

REVIVING THE CREAMERY

## Dairy Processing Equipment

Barbara and Steve Smith

Processing your farm products into value-added goods you can sell directly to the consumer is an excellent way to get additional income from your farm. But setting up such an operation is complex and involves learning about things you never really wanted to know about, like equipment, inspectors and packaging. While we will discuss specifically dairy processing here, many aspects of setting up our business will apply equally to many other types of farm products, from sauerkraut to jam, cider to frozen vegetables. In the first article of this series we gave an overview of how

and why we started our own on-farm yogurt and cheese operation and in the second we focused on marketing your products. We took a short detour last issue to discuss milk quality and what distinguishes our products from the national brands. This time we are going to address some of the aspects of our business that can seem like insurmountable hurdles to the novice, as they did to us several years ago.

It's amusing to remember back to the time when we had a few dairy goats and toyed with the idea of making and selling cheese. To get to that point from ground zero seemed completely overwhelming; so much so that we didn't even know what we needed to know to proceed, or what questions to ask of whom. In this issue, therefore, we will cover equipment, inspections, packaging, and where to get the know-how you need, including a list of useful resources for further information.

Our first barrier was the mystery of equipment. (This is not quite true because we were so vague on the whole thing we weren't even aware that "equipment" was needed.) but assuming you know you will need some equipment, where do you get it and how many fortunes can you expect to pay to get started?

The key to getting set up within your budget is to think through how you will



make what you hope to make, assuming you can answer that already. Then imagine the simplest way you can get the tasks done, even if you suspect your inspector may not allow you to do it that way. Then with a little investigation you can find out if your ideas will fly (by running it by your inspector or the equipment specialist at NYS Ag and Markets) and proceed to hunt down the cheapest used equipment you can find to do the job. To illustrate, the ingenious founders of Meadowsweet Yogurt (not us) used a soft-serve ice cream machine as a filling machine to mix up the yogurt with its flavorings and dispense it into containers. These machines are readily available from dealers of used restaurant equipment and are thousands of dollars cheaper than the official filling machines used in the industry. Another example: at the Cornell Dairy Plant they use a stainless steel pitcher to fill their pudding quart containers by hand! Talk about low tech!

One of our pet peeves is well-intentioned extension agents, equipment dealers, or inspectors advising folks to spend thousands and thousands of dollars on new dairy processing equipment, some of which is being designed specifically for small scale dairy processors at an outrageous price! There is no single correct configuration for your dairy processing equipment.

Many automated tasks can legally be done manually and vice versa. It is wise, within reason, to start simple, manual and cheap, and automate gradually as funds allow. Visiting other small dairy plants, even the Cornell Dairy Plant, may give you ideas. Dave Brown, in Cornell Dairy Sciences, is knowledgeable about adapting operations for small plants and has been helpful to us. Generally, if you can ensure sanitation, you can do things by hand—stirring, filling, packaging, cutting, wrapping, etc. For example, bottling and capping of pasteurized milk can be done manually.

As far as actual sources of equipment go there are many possibilities. Several companies in the region specialize in used dairy equipment, (we have used one as far away as Wisconsin), and names can be found in the backs of dairy maga-

zines such as *Hoard's Dairyman*. Again Cornell may be helpful as they have a vast storeroom of small dairy equipment that they have used in the past and may be willing to part with. (The same is true for any University with a dairy plant.) Inspectors may provide leads since they know where all the equipment either currently or recently in use is located. Ads in farming magazines (such as *Organic Farms, Folks and Foods*) and *Pennysavers* may yield results, in addition to contacting cheesemakers etc. in the region. Outdated equipment such as a butter churn may be in someone's barn just waiting.

To give you an idea of cost, from our own experience, and that of friends, you can expect to pay much less than \$10,000 for a pasteurizer and another couple thousand for the hot water system and installation. We acquired our 100-gallon pasteurizer for \$500 from a local cheese company that was selling out and then paid \$5000 for installation. Our 100-gallon cheese vat (still uninstalled because we just make cheese in our pasteurizer for now) was \$800 from another cheese company that was changing hands. Similarly we've picked up stainless steel tables, sinks, a milk pump, filling machine for the yogurt containers, cheese moulds, etc. but the key to getting good deals is pa-

tience! Keeping your eyes open and gradually accumulating useful pieces over time is much more economical than purchasing under pressure.

After equipment acquisition, our second most mystifying subject was inspection! We said to ourselves "Oh. We can't sell cheese. You have to be inspected to do that!" as if that closed the door on the subject as far as we were concerned. We now know that being under inspection is doable and can be useful to you in pointing out potential problems in your operation and in keeping you on your toes. All dairy plants in NY must be inspected by NYS Dept of Ag and Markets. It is important to find out who your inspector will be and to involve him/her in your plans right from the beginning. Not only do you begin to get to know each other that way, but it can save having to undo or redo work that you later find out must be done in a different way. In particular be sure the inspector inspects any used equipment you are looking at BEFORE you buy it. If the equipment is not local the inspector can use the inspector network to have a colleague check it out. We once had to return a milk pump we purchased from Wisconsin because we failed to do this and it turned out the pump was not dairy approved, even though it was called a "milk" pump!

While the increased number of inspections required to have (approximately monthly) can be annoying, it is our experience that in general the inspectors can be helpful and supportive and are trying to ensure the safety and success of your business. A copy of the regulations can be obtained from NYS Dept. of Ag and Markets, but basically it all boils down to: everything must be washable and sanitary (walls, floors, surfaces, equipment etc.); and on a farm your processing rooms may not open directly into areas where animals are kept or pass by (i.e. no direct entry from the barn to the plant). Inspectors should also be consulted about packaging, because what is written on your labels must be pre-approved by Ag and Markets. So be sure to call them and maybe send copies of your proposed labels.

Another fuzzy area for us was packaging! How did folks get those nice containers for their products with all the printing on them etc? We assumed this was something only large companies could do, or maybe you had to own and operate your own plastics company on the side! There are in fact many plastics companies to choose from and all will print whatever you ask them to print on containers for you. If you want printed containers there is a minimum order (unprinted, the minimum is very small) and most companies also have art departments to help with design or colors for a fee. (Or you can use Growers' Discount Labels who will design and print paper labels to stick on your containers.) We found that a clever way to identify plastics companies is to look at the bottoms of containers you see that might suit your product. The name of the plastics company is written there and they can then be looked up on Internet or at a public library.

And finally we come to what is in fact the most important part of your whole business, which is how to obtain the know-how to make your product(s) in the first place. We were lucky enough to buy the know-how when we bought Meadowsweet Yogurt Company. The recipes that had been tested through 15 years of production were placed in our hands and we were ready to roll. With the cheese it has been different. We had to learn cheesemaking

from scratch, first through several years of reading and experimenting in the kitchen, and then through a 3-day cheesemaking course offered by the University of Guelph in Guelph, Ontario. We have found cheese recipes on Internet; in used book stores (ancient dairy science books from Cornell); in a handy beginners' book called *Cheesemaking Made Easy* by Ricki and Robert Carroll (available from New England Cheesemaking Supply); and mostly in a few excellent current dairy science textbooks from the US and Europe. The kitchen experimenting was vital, but the course in Guelph gave me confidence as a cheesemaker and also allowed me to ask many questions that we've been accumulating. There is also a cheesemakers' egroup called Artisan Cheesemakers-L that is interesting, though most of those folks are not selling commercially. More helpful resources are *Small Dairy Resource Book* by Vicki Dunaway, and a new journal for small-scale dairy processors called *Creamline*, also edited by Vicki Dunaway (P.O. Box 186, Willis, VA 24380).

We hope this conversation has helped de-mystify some of the steps involved in starting a dairy processing (or we should say farm-product processing) business. It's just a matter of tackling one subject at a time and asking lots of people lots of questions and you'll be on your way to providing your local customers with superior-quality dairy products!

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