General Planning and Facility Decisions

Steps to Success

- Ask lots of questions
  - Of yourself
  - Of others who have succeeded
  - Of others who have thrown in the towel
- Visit value-added facilities
- Push your pencil
- Talk it over with your family
- Take enough time to do it right

Steps to Success

- Involve your local inspector
- Check out financing options
- Find out what is going to happen with your existing raw milk market
- Market research, market research, and more market research
- Do your planning carefully

Laying the Groundwork – Marketing

- Who or where is my target market?
  - Retail
    - On-Farm Store
    - Farmer's Markets / CSA's (Community Supported Agriculture)
    - Home Delivery
    - Internet Sales / Mail Order
  - Wholesale
    - Distributor
    - DSD (Direct Store Delivery)

Laying the Groundwork - Products

- What will be my finished product?
  - Fluid Milk
    - White
    - Flavored
  - Yogurt
    - Cupped
    - Drinkable
  - Cheese
    - Fresh
    - Aged
  - Butter
  - Ice Cream
  - Cream Products
  - Cultured Products

Adding Value – How much?

- To what level will I take "Value-Added"?
  - In other words… How much value will I add?
- Examples of taking "Value-Added" a step further…
  - Single serve containers
  - Cheese platters
  - Molded butter
  - Hand-dipped ice cream
  - Ice cream cakes, pies, and other frozen desserts
  - Holiday gift trays

Basic Considerations

- Do I want to deal with the public?
  - Influences choice of market
  - Influences choice of products
  - Influences type and size of building
- Is someone in the proposed operation an artisan? Do we plan to hire one?
  - Some products – especially cheese – require a person with passion and skill.
  - Some products are more routine and can easily be duplicated by anyone.

Basic Considerations

- What is my labor source… just me? Other family members? Hired employees?
  - Adding more value nearly always means adding more labor.
  - Retail is more labor-intensive than wholesale.
  - Sometimes simpler is better. Employees bring challenges and family members can bring conflict.
- What can I afford?
  - Maybe my financial position dictates that I must begin small.
  - Make sure that enough money is set aside for working capital as well as to cover initial losses.

Basic Considerations

- Do I like the idea of small and micro-niche or do I like the idea of larger and efficient?
  - Influences size of plant
  - Influences type of product and the extent to which I will add value to that product

Planning the facility

- Layout
- Size
- Type
- Function
- Location

Facility Location

- On the farm… close to or adjoining the milking operation
- On the farm… away from the milking operation
- Off the farm

Location – On Farm and close

- Pros
  - Milk can be pumped directly from milk house to the plant – simplifies the operation.
  - No receiving bay is needed – saving building costs.
  - Watching the milking operation can be an attraction for customers.
- Cons
  - Customers are driving and walking in the area where other farm activities may be occurring – creating potential liability.
  - Odor, flies, and dirt may be more of a problem.
  - Integrating buildings may be a challenge.

Location – On Farm but away

- Pros
  - The plant can be situated at an optimal location for traffic, visibility, etc.
  - The plant can be located away from the odor, flies, and dirt.
  - Customers may still be able to view the farm during their visit to your store.
- Cons
  - A transport tank will be required to move milk to the plant – adding expense and complication.
  - A receiving bay will be required – adding building costs.
  - Customers may feel more disconnected with the rest of your farm operation if it is too far away from the other buildings.

Location – Off farm

- Pros
  - The store can be located along a busy road to attract more customers, etc.
  - This option keeps the general public away from your farm and milking operation – if that is what you want.
  - You can split the store from the plant – keeping the plant next to the dairy and transporting finished goods.
- Cons
  - A transport tank will be required to move milk to the plant – adding expense and complication.
  - A receiving bay will be required – adding building costs.
  - You will lose the draw that comes with the on-farm atmosphere of looking at the calves, watching the farm operation, etc.

Review Facility Function… identify the rooms that will be needed.

- Raw Room needed?
- Receiving Bay needed?
- Packaging storage needed?
- Aging room needed?
- Retail store desired?
- Loading dock requirements?

Facility – Raw Room

- The raw room is a separate room for the raw milk tank, mix tank, cream separator, raw cream tank, and perhaps a COP vat.
  - Some states like to see a separate room in a fluid milk plant with an HTST pasteurizer. Other states do not require a separate room. Check with your inspector for your state's requirements.
  - A raw room is generally not needed in a small cheese plant.
  - Even though a raw room is not required, it is a good practice to keep all raw activities located in one area of the plant.

Facility – Receiving Bay

- A receiving bay is where the milk truck, or other milk transport vehicle, is backed into the plant to be unloaded and washed.
  - A receiving bay is required when milk will be hauled to the plant rather than being pumped to the plant.
  - A receiving bay is required when milk will be purchased from other farms.
  - Some states require an enclosed room. Other states only require a roof over the transport tank while it is being unloaded and washed. Check with your inspector for the requirements in your state.

Facility – Packaging Storage

- Packaging storage can require a lot of space, depending on the type of plant.
  - Glass bottles and plastic jugs take up a lot of space – some folks use storage trailers or some other kind of inexpensive storage.
  - Requirements for packaging storage grow along with sales growth. This may be an area of your plant that will require expansion later.
  - Generally cheese, ice cream, and yogurt plants don't require as much storage. However, you still need room for containers, boxes, etc.

Facility – Aging Room

- An aging room is required for cheese plants which produce aged cheese. Here the cheese will be stored on shelves while it is aging.
  - Aging rooms vary greatly – from caves to climate controlled rooms inside the plant. If you choose to use a cave, be sure to check with your local inspector to determine the requirements for the cave.
  - Humidity and temperature are very critical in aging rooms. Make sure you know the requirements for the cheese or cheeses that you intend to make.
  - Once again, the size of this room needs to grow along with production growth. Plan on how you will meet future growth needs.

Facility – Retail Store

- Obviously, a retail store is needed if you plan to retail products from your plant location… or is it?
  - Consider a simple option. Place a cooler on the porch and allow customers to make purchases on the honor system.
  - Decide what you will sell in your store – dairy products only? Other related products? A complete line of groceries or bulk foods?
  - Consider a theme for your store. Will it be a modern-looking facility? Rustic? Will it look like barn? Do your marketing research and know who you want to attract.
  - Store sizes vary greatly. How large does yours need to be?

Facility – Loading Dock

- A loading dock is a critical component of facilities who distribute or wholesale a lot of product.
  - Figure out whether you will need a high dock for larger trucks and tractor trailers, or if you will need a lower dock for small delivery trucks, or both.
  - Think about the staging area that should go along with a loading dock. You will typically need an area to prepare pallets of product for shipping – a place to shrink wrap them, etc.
  - Locate your dock area strategically. Can you use the same dock for incoming shipments of supplies as well as outgoing shipments of product?

Facility Type

- New building
- Existing building with minor remodeling
- Existing building with major reconstruction

New Building

- Considerations
  - This option will likely be the most costly, unless an existing building would require extensive renovation.
  - This option may require permitting and other regulatory involvement. Existing buildings often carry a certain "grandfathered" provision.
  - A new building can be sized and arranged just as you need it, potentially saving you money in efficiency gains down the road.
  - Location is important. A new building may be required due to the desired location.

New Building – construction type

- Consider sanitation issues and product contamination issues – you must have a good product to get to first base.
  - Cheese rooms need to be free of cracks and crevices where molds can grow.
  - All production facilities must be easily cleanable.
- Plants are washed down – make sure your building construction will hold up to moisture.
- A number of construction types can work…
  - Concrete
  - Wood frame
  - Steel frame
  - Pre-fabricated buildings
- Your retail image may influence construction type.

Existing Building – minor remodel

- Considerations
  - This may be a more cost effective way to get started.
  - What will be the cost to remodel?
  - Will it be easy to remodel and meet regulatory requirements? Ask your local inspector to take a look at the building with you.
  - Drains can be a challenge. Consider pouring a new floor or coating the floor with an epoxy paint after the renovation.
  - Will major compromises in space, efficiencies, or location be necessary to use the existing building?

Existing Building – Major Recon

- Considerations
  - Major reconstruction can be nearly as costly as building new. Make sure you know what you are getting into.
  - This can be a good option if you want to project a certain image… perhaps you want your store in an old barn, etc.
  - Is the building structurally sound? Structural changes become very costly.
  - Can the building be made to pass regulatory requirements? Invite your local inspector to tour the building with you.

Building size

- Make a list of rooms required
  - Decide how much growth to allow for.
    - Don't build for growth that may never occur or growth that is 10 years away – your needs may change greatly in that time.
    - Build for present needs and more short-term growth needs.
  - Decide the size of each room
- Determine total square footage requirements.
- Determine building shape
  - Think about rooms that should have outside walls for light, ventilation, or access.

Rooms in your facility

- Raw Milk Room – depends on whether the raw tank will be bulk-headed to the outside or to another room or whether it will be entirely inside the raw room.
  - Small simple plants 250 sq ft
  - Small multi-purpose plants 250 sq ft
  - Larger plants with room to grow 400 sq ft
- Receiving Bay – depends on size of truck, tank, trailer, etc.
  - Small plants 525 sq ft
  - Larger plants 1600 sq ft

Note: These square footages are general recommendations. Each plant's requirements will vary.

Rooms in your facility

- Processing Room
  - Small simple plants 400–600 sq ft
  - Small multi-purpose plants 800–1200 sq ft
  - Larger plants with room to grow 1500+ sq ft
- Consider shape of room
  - Typically rectangular for more wall space.
- Consider location of this room.
  - Do you want to allow for an observation window?
  - Do you want outside light – windows?

Note: These square footages are general recommendations. Each plant's requirements will vary.

Rooms in your facility

- Lab
  - Small simple plants — 50 sq ft
  - Small multi-purpose plants — 75 sq ft
  - Larger plants with room to grow — 100 sq ft
- Office
  - Small simple plants — 100 sq ft
  - Small multi-purpose plants — 150–200 sq ft
  - Larger plants with room to grow — 200 or more sq ft
- Restroom
  - Small plants — 40 sq ft
  - Larger plants with room to grow — 70–100 sq ft
- Employee break room
  - Small simple plants — N/A
  - Small multi-purpose plants — N/A
  - Larger plants with room to grow — 200+/- sq ft

Note: These square footages are general recommendations. Each plant's requirements will vary.

Rooms in your facility

- Dry Ingredient Storage
  - Small simple plants — 200 sq ft
  - Small multi-purpose plants — 300 sq ft
  - Larger plants with room to grow — 400 sq ft
- Packaging Storage
  - Small simple plants — 600+/- sq ft
  - Small multi-purpose plants — 800+/- sq ft
  - Larger plants with room to grow — 1200+/- sq ft
- General Storage
  - Small simple plants — 100 sq ft
  - Small multi-purpose plants — 150 sq ft
  - Larger plants with room to grow — 200 sq ft

Note: These square footages are general recommendations. Each plant's requirements will vary.

Rooms in your facility

- Cooler
  - Small simple plants — 200+/- sq ft
  - Small multi-purpose plants — 300+/- sq ft
  - Larger plants with room to grow — 600+/- sq ft
- Freezer (if needed)
  - Small simple plants — 100 sq ft
  - Small multi-purpose plants — 200 sq ft
  - Larger plants with room to grow — 300+/- sq ft
- Staging Area
  - Small simple plants — 120 sq ft
  - Small multi-purpose plants — 120 sq ft
  - Larger plants with room to grow — 200 sq ft

Note: These square footages are general recommendations. Each plant's requirements will vary.

Rooms in your facility

- Mechanical Room
  - Small simple plants 150 sq ft
  - Small multi-purpose plants 250 sq ft
  - Larger plants with room to grow 350 sq ft
- Bottle Washer Room
  - Small simple plants 400 sq ft
  - Small multi-purpose plants 400 sq ft
  - Larger plants with room to grow 500–700 sq ft

Note: These square footages are general recommendations. Each plant's requirements will vary.

Facility Layout – considerations

- Production Flow
- Regulatory Requirements
- Expansion Options

Layout – Production Flow

- Arrange your plant for product to flow from raw to processed to packaged.
- Locate storage areas near where the supplies will be used.
  - Place raw ingredients near the mix tank.
  - Locate packaging storage near the bottler, etc.
- Locate cooler near where packaging will occur. Plan for ice cream to be immediately placed in the freezer.
- Keep different products segregated.
  - Keep cultured products away from other products, etc.

Layout – Regulatory Requirements

- Involve your inspector early in the process.
  - Get his input in your layout.
  - Learn any unique requirements for your locality.
- Plan around basic requirements
  - Doors swing out of production rooms and may not open to the outside.
  - Bathrooms may not open off production areas.
  - Other farm areas must be separated from the plant by two doors.

Layout – Expansion Options

- Plan how you will expand the areas where growth is the most dramatic.
  - Processing area
  - Storage
  - Cooler and freezer space
- Plan ahead for possible additions to the building.
  - Keep in mind that when you add on, you will be in production. You will not want construction to greatly interfere with your operation.

Finding Equipment – Where?

- Sources
  - Public Auctions
  - Private Purchases
  - Equipment Dealers
  - eBay
  - Custom Built
- How much time do you have?
  - To find equipment
  - To investigate equipment that becomes available

Finding Equipment – What to expect

- Buying privately and at auctions can be risky without knowledge or advice.
- Equipment dealers may not be very responsive if they are focused on large systems.
- Talk to other processors and find out where they found their equipment.
- Used equipment prices have climbed a lot and keep climbing.
- Some items are only available new.

Things to remember in summary

- Good planning is half the work.
- Making friends with your inspector will take you far.
- Expect that something will go wrong.
- Don’t skimp on quality control and sanitation.
- Professional training can be worth it if you find the right professional.

How do you feel now?

- Confused?
- Overwhelmed?
- Discouraged?
- Challenged?
- Ready to go for it anyway?
- *All of the above?*

You must be an entrepreneur!

Thank-You