample Grocery Requirements

- Farm business plan (product description, cost, availability, delivery schedule, etc.)
- Land use history and surrounding land usage
- Water and irrigation system with water testing certificate
- Pesticide, fertilizer, herbicide application records
- Employee food safety training schedule
- HACCP or similar plan
- Harvest, packing storage, and transportation methods
- Record-keeping, safety incident management plan
- Certificate of insurance

Potential Distribution for Alt. Crops

Example: Possible Distribution for Alternative Crops

Crop	Buyer	Distribution
Onions	Public - retail Public - wholesale	Direct - farmer's markets Third party warehouse
Leaf Lettuce	Public - retail Public - wholesale	Direct - farmer's markets Third party warehouse
Teff	Miller	Delivered to miller
Two-row Malt Barley	Beer Manufacturer	Received on site as per contract terms
Great Basin Wildrye	USFS, BLM	Delivered to contracting agency
Wine Grapes	Vinter	Delivered to winery as per contract terms

Characteristics of Promising Production Alternatives

- Some characteristics of new or specialty crops with good long-term profit potential
  - Adequate size of target market
  - Extended production & marketing season
  - Complementary to the farm operation
  - Difficult to grow (steep learning curve)
  - Expensive to start producing (high initial capital investment)
  - Potential for value-adding activities

Information Analysis

- Before undertaking a new/specialty enterprise, must consider the quality & availability of information relating to
  - Market data, research, and analysis
  - On-farm research & development
  - Trends (demographic, economic, health, etc.)
  - Crop adaptation to your specific location
  - Pest and disease problems
  - Supporting infrastructure and facilities
  - Laws & regulations (i.e. permits and license requirements)
- Note that these items are not equally important for every product!

Market-Driven Enterprise Screening Guide

- The enterprise screening guide is designed to help producers assess the potential of new & specialty enterprises
  - Special emphasis on marketing, market factors
    - Typically the most critical factors in determining the enterprise's "attractiveness"
- The guide
  - Frame the general descriptive situation
  - "Screens" the crop/enterprise by using a worksheet to have the producer rate various aspects of the enterprise
  - Suggests an approach for making comparisons across enterprises

Descriptive Section

- The “Descriptive Section” of the guide helps to define alternatives and focus your thoughts for the remainder of the exercise
  - Describe the product
  - Describe target consumers, outlets, seasons
  - Describe anticipated barriers, problems, risks associated with production and marketing
  - Describe competitors
  - Describe your competitive advantage

Market-Driven Enterprise Screening Guide Example: Background

- Consider the Profitseeker family, a farming couple in Southern California
- 20-ac farm growing mixed vegetables for sale to farmers' markets and wholesalers
- Mr. Profitseeker works on the farm full-time
- Mrs. Profitseeker works off the farm full-time, but helps with the farmers' market
- Have a permanent crew and hire casual labor when needed

Background, cont.

- Largest percentage of the farm, in terms of acreage and profits, is pole tomatoes
  - Pole tomatoes currently experiencing declining profits
    - Increase in year-round imports, greenhouse production
- Profitseekers are considering diversifying by replacing some pole tomato production with heirloom tomatoes or blueberries
    - Have seen numerous magazine and newspaper articles on both products
    - Have noticed presence of both at farmers' market
    - Some customers have asked them about other tomato varieties

Descriptive Section

- Describe the product (or closely linked group of products) you are considering producing, in as much detail as possible.
  - Option 1: Pole tomatoes
  - Option 2: Heirloom tomatoes grown in hoop houses
  - Option 3: Hand-harvested blueberries

Descriptive Section, cont.

- For the product in #1, describe your target
  - Consumer(s) and Market Outlet(s), and
  - Season(s)
  - Pole tomatoes: Sold to wholesalers and at farmers' markets, depending on price and season. Generally avoid harvesting in summer months when prices are weakest
  - Heirloom tomatoes: Sell directly to restaurants and in farmers' markets in the region. Year-round production, but will focus on harvesting outside of the summer months
  - Blueberries: Sell directly to restaurants and in farmers' markets in the region. Will focus on being in the market in the early season (March-May) and late season (October-December)

Descriptive Section, cont.

- What special requirements, problems, barriers, or risks do you anticipate in producing and marketing this product?
  - Pole tomatoes: Summer price drop, frost and diseases may be a problem in the winter
  - Heirloom tomatoes: Frost and disease, packing requirements, learning curve including selecting the best varieties, cultural practices, summer glut, market access (breaking in)
  - Blueberries: Mastering production challenges including soil pH management, possibility of frost in the winter

Descriptive Section, cont.

- Who are/will be your competitors?
  - Pole tomatoes: Other local growers, imports from Mexico, greenhouse growers
  - Heirloom tomatoes: Local producers, imports
  - Blueberries: Imports from South America and Mexico are the primary competition during the targeted market windows; during the traditional blueberry market season, there will be greater competition from growers in other states and regions of California

Descriptive Section, cont.

- What are your competitive advantages, if any, in producing this new crop? Consider your competitors, location, regulations, seasonality, production costs, and others.
  - Pole tomatoes: proximity to markets, higher quality, better flavor, freshness
  - Heirloom tomatoes: hoop house reduce frost and disease problems; know tomatoes, access to farmers' markets as a current vendor, also all of the pole tomato advantages listed above
  - Blueberries: locally grown, fresh, proximity to affluent market, seasonal availability/market window, high demand as function of health trends, access to location -specific research

Break-Even Analysis

- This type of analysis answers the questions
  - "How much needs to be sold to break even?"
    - If the quantity is a realistic amount, then the idea should be analyzed further
  - "What would the price need to be to break even?".
    - If the price that would need to be charged is unrealistic, then the idea is not feasible
- These same questions can be answered using a set level of profit
- If an idea looks like it has merit after performing this initial analysis, a more detailed analysis should be undertaken

Calculating Profit

Revenue-TVC-FC=Profit

- TVC=total variable costs
  - Costs that come directly from producing each unit of the product, like seeds
  - Change depending on the quantity produced
- FC=Fixed costs
  - Costs that will be incurred regardless of how many units are produced, like rent for land
  - "Overhead"
- Profit may also be calculated as (where Q is quantity sold):

(Price*Q)-(VC*Q)-FC=Profit

Implications of Calculated Profit

- Insight on how to increase profit can be found just by looking at the equation:
  - To increase profit, the options are to either increase revenue or decrease costs
- Decreasing costs is pretty straightforward, but how can revenue be increased?
  - Sell more to existing customers: this increases quantity, and therefore profit
  - Find more customers to sell to: this also increases the quantity sold
  - Find a sales outlet that will increase the per-unit price.
    - For example, selling at a farmers' market may allow a producer to charge a higher price than the commercial or retail price
- Without even working with numbers, asking if these options are possible can often provide insight

Profit Example

- The sample production budget at right represents a tomato operation, and will be used in the following example
- Profit for this example is calculated below
  - Where the quantity of 20,000 lbs comes from dividing revenue ($4800) by per unit price ($0.24)
- Profit is $1,635
- Calculation:
  ($0.24*20,000)-($0.06+$0.07)*20,000-$565=$1,635

Cost/Income	Total	Per unit (pound)
Revenue	**$ 4,800**	**$ 0.24**
Expenses		
Inputs	$ 1,400	$ 0.07
Labor	$ 1,200	$ 0.06
Overhead	$ 565	
Total Expenses	**$ 3,165**	
Net Income before taxes	**$ 1,635**	
Income taxes	$ 605	
Net Income	**$ 1,030**	

Break-Even Point

- The break-even point is calculated using the profit formula, rearranged
- First, set profit to zero, because the break-even point assumed zero profit

$$(\text{Price-VC})*Q-FC=0$$

- Next, rearrange to solve for quantity:

$$\frac{FC}{(\text{Price-VC})} = Q$$

- Using the example numbers, we find that the break-even quantity is 5,136 pounds of tomatoes:

$$\frac{\$565}{(\$0.24/\text{lb}-\$0.13/\text{lb})} = 5{,}136 \text{ lbs}$$

Solving for Specified Profit

- This formula can also be adjusted to solve for the quantity that must be sold in order to achieve a specific profit level
- Just add the profit to the fixed costs:

$$\frac{(FC+Profit)}{(Price-VC)} = Q$$

  - This can give you an idea of how large your enterprise will need to be to earn the profit that you want
  - If the quantity is unreasonable, you need to rethink your plan
- Using the example numbers, we find that 20,000 lbs of tomatoes would need to be grown and sold to achieve the pre-tax profit of $1,635

$$\frac{(\$565+\$1635)}{(\$0.24/lb-\$0.13/lb)} = 20,000 \text{ lbs}$$

Worksheet #4

Thank you!

Questions?

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