

## Creamery Planning Guide

Whether you plan to make cheese, yogurt, butter, ice cream or fluid milk, starting up a milk processing plant is no simple undertaking. There is a lot of work that goes into starting a plant, all in the name of food safety. Each state has a different set of requirements. The number ONE thing you can do to help yourself is learn those regulations. In addition to the state requirements, the USA following the Grade A Milk PMO:

<https://www.fda.gov/media/114169/download>

When you learn your regulations, then you know what you can and cannot do. You become a safer operator and thus create a safer product. You also make the start-up process quicker and easier for yourself and your inspector.

This is a basic guideline posing questions that you need to answer to develop your plan and will need to provide your inspector with. Note, this is not state specific, you should research your state/local regulations for additional requirements.

### First questions to ask yourself:

What product do I want to make or at least start with? What capacity do I want to start at and do I have the budget and man-power to start at that capacity? Where will I sell the product? What products are in demand in my area? Who is my competition and how will I differentiate my product?

### Next Questions:

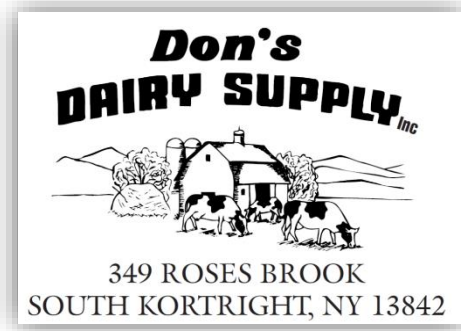
Where will I build my facility? If on-farm, where is that in relation to my animals, the manure pit, how does the wind blow? If off-farm, how will I transport the milk?

What equipment do I want to start with? There are many different equipment manufacturers for milk processing. Do your research on which brand is best for your product, budget and needs. Many are 3-A certified by the 3-A Sanitary Standards or 3-A approvable. You want this type of equipment for Grade A processing. Be careful with foreign brands that are not the same standards as the US. You can become familiar with 3-A standards here [www.3-a.org](http://www.3-a.org)

### Questions to answer about your facility:

Construction of your structure: must have easily cleanable walls and ceiling, impervious, sloped floor with trapped drain, and good water-proof lighting.

Will you filter the air coming in or have an exhaust fan? Hot water washing creates a lot of condensation, will you opt for a window AC or wall mounted heat pump?



Where will your bathroom be in relation to your processing room? Plants are required to provide a bathroom but that bathroom cannot open directly to your processing room. The PMO does not state the bathroom has to be in the same building, however some inspectors do require this.

Where and when will you test your milk? The PMO requires drug residue testing (Appendix N). You will need a clean, well-lit area to test your milk before you can process, where will you do this? Some states require a separate room for a lab, others don't.

How will you receive your raw milk? Will you pump it directly from your milk house? If you receive your milk in cans, where will the receiving area be and it is clean, without risk of contamination? If you transport the milk with a bulk tank, where will your port be and how will you wash the tank? Transport tanks are required to be washed in a covered area.

Dry and Cold Storage are essential components of a plant, where will be they in relation to your processing? If they are not in the same building as your processing, how will you transport them to avoid possible contamination? What will your shelving consist of? Consider the type of product you wish to make and what it will be packaged in, for plastic bottles you will need a lot of space, for glass you will need more space, and a bottle washing and receiving room.

Water supply- what type of supply do you have and is it enough water? Consider a water treatment to lower risk of water pathogens. What is required by your state for testing water?

Septic or waste water- where will you connect the waste water? Will you have a leach field or connect to an existing manure pit? For a leach field, what direction will it be in relation to your processing room and what size will it be? Depending on the product you make- you may need a grease trap. Some small ones are under sink, larger ones are in the ground.

When and where will you label your product? Depending on the type you may label bottles before filling or after packaging (such as cheese) and you will need a clean, dry area to do this without risk of contamination.

How will you change to enter your plant? The PMO requires clean boots, clothing and hair nets. You will need a small changing area outside of your processing room for a hygienic transition. Will you keep a locker or cabinet?

How will you make your product? There are thousands of different types of dairy products and several different ways to go about making all of them! Starting to make your product in your own kitchen is good practice for what is to come so you become familiar with the product that you will soon be an expert on. For products that require cultures such as cheese and yogurt this is important in learning the steps you take to get a finished product. Knowing these steps in advance will help you with your planning and choosing your equipment. Even for fluid milk, will you make flavors and if so, what will you use for the flavors, etc.

Plant cleanliness is a very crucial component of operation. Everything in a plant must be regularly cleaned and sanitized. Some systems have CIP cleaning and some are manually washed. How will you clean your equipment, how will you do environmental sanitizing and cleaning and how often? What chemicals and brushes will you use to clean and sanitize?

## Writing a procedure manual-

Something often overlooked by people starting up creameries is the enormous amount of paperwork and daily record keeping that comes with food processing. You will need to create a step-by-step guide to everything you plan to do in your plant from entering, to processing to cleaning, to recall plans and safety action plans. It is essentially like writing a really long recipe. There are many resources available for those starting up to learn about following the FSMA (Food Safety Modernization Act) and doing a HACCP (Hazard Analysis and Critical Points) Plan to find and eliminate areas of possible contamination. Cornell Dairy Extension has good resources on their website and many local extensions have resources available to help starting up in this area. Research colleges near you that have dairy programs and you are likely to find good resources. You can also consider hiring a dairy consultant, in fact, some states require this.

A good procedure manual (which should contain your Standard Operating Procedures and Process Narrative) should have A LOT of information in it. It should contain your operating steps for transporting milk to your plant, transporting dry storage, entering your plant, detailed steps for making each product, packaging and labeling your product, transporting and storing your finished product, exact measurements for adding any ingredients in your product. Steps for cleaning all of your equipment, utensils and the plant itself. A list of chemicals and the exact brushes for each along with how and how often you will verify correct dilution rates (like chlorine test strips). There is a lot of information to add. When you are writing your manual, do so with the intention that if you will not be there, someone could read it and make your product exactly as it should be.

Finally, learn your states labeling and expiration date requirements. Not all states have requirements for sell-by or expiration dates but some do. Each state does have requirements on what information needs to be on the label and the state must approve the label before you can use it. Look at as many labels as you can for your competition and be sure your label stands out. Many consumers are not familiar with cream-line milk that is non-homogenized so adding information to your label about the cream is a good idea. Many people use “Shake and Enjoy” or something similar.

Reach out for help if you need it. If your inspector asks for changes or says no or you need this always ask them to cite regulation and put it in writing. The only way to correct something is to learn the regulation in reference to an issue. You will want as much in writing as possible, so that you may reference things later on as there is a lot of information you will be going through!

Enjoy the sweet reward of seeing your own product on the store shelves, on menu's and at the farmers markets!