Taking a Look at Value-Added Dairy Opportunities

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I. Markets for Milk and Other Products in Tennessee
II. Prospects for Value-Added Dairy Products
III. Value-Added Considerations
IV. Business Planning
V. Costs Associated with On-Farm Milk Processing

I. Market for Milk and Other Dairy Products in Tennessee

- Overview
  - 7th in cash receipts among farm commodities in the state (TDA 2010)
  - 450 Grade A Dairies in 2010 (377 as of 6-20-14)
  - 65 counties across the state
  - 42,340 dairy cows
  - Average of 94 cows per dairy

- Significant market pressures exist for the Tennessee dairy industry, and since 2009
  - Loss of nearly 14,000 cows
  - Average herd size decrease, with 2009 average herd size of 106

- Significant gains in production per cow
  - Gains through technology and improved management practices
  - Milk production per cow, progressed from 11,825 pounds per year in 1990 to 16,232 in 2009
  - State's milk production per cow still falls below the U.S. average of 20,576 pounds per cow per year.

I. Market for Milk and Other Dairy Products in Tennessee

Cost Price Squeeze

- Cost of Producing Milk in Tennessee about 1.2 times the national average (2010).
- Gross value of production less operating costs about $.38/hundredweight less than national average

	Tennessee	U.S.
	$/hundredweight	
Gross Value of Production*	20.07	18.07
Operating Costs**	15.49	13.11
Value of Production Less Operating Costs	4.58	4.96

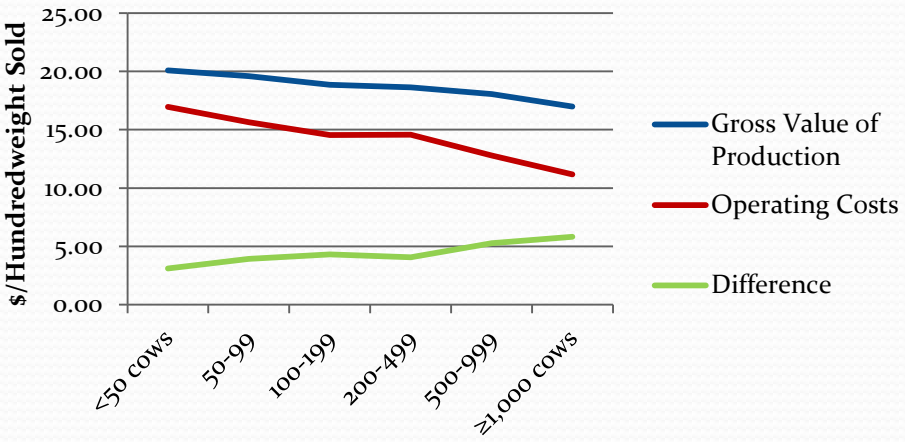
* Gross value of production includes milk sold, cattle sold, and other income such as income from renting or leasing dairy stock to other operations; renting space to other dairy operations; co-op patronage dividends
** Operating costs include feeds, vet services, bedding and litter, marketing, custom services, fuel, lube, and electricity, repairs, other operating costs, and interest on capital.
http://www.ers.usda.gov/Data/CostsAndReturns/MilkStates2010base.xls

I. Market for Milk and Other Dairy Products in Tennessee

Cost Price Squeeze and Herd Size

- Gross value of production less operating costs about $2.70/hundredweight greater among 1,000 cow dairies than those with less than 50 cows.

U.S. Dairy Value of Production and Operating Costs, by Herd Size

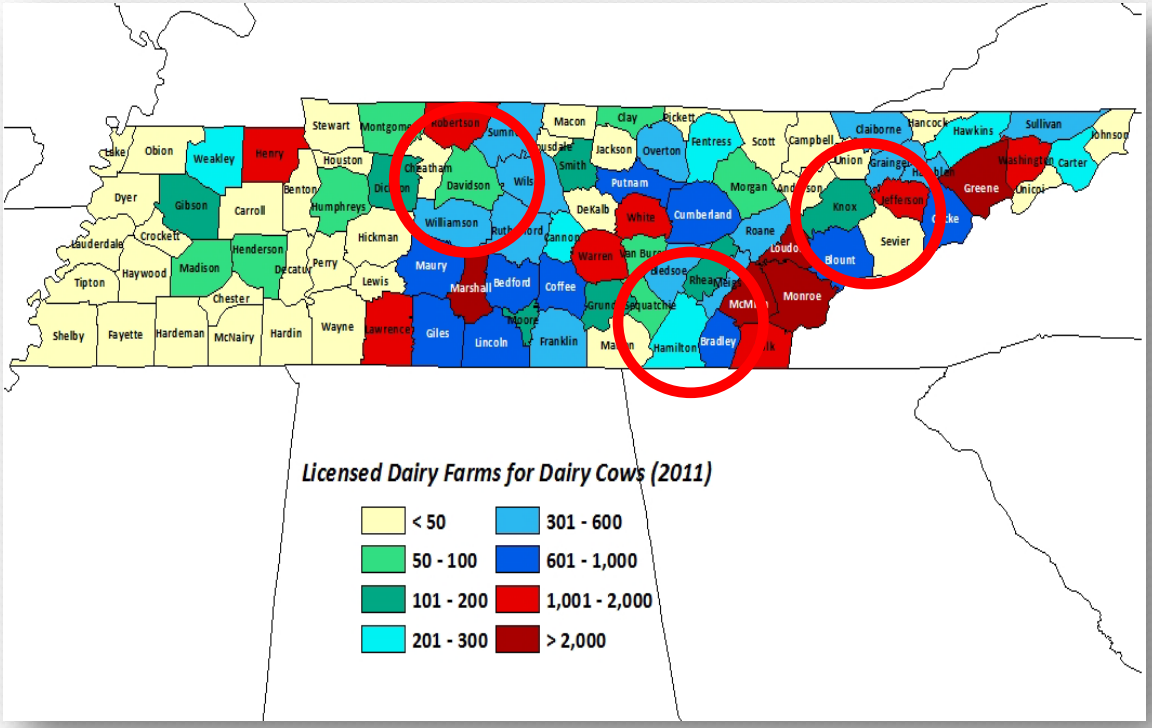


I. Market for Milk and Other Dairy Products in Tennessee

Operating Costs, Tennessee and U.S.

	Tennessee	US	Difference
	($/hundredweight sold)		
Purchased feed	**6.71**	**6.09**	**0.62**
Homegrown harvested feed	**4.70**	**3.97**	**0.73**
Grazed feed	0.26	0.10	0.16
Veterinary and medicine	0.77	0.76	0.01
Bedding and litter	0.09	0.23	-0.14
Marketing	0.25	0.22	0.03
Custom services	0.62	0.53	0.09
Fuel, lube, and electricity	**1.15**	**0.66**	**0.49**
Repairs	**0.92**	**0.54**	**0.38**
Other operating costs 3/	0.00	0.00	0.00
Interest on operating capital	0.02	0.01	0.01
	15.49	13.11	2.38

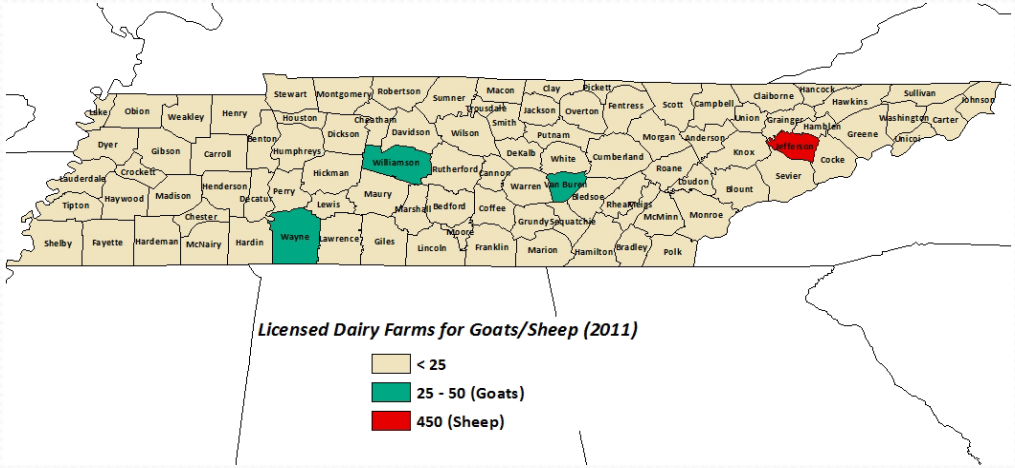
I. Market for Milk and Other Dairy Products in Tennessee



- Dairy farms are more concentrated in the eastern 2/3 of the state.
- Many of the more dairy intensive counties are located near metropolitan areas

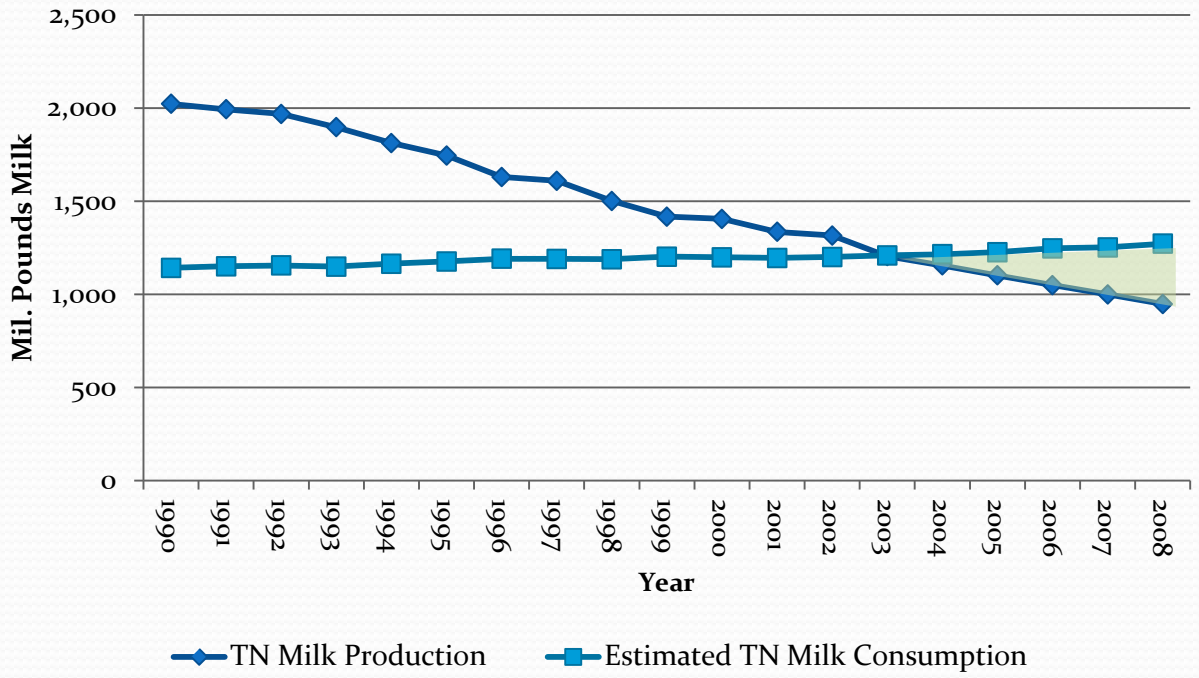
I. Market for Milk and Other Dairy Products in Tennessee

- Goat and Sheep Milk Production (May 2011)
  - Three Grade A goat dairies
  - 115 milk goats
    - Average 6-8 pounds per day
    - 10 month lactation
    - 1,800-2,400 pounds of milk per year
  - Estimated 75 to 100 sheep dairies across the U.S.



I. Market for Milk and Other Dairy Products in Tennessee

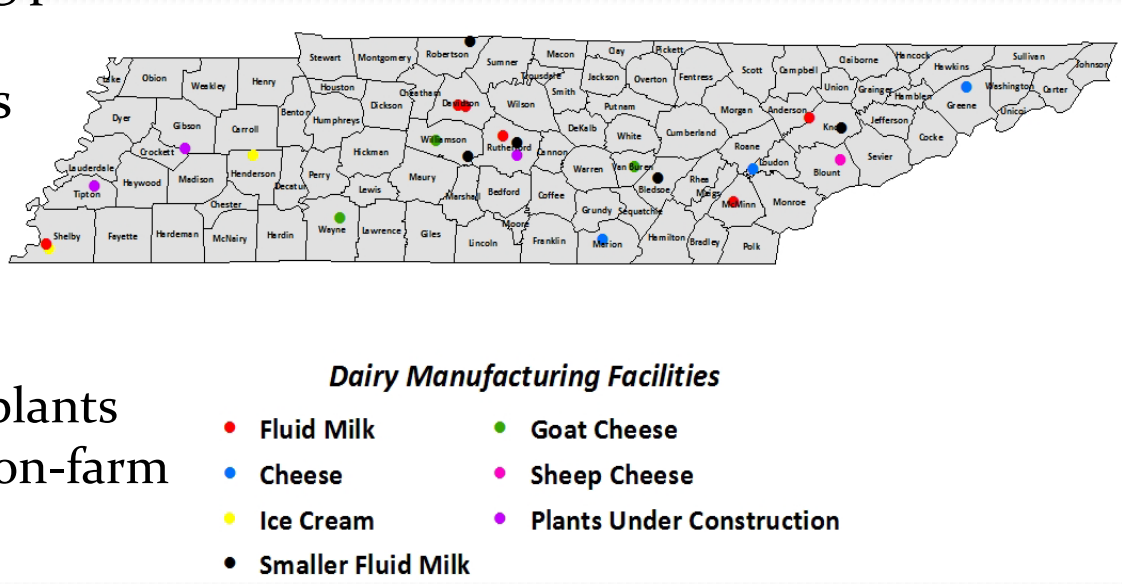
- Tennessee is experiencing a fluid milk deficit



(USDA-NASS ; USDA-ERS ; U.S. Census Bureau)

I. Market for Milk and Other Dairy Products in Tennessee

- Milk marketing cooperatives
  - 83% of fluid milk marketed in the U.S. is marketed through cooperatives
  - In Tennessee
    - 49% of producers sell through cooperatives, 51% are independent producers
- Federal Order distributing plants
  - 6 plants in Tennessee
- Other processing facilities
  - Three cheese plants
  - Three ice cream plants
  - One yogurt plant
  - One sour cream plant
  - Six on-farm fluid milk plants
  - Several goat and sheep on-farm manufacturing plants

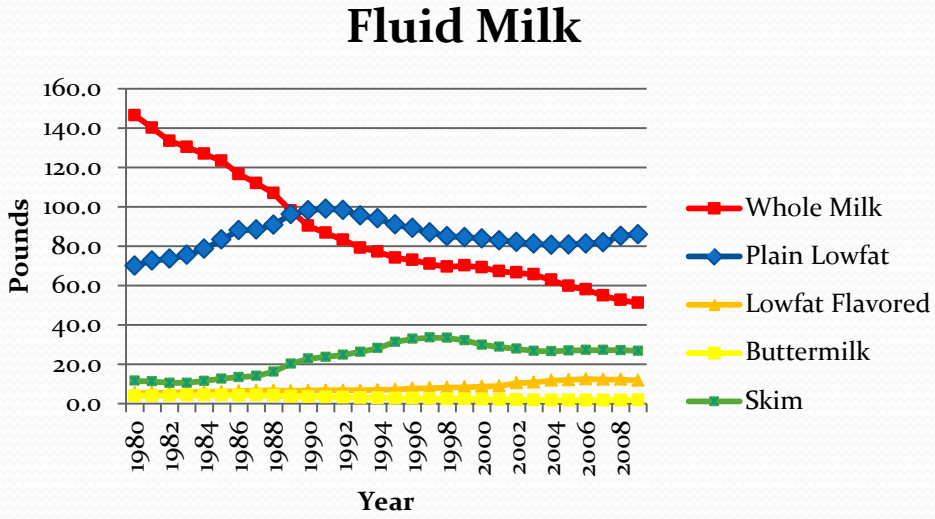


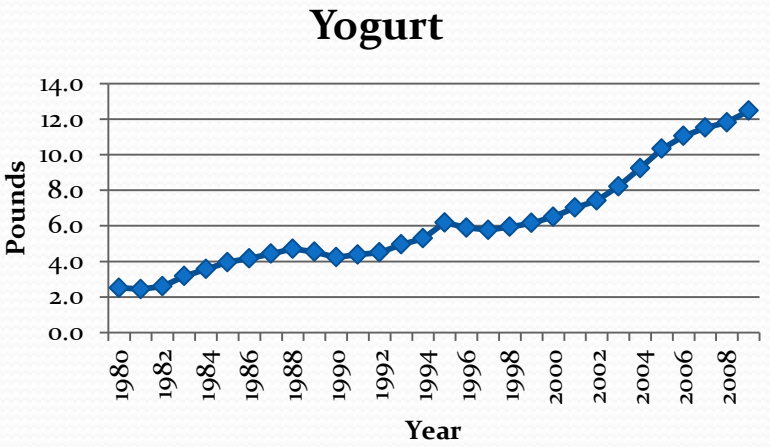
II. Prospects for Value-Added Dairy Products

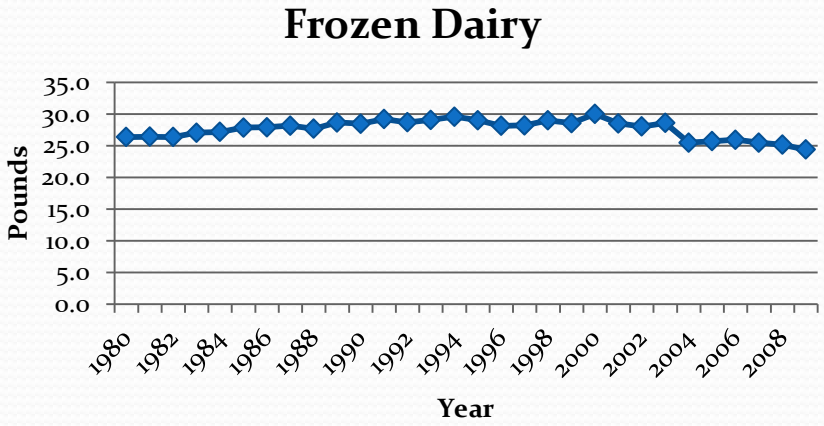
- How is milk and dairy production consumption changing?
- What are changes in population patterns?
- Are there niche markets for dairy products?
- What are market segments for specialty dairy products?
- What are potential market outlets?

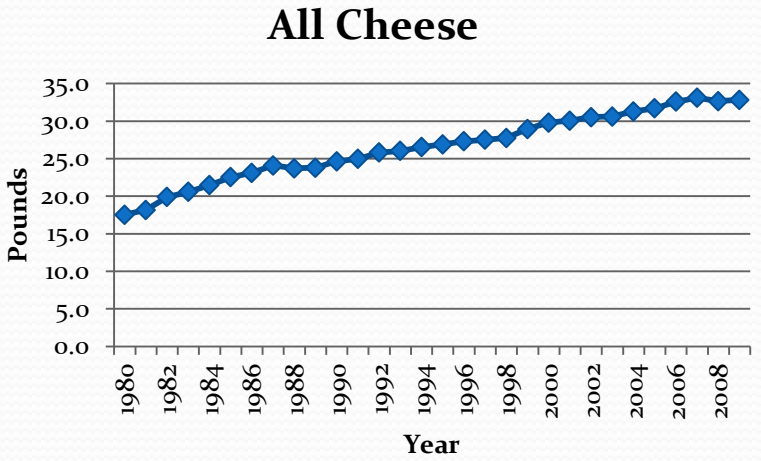
II. Prospects for Value-Added Dairy Products

U.S. Per Capita Consumption





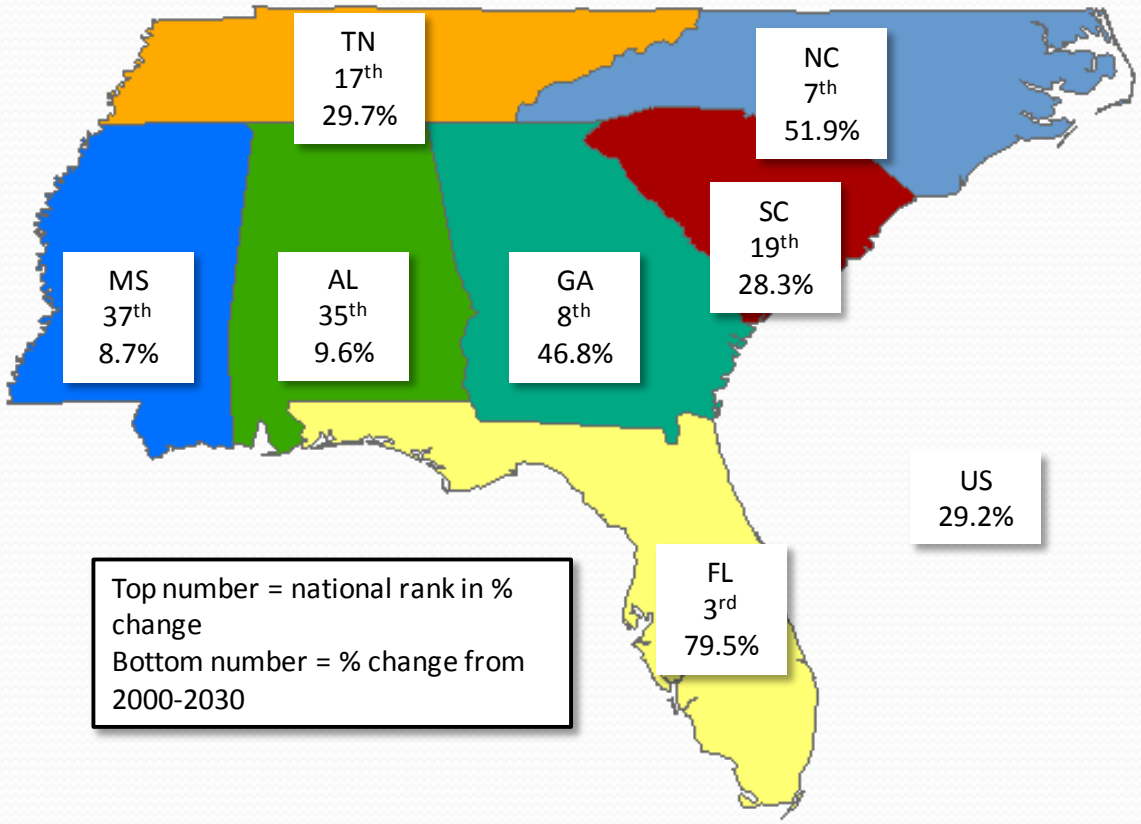




Milk and Dairy Products Consumption

II. Prospects for Value-Added Dairy Products

Several states in the Southeast are projected to be among the *highest population growth* (U.S. Census Bureau 2005).



Changes in population patterns

II. Prospects for Value-Added Dairy Products

Dairy farmers may have the opportunity to add value to their farm's milk. This could occur through a variety of ways:

- Value-Added Activities:
  - Processing
  - Packaging
  - Labeling
  - Marketing
- Examples of Value-Added Products
  - Farm-bottled milk
  - Cheeses
  - Yogurt
  - Butter
  - Ice cream
  - Specialty labeled dairy products

Potential Niche Markets

II. Prospects for Value-Added Dairy Products

Specialty Labeled Products Examples:

- Location-oriented
  - Locally Grown
- Process-oriented
  - natural
  - grass-fed

Potential Niche Markets

II. Prospects for Value-Added Dairy Products

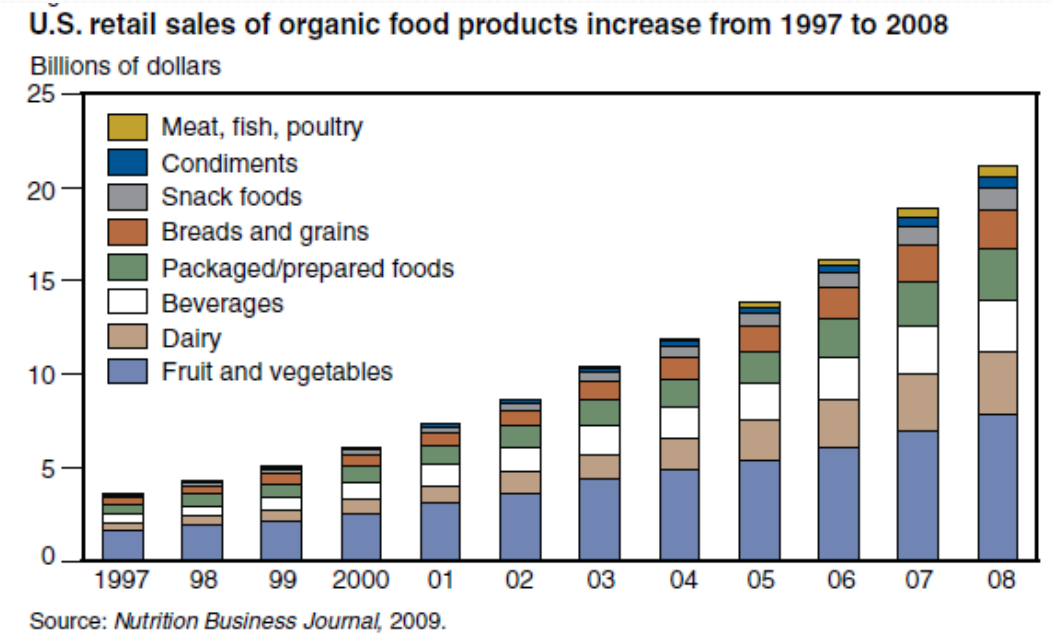
- **Location-Oriented Labeling**

  Locally Grown

  - No regulations exist specifying what this means
  - Consumers associate this as being within 50 miles of the point of sale
    - Associated with:
    - Freshness
    - Eating quality
    - Food safety
    - Nutritional values

II. Prospects for Value-Added Dairy Products

- Process-Oriented Labeling
  - Organic
    - Rapid increase in demand for organic foods, but to be certified, must meet federal organic standards, if at least $5,000 in sales (http://www.ams.usda.gov/AMSv1.0/)
    - While all organic foods would be considered natural, not all natural foods are considered organic



Potential Niche Markets

Milk Labeling

- **Natural**
  - FDA has not established a regulatory definition for natural
  - The agency has not objected to the use of the term if the food does not contain added color, artificial flavors or synthetic substances
  - Many people label milk as “natural” if there are no added antibiotics or hormones
  - Processed cheeses should not be labeled as “natural

- **Grass Fed**
  - Implies that the animal is fed only on a grass and forage diet
  - Market is based on perception of higher nutritional value and better taste
  - There are no standards for grass fed dairy
    - There are voluntary standards established for grass fed livestock by the USDA Agriculture Marketing Service (http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5063842)
    - These standards are recommended for grass fed dairy

II. Prospects for Value-Added Dairy Products

- Results from prior dairy products consumer survey studies
  - Consumers with moderate to higher incomes, with higher education, and in their mid-30's to early 50's will be most interested in purchasing specialty dairy products (locally grown, organic, grass-fed, animal welfare)
  - Gender differences-male, locally grown, grass fed; female-organic, animal welfare

Target Market- is a group of customers that the business has decided to aim its marketing efforts and ultimately its product.

Market segment-a group of potential consumers which share like preferences.

Market segments for specialty products

II. Prospects for Value-Added Dairy Products

Potential Market Outlets

- **Grocery Stores** - Many grocery stores require a "slotting fee" to place a product on their shelves. The slotting fee can be very expensive and prohibitive to small businesses. In addition, products must compete with branded products from large national food companies.
- **Institutional Food Service** - The institutional food service market includes restaurants, schools, factories, and hospitals, and is often served by large food distribution companies. Advantages of this market are that brand identification is less of an issue than with retail grocery stores and, in some cases, restaurants are locally owned, providing direct contact with the potential buyer.
- **Specialty Shops** - Specialty or gourmet food stores tend to provide more opportunities for small food processors to supply locally produced products than the market outlets mentioned above. In this market, however, the product needs to be unique and of high quality.
- **Direct Marketing** - In some cases, marketing of the product may occur directly on the farm with a farm store. In other cases, the producer may bring the products to a farmers market. Still another opportunity for direct marketing of some products is through the internet.

Market outlets

III. Value-Added Considerations

- ***Some methods for identifying and developing value-added opportunities are to:***
  - Contact potential buyers about need for the product,
  - Visit specialty shops that might stock your product,
  - Look at mail order catalogs and websites selling products you are considering marketing,
  - Read trade magazines and newsletters,
  - Visit with other milk producers who have added processing facilities, Speak with Extension county agents about your idea, and
  - Carefully evaluate the market potential and financial feasibility before investing in processing facilities and equipment

III. Value-Added Considerations

- Moving from a commodity to a differentiated product
  - Allows for vertical integration into production/processing
    - Producer is able to capture more of the end-use value of farm products
    - Producer is also able to gain access to new distribution channels
  - Branding
    - Differentiates your product from other products
    - Conveys a message of quality of your product
    - Helps build loyalty to your product
    - Builds recognition for your product
  - Marketing
    - Need to build a market for the differentiated products

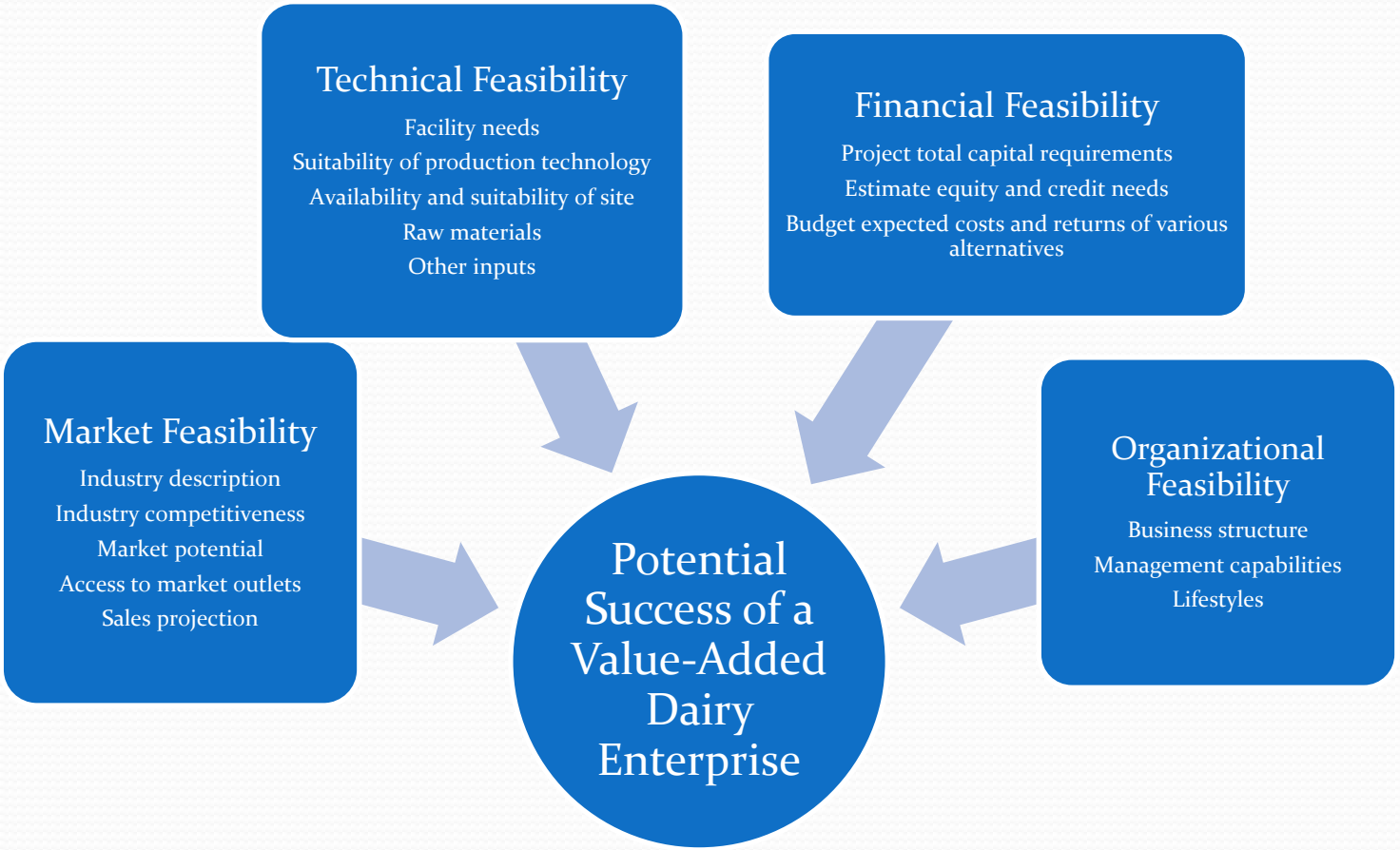
III. Value-Added Considerations

- Considerations
  - Require significant capital outlays
  - Additional regulations
  - Extra management effort required
  - Additional marketing costs
  - Additional start-up and year-to-year costs
- Adding on-farm processing should build upon the *strength of the dairy operation*, not serve as an attempt to overcome weaknesses within the farming operation

- Vic Davis (consulting engineer) "One out of 100 processing plants survive."

III. Value-Added Considerations

- Feasibility Study



IV. Business Planning

- What do you want from this enterprise?
- Why do you want to do this?

IV. Business Planning

- What are your resources?
  - Land
  - Location
  - Labor
  - Family
  - Capital
  - Management ability
  - Time
  - Experience

IV. Business Planning

- Brainstorm for ideas

IV. Business Planning

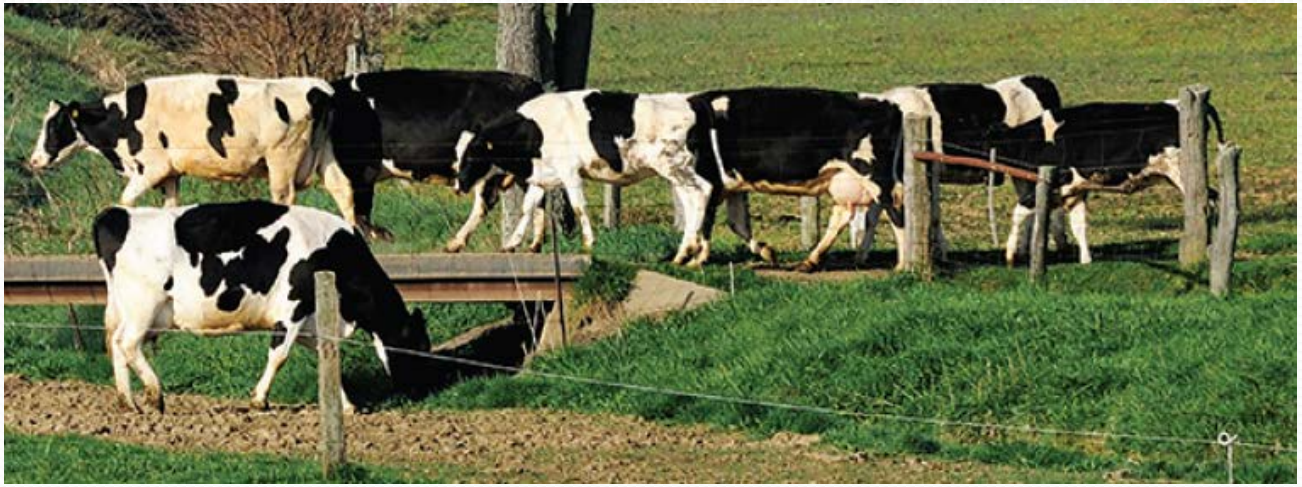
- What service or product does your business provide and what needs does it fill?
- How will you reach your potential customers?
- Who are the potential customers for your product or service and why will they purchase it from you?
- Where will you get the financial resources to start your business?

IV. Business Planning

- Do your research
  - Skills needed
  - Costs (start up and operating)
  - Feasibility
  - Market
  - Competition

IV. Business Planning Goals

- 80% of Americans have no goals
- 16% have goals in their mind but never write down
- 4% write them down and make 9x more money



Source: Business Planning Lite, Dr. David Kohl, Virginia Tech

IV. Business Planning Bottom Line

- Farm businesses that developed a business plan were 2 times more profitable
- Producers who communicate were 21% more profitable.
- Producers who separated business and family issues were 63% larger and had 22% higher net income.

Source: Business Planning Lite, Dr. David Kohl, Virginia Tech

IV. Business Planning Bottom Line

- Producers who have not developed a transition/estate plan/business plan vs. those that have a plan in place:

Business Planning	No Plan	Plan in Place
Estate Plan	**5.01% ROA** **$54,929 Net Income**	**7.55% ROA** **$96,342 Net Income**
Transition Plan	**6.70% ROA**	**8.82% ROA**

Source: Business Planning Lite, Dr. David Kohl, Virginia Tech

IV. Business Planning

- Develop a <u>workable business plan.</u>

A business plan is a document that summarizes your business objectives and shows how you intend to achieve them.

IV. Business Planning

- Business Plan
  - 3-5 Years
  - Defines business and identifies goals
  - Lists herd size requirements, types and cost of products to be made, cost of equipment, processing schedule, labor and waste disposal and availability of supplies
- Marketing Plan
  - Defines market, distribution methods, areas of distribution, how you are going to sell to this market, and products you are going to specialize in, balancing milk

IV. Business Planning
Components of a Business Plan

- Table of Contents
- Executive Summary
- Mission Statement
- Goals/Objectives
- Situational Analysis
- **Marketing Plan**
- **Financial Plan**
- Management Plan
- Contingency Plan

IV. Business Planning

- Is everyone on board?

IV. Business Planning

- If all systems are “go”, put plan into action.
- Plan to regularly measure performance.
- Analyze and evaluate.
- Make needed changes.

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs
- Operating Expenses
- Other Expenses

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs
  - Land (not included in budgets)
  - Buildings
  - Equipment
  - Money on hand to cover operating expenses, salaries and wages, and loan repayment for at least one year

One of the leading causes of business failure is insufficient start-up capital.

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs--Buildings
  - Cow Dairy 14,400 sq ft processing facility with room to expand ($1.5 million estimated)
  - Goat Dairy 3,000 sq ft processing facility ($315,000 estimated)
  - Milk receiving bay, raw milk storage, raw milk blending, mixing and separation
  - Pasteurized processing area
  - Chemical storage
  - Mechanical room
  - Finished product storage cooler
  - Casing area, empty jug storage, dry storage, loading docks, lab, locker rooms, break room, offices
  - Sales room with public restrooms

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs--Buildings
  - Meet with local utility system to see how much power is in location of plant.
  - Plant will need 3 phase power and either 220 or 440 voltage
  - 440 voltage is recommended so you will not be limited to only certain equipment
  - Commercial hot water heater and boiler to generate steam that is used as a heating medium when heating the product are recommended
  - Plant will need a chiller to cool the product as quickly as possible

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs--Buildings
  - Refer to the Pasteurized Milk Ordinance (PMO) and be aware of Good Manufacturing Practices (GMPs)
  - Dairy processing requires very specific valves
  - The building process is detailed and must pass inspections
  - Changes cost money (specialized welding @ $35-45/hr)
  - Can hire engineering firm with experience in dairy processing plants to put your plant together. Some charge $100/hr for CAD drawing or $10,000 to put a plant together.

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs--Equipment
  - 3A Sanitary Standards may be a plus
  - New or used?
  - Match the proper equipment to the process
  - Get the appropriate size of equipment for the amount of material to be processed over given period of processing time
  - Make purchase subject to governing authority's approval upon inspection.

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs should include money on hand to cover operating expenses, salaries and wages, and loan repayment for at least one year.
- Suggested Start-up costs for one year:

	Cow Cheese	**Cow Milk**	**Cow Yogurt**
Variable Expenses	$314,274	$1,032,658	$1,251,651
Labor	83,200	148,720	148,720
Loan Payments	131,129	156,996	156,996
Totals	$528.603	$1,338,374	$1,557,367

V. Costs Associated with On-Farm Milk Processing

- Start-up Costs should include money on hand to cover operating expenses, salaries and wages, and loan repayment for at least one year.
- Suggested Start-up costs for one year:

	Goat Milk/Cheese
Variable Expenses	$244,132
Labor	83,200
Loan Payments	43,991
Totals	$371,323

V. Costs Associated with On-Farm Milk Processing

- Operating Expenses
  - Cost of Milk
  - Ingredients
  - Testing
  - Utilities
  - Supplies—Cleaning and Other
  - Containers, Caps, Labels
  - Transportation (depends on distance to markets)
  - Advertising and Marketing
  - Product Loss and Samples
  - Credit Card Transaction Fees
  - Employer Taxes and Worker's Compensation
  - Insurance
  - Licenses, Permits
  - Secretarial
  - Legal

V. Costs Associated with On-Farm Milk Processing

- Other Expenses
  - Depreciation
  - Repairs
  - Interest on Equipment and Buildings
  - Labor

V. Costs Associated with On-Farm Milk Processing

- Other Considerations
  - Location of plant
  - Net returns are not the same as cash flow
  - Federal Order (Cow Dairy)
  - Balancing the Supply

Summary

- Potential niche products include locally produced and bottled milk, premium ice creams, specialty cheeses, and yogurts.
- Products may carry location- or process-oriented labels that can provide additional added value, however care must be taken to meet labeling requirements where those exist.
- Metropolitan markets and population growth counties may constitute potential markets.

Summary

- Market outlets may include on-farm sales, farmers' markets, gourmet and specialty markets in addition to grocery retail outlets.
- Adding a value added enterprise should build upon the strengths of a dairy farm's business, not try to overcome weaknesses.
- Before entering into a value-added enterprise, careful business planning must occur.
- An important component of this business planning is a feasibility analysis. Consider all the costs—startup and operating. Don't underestimate labor hours needed.

Additional Resources

- *Dairy Processing Handbook*, Second, revised edition, 2003 Tetra Pak Processing Systems
- *The Small Dairy Resource Book, Information Sources for Farmstead Producers and Processors*, www.sare.org
- *Building a Sustainable Business, A Guide to Developing a Business Plan for Farms and Rural Businesses*, published by Sustainable Agriculture Research and Education (SARE). Developed by the Minnesota Institute for Sustainable Agriculture, the book follows Cedar Summit Farm owners Dave and Florence Minar and their family throughout their planning process. The guide is available online at http://www.sare.org/Learning-Center/Books/Building-a-Sustainable-Business.
- *Starting & Running Your Own Small Farm Business*, Storey Publishing

Additional Resources

- *Starting a Dairy Goat Business—A Guide for Farmers*, published by Wisconsin Department of Agriculture, Trade and Consumer Protection http://datcp.wi.gov/uploads/business/pdf/goatstartupguide.pdf
- *Dairy Goat Enterprise Budget* published by Center for Integrated Agricultural Systems, UW-Madison http://www.cias.wisc.edu/economics/dairy-goat-enterprise-budget/
- *Get More from Your Milk—Increasing Profit through Value-Added Products* published by The Pennsylvania State University http://pubs.cas.psu.edu/freepubs/pdfs/xa0019.pdf

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A program of the