



THE DAIRY PRACTICES COUNCIL PERSPECTIVES E-NEWSLETTER

2021 Spring Edition



Featured Topic: Considering On-Farm Dairy Processing?

Dairy Practices Council Perspectives on How to Do it Safely and Avoid Common Mistakes.

The Dairy Practices Council is a nonprofit 501(c)3 dedicated to developing and disseminating uniform educational guidelines for proper and improved procedures in the production and processing of milk and milk products under a cooperative effort of industry, educational, and regulatory members. Interested in joining this network of food safety professionals and subject matter experts? Visit www.dairyipc.org for additional information.

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With the rising popularity of farmers markets and consumers desire to know where their food comes from, the interest in on-farm processing of dairy products continues to grow.



Yet, due to milk's perishable nature and ability to grow bacteria, yeast, molds, and other pathogenic microorganisms, proper facilities, pasteurization, processing, cleaning, sanitation, monitoring, and distribution protocols are necessary to prevent food borne illness and death. Plus, financial planning related to equipment/operation costs, quality/food safety assurance costs, and a defined sales, marketing and distribution strategy are important for a viable business. This article will explore key considerations that producers should think about before starting up a farmstead operation.

On Farm Perspective

Dr. Joseph Zulovich, University of Missouri

Creating a facility layout with distinct areas of separation is important for ensuring the health and safety of dairy products produced on farm. Areas for biosecurity in order of degree of cleanliness include: the dairy processing facility, the milk room, the milking parlor, and the animal housing area. For example, the milk room has its own designated area to accommodate milk hauling to balance milk supply. Besides physical separation, air ventilation systems must be used to keep air clean in food grade areas. Personnel foot traffic needs to be limited to each area to avoid contamination issues. As a result, dedicated staff will be required within the different areas. DPC Guideline #014 Clean Room Technology provides ideas on keeping different areas protected from each other.

When switching from the animal grade to food grade, costs of construction materials and maintenance items increase. Understanding the costs of operating your business prior to building is important. For example, water quality for processing needs to be tested on a regular basis to ensure it is adequately clean for cleaning, and sanitizing. Refrigerated storage and distribution can be expensive and reduce profitability. Waste streams vary and require different treatment protocols due to solids and BOD content. For example, waste from the restrooms for employees in a processing facility would require different handling procedures as compared to waste streams from animal housing. Some of these costs are a result of the location of the processing facility being on the farm versus an urban location equipped with water and water treatment facilities. Factoring these costs into your business plan and/or considering alternatives such as shipping bulk milk to a processing/retail facility located in an urban area to help control expenses and maintain margins may be important for the success of your business.

Processing/Plant Perspective

Charles Boeneke, Louisiana State University

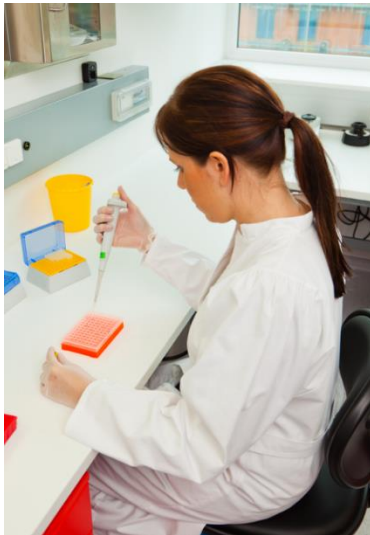
Did you know a 45 gallon vat pasteurizer with the required thermometers, controls, and recording instrumentation can cost over \$15,000? Have you considered that it will take a minimum of 2 hours per day to run one batch of milk through a 45 gallon vat pasteurizer, not counting the time and expense for further processing, packaging, cleaning, and sanitation? Identifying how much milk you plan to pasteurize, and package will impact the amount of time and money you will need to invest into an on-farm dairy processing operation. In addition to equipment, you will need a dedicated food grade processing facility, refrigerated storage, clean and adequate hot and cold water to operate and clean your equipment, trained personnel on Good Manufacturing Procedures, a trained and certified operator for the pasteurizer, proper cleaning/sanitation protocols, a FSMA compliant food safety plan to monitor and minimize risks, a license with your State Milk Inspector, and liability insurance in case of food borne illness. All of these items are important to plan for and cost out ahead of time. If the investment hurdle is too much, you may need to consider using a copacker or purchasing pasteurized milk. DPC Guidelines #091 Conducting and Documenting HACCP, SSOPs and Prerequisites and #100 Food Safety in Farmstead Cheesemaking can help you identify the types of practices, protocols, and testing requirements, to help you develop your operations plan and more accurately calculate operating costs and human resource needs.



Laboratory Testing/Quality Control Perspective

Wendy Landry, HP Hood LLC

On farm processing adds a layer of testing for your source ingredients and finished product. What testing is required to be approved by the State as a producer processor? What finished product testing is required before selling your product? Are you going to set up a testing lab and become certified or do you need to outsource? Consult DPC Guidelines #007 Sampling Fluid Milk and #010 Maintaining and Testing Fluid Milk Shelf Life for additional information and protocols.



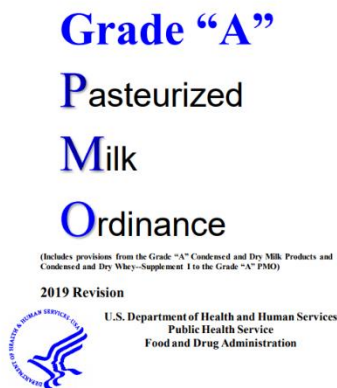
Quality testing can be expensive but to ensure the best quality products, testing is a must. There are many things to consider when beginning the process. Is there enough room at the facility for testing? You will need a clean, well-lit space for testing. It will need to be separated from the barn and milk room. Controlling the environment is necessary for testing equipment to work properly and have accurate results. What testing will you conduct? Will you be testing for just antibiotics or quality tests as well? The cost of the equipment and supplies can add up fast. Thousands of dollars can be spent having a testing area and equipment set up that meets all the requirements of the State and the Pasteurized Milk Ordinance (PMO). Staffing should be taken into consideration, whether it will be yourself or a staff member as there are trainings and certifications to maintain.

Outsourcing of laboratory and quality testing may be a feasible option for most operations starting out. The cost of the testing will certainly be less than setting up your own testing site. The important things to think about are: What tests are you required to have? How often those tests are needed? What kind of shipping is required? and What additional quality testing would you like done on your products? Finding a third party laboratory that will test what you need may take some time. Thinking the process through and working with the regulatory staff in your area will help prevent any delays and minimize challenges that may occur.

Regulatory Perspective

Michelle Steinmetz, WI Dept. of Agriculture, Trade & Consumer Protection

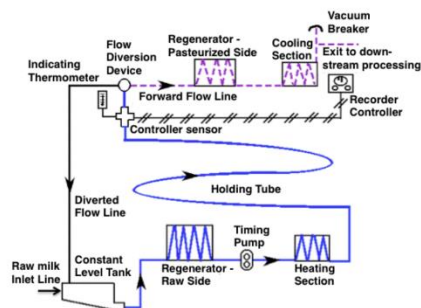
Milk production in the U.S. is regulated through State and Federal government agencies. State agencies conduct on-farm and processing plant inspections and enforcement of their state regulations as well as the Pasteurized Milk Ordinance.



Federally, the Food and Drug Administration oversees state programs and become involved when products are shipped across state lines. State regulatory agencies also review plans, certify pasteurizers, and license processing plants for operation.

When considering an on-farm processing facility, it is important to do your homework before you spend money on buildings and equipment. Start by reading the applicable state regulations, and PMO to better understand the requirements. DPC Guidelines #062 Resources for Dairy Equipment and #090 On-Farm and Small Scale Dairy Product Processing provide additional information on best practices related to construction materials, layout, operation, testing, monitoring of your processing facility.

Involve experts on dairy processing design to give you a clear idea of costs to build, operate, and maintain a facility. Contact University or Extension staff to help draft a FSMA compliant, food safety testing/monitoring plan. Once you have a thorough understanding of what will be required, contact your state regulator to find out what is missing or of concern and to start the licensing process. Catching issues before you purchase equipment/build at a certain location can save a lot of money and headaches later.



Once you have a clear and concise plan, it will need to be submitted and approved by your State Dairy Regulatory agency. Once construction is complete, the processing facility, pasteurizer and other equipment will have to be inspected and licensed by the State Dairy Regulatory Agency prior to producing products for human consumption.

Industry Perspective

Neil Bendixen, Dairy Farmers of America

Public health and food safety is the number one consideration when considering on-farm dairy processing. Equipment must be cleaned completely and effectively every time whether it be during milk storage, milk hauling, or milk processing. Adequate supply of potable hot water, proper equipment installation without dead ends, food grade seals, gaskets and piping, a certified pasteurizer, and Grade A approved chemicals for sanitation are required. Material Safety Data Sheets for all chemicals and a FSMA compliant food safety plan should be on file. Good Manufacturing Procedures must be followed.

Product testing (Bacteriological, Contaminant, Antibiotic, Listeria and Salmonella) on both raw milk and pasteurized product is required on-farm. See DPC Guideline #021 Raw Milk Quality Tests for additional information. Proper sampling, testing, and documentation is the legal and financial responsibility of the owner versus being covered by traditional milk marketing company. This is important because if a foodborne contamination issue occurs, there may be civil and criminal liabilities.

Another question to answer prior to start-up is what will I do with all of milk? If the producer is a current COOP member, you will need to check your current contractual agreement to find out if the COOP will buy the rest of your milk and/or buy all your milk and sell it back to you. If the producer is independent, you may be subject to Federal Milk Marketing Orders unless you can prove otherwise. Because of these nuances, legal professionals with dairy experience should be contacted early on in your business planning process.



Educational Perspective

Joe Horner, Agricultural Economics, University of Missouri Extension

Since many start-ups do not break even for at least three years and working capital is necessary for survival, having a business plan is important to your success. The burden of running a dairy production business at the same time as a dairy processing business can be demanding from both a time and income perspective. Gathering information to make informed decisions prior to building a facility is important. Some common questions to start with are: How will my product be differentiated from the competitors in the display case? What channels will it be sold through? How will it be distributed? What price will consumers pay? How will customers find out about my product offering?

Assessing the marketplace and performing customer discovery one-on-one with at least 100 people can help you determine where customers shop for product, if they would buy your product, and how much they would be willing to pay. These insights will help you more accurately project



what income could be generated. Working with your local business development center or a SCORE professional can help you identify market segment information and create your business plan.

Branding, marketing, packaging, sales, distribution, and promotion are required when launching a new product. Do you have those skills? Will you need to hire someone to do it?

Safety of your product is mission critical. Who will write, implement, verify, and document your food safety plan? Who will train your employees? How will you package and label the product? Do you know the regulations? Shipping, billing, account receivables, sales taxes, etc. require staff with an attention to detail. How many FTEs can your business plan support or will you need to consider a copacker for processing until product sales are more established? These are important questions to address in your business plan to avoid issues and create a safe and sustainable business.

Many organizations and resources exist to help guide you long the way. Check out The Dairy Practices Council, University/Extension Programs, Innovation Center for US Dairy, International Dairy Foods Association, American Cheese Society, Dairy Food Safety Alliance, your State Business Registry/Secretary of State, and/or local business incubation centers for additional assistance.

Final Thoughts

Christopher Hylkema, President of The Dairy Practices Council

As you've been reading, it's important to think about the different needs related to on-farm dairy processing before you buy equipment or break ground on a building. For over 51 years, The Dairy Practices Council, a 501(c)3 nonprofit, has been dedicated to developing and disseminating uniform educational guidelines for proper and improved procedures for the production and processing of milk and milk products.



The Dairy Practices Council is comprised of a broad network of food safety experts with different perspectives (on-farm, processing, lab/QC, regulatory, industry and education) on how to keep people safe from cow to consumer. Consider joining this organization to increase your understanding of best practices and to connect with a network of dairy food safety professionals that can provide information to help you and the industry remain safe and successful.

Visit www.dairypc.org for additional information about the organization, membership, or to purchase the Guidelines recommended in this article.

What Does DPC Membership Mean To You

Rebecca Piston, 2020 Eugene T. Wolff Award Recipient



When I joined the (Northeast) Dairy Practices Council in 1989, I was supervising the laboratories at a farmer owned cheese manufacturer. Having studied Animal Science, Dairy Technology and Dairy Foods Microbiology in college I had a good understanding of milk production and harvesting, and the science behind testing and pilot-scale manufacturing of dairy products but was lacking experience with State and Federal dairy regulations, as well as industrial-scale manufacturing and quality assurance. Through my DPC membership, I got to know and worked with regulatory officials (in a non-compliance setting), as well as professors and industry counterparts, on writing and revising guidelines for the industry. Over the years, we collaborated on topics as diverse as raw milk quality, HACCP, sealing of raw milk tankers, and troubleshooting defects in milk (among many others!) That time spent discussing all aspects of the dairy business, and learning from others, served me well as I advanced my career through multiple companies and positions to my current role as Director of Food Safety at HP Hood. Many of my closest friendships were forged at the Dairy Practices Council, giving me a trusted network of colleagues always willing to talk through a technical challenge or help me understand a regulation. As I took on additional roles within DPC, I honed my professional speaking and meeting facilitation skills. As I've said before, you get out of this, or any organization, what you put into it. I continue to gain knowledge, friendship, and professional skills through the Dairy Practices Council.

Upcoming Events

The Dairy Practices Annual Conference-Pittsburgh, PA November 3-5th

*Learn what's in store for 2022, attend educational sessions/workshops, make new connections as you collaborate on Guidelines, and network with dairy food safety professionals. **Registration begins at www.dairypc.org Sept. 1st*

