2010 Farm Walk Program
Education for Farmers by Farmers

Black Sheep Creamery Farm Walk
April 26, 2010

Presented by
Tilth Producers of Washington and
WSU Small Farms Program

www.tilthproducers.org
http://smallfarms.wsu.edu
Monday April 26 – Black Sheep Creamery, Chehalis, Sheep Dairy, Farm Emergency Plans and Agencies - 12:30pm-4pm, www.blacksheepcreamery.com, Paid pre-registration required

Monday, May 10th – Hedlin Family Farm, La Conner, Row Crop Production, High Tunnel and Greenhouse Cropping, Succession Planning - 12:30pm-4pm, www.sustainablenorthwest.org/stories/hedlin-family-farm


Monday, June 7 – Tonnemaker Hill Farm, Royal City, Orchard Diversification and Organic Transition, Fresh Market Vegetables - 12:30pm-4pm, http://tonnemaker.com

Wednesday, June 16 – WSU Field Day and Organic Farm, Pullman  Wheat Variety Trials & Organic Diversified CSA Farm - 9am-3pm, www.css.wsu.edu/organicfarm, farm Walk is free, pre-registration required for lunch

Monday, July 26 – WSU Field Day and Organic Farm, Puyallup, On-Farm Mock GAP Certification Process - 12:30pm - 4pm, www.puyallup.wsu.edu/soilmgmt

Monday, September 6 – Manuel Mendoza Orchard, Quincy, Apple and Cherry Orchard, Latino Landowner Challenges and Opportunities - 12:30-4:00pm, http://www.tilthproducers.org/ManuelMendozaOrchard.pdf

Monday, September 27 – Filaree Farm, Omak, Biodiversity, Cooperative Marketing Model, Seed Saving - 12:30pm-4pm, www.filareefarm.com

Monday, October 11 – Boistfort Valley Farm, Curtis, Low Input Season Extension, Organic Row Crop Production - 12:30pm-4pm, www.boistfortvalleyfarm.com, paid pre-registration required

Thursday, November 11 – Pre-Conference Farm Walk – Stay tuned for details.
Tilth Producers Annual Conference, Fort Worden, Port Townsend, November 12-14, 2010
FARMER-TO-FARMER: PASSING ON THE WISDOM
2010 Farm Walk Education Series

Sponsored by the WSU Small Farms Team (smallfarms.wsu.edu)
and Tilth Producers of Washington (www.tilthproducers.org)

Black Sheep Creamery
Brad and Meg Gregory
PO Box 293
Adna, WA 98522-0293

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Farm Walk Evaluation Form…
Please fill out and leave at the site
THANK YOU!!!
Black Sheep Creamery:
Fine Hand Crafted Sheep Milk Cheeses
Brad and Meg Gregory

Brad and Meg Gregory and their three sons own and milk about 70 ewes on their farm in Western Washington. The ewes are a mix of several milking breeds, primarily East Freisian, Rideau-Arcott, and Lacuane. They are a healthy lot and are on pasture as much as the weather permits. They eat some grain in the milking parlour but are not given hormones or routine antibiotics. Brad and Meg have been selling cheese since 2005, and they have gained national recognition.

OUR MISSION
The cheeses produced by the Black Sheep Creamery are hand made on our farm from the milk of our Rideau-Arcott and East Freisian sheep. Brad is the main cheesemaker and the whole family helps in many ways. We went to Idaho to get our first three sheep in 2000. Our second son had a sensitivity to cow milk but was able to tolerate sheep milk. The first three ewes were named Flopsy, Mopsy and Rattail. A “rat tail” is a tail that is not woolly, it is covered with hair and is typical to the East Freisian breed of sheep. We had seven lambs our first year and our son did quite well on sheep milk. The second year with five additional ewes there were 15 babies and a lot of milk. Our son drank well and the freezer was well stocked so we began to make cheese in the kitchen. The next year there were 25 lambs and we began to make moves to become a Grade A Dairy. We received our Grade A Dairy license in August of 2004 and our Food Processors license, for the cheese room, in March of 2005.

OUR FARM
We have lived on our farm since May 1993. It is a wonderful old farm along the Chehalis River in Lewis County, Washington. Originally it was settled by a German immigrant who bought the farm, built the barn, found a wife, and then had to build a home for her to move into. We purchased the farm from that immigrant's son when he was 92 years old. He visited us as often as his health would allow him to until he was 97 years old. He sold the place to us with the understanding that we would be farming the piece of land he had lived on all but two years of his life. We miss him and his stories!

Originally they grew hops here. There was a rich hop industry in the valley, but time and pests changed it into other rotations. Two of the three sons of the first settler had a cow dairy here until the 70's when one brother passed away. Since then it has been planted with wheat, peas, sweet corn, barley, grass seed, and hay.
When we moved here, we had planned to grow crops for a local IQF processing facility (frozen and canned vegetables). We grew corn and peas. We also grew some wheat, barley, and fescue grass seed. That left us a lot of straw and hay to sell as well. Then along came our need to produce an alternate source of milk for our son. We purchased our three original ewes from some folks in Idaho and have slowly expanded the operation.

**OUR FAMILY**

Brad is a Manufacturing Engineer by degree. He has worked several jobs and learned several skills that led to converting old cow dairy facilities to a very fine sheep dairy and cheese processing plant. All the machines work well and the plant has a very good flow. Meg has a degree in Nutrition and Nursing. Her first desire way back when she went to college was to major in Business and Home Economics in order to open a restaurant. After many years in various roles and jobs, mostly in the Public Health field, she has finally realigned with that dream. Their three sons help out on the farm. Sometimes it is fun and sometimes it is work, and we do hope and pray they will learn the benefits of hard work and always make it fun.

**OUR CHEESE**

The Mopsy's Best, as always, has two or three flavors that wake up and roll over your tongue and hit you once again just when you think you had enough. Qeso de Oveja, new in 2007, has been wonderful. It is a Spanish recipe and has a nice sharp flavor and a very mellow finish. The Black Sheep Tomme has a very nutty twist. We age this cheese 5 months. It needs the time to mellow. It is wonderful cut thin and cherished with a good Syrah or grated over soups or noodle dishes. Tin Willow Tomme was a hit from the 2008 milking of Terry and Doug (and Dexter) at the Tin Willow Farm in Lexington, Oregon. The milk brings a wonderful grassy and sage flavor to the cheese. It takes on a whole different nature than the Black Sheep Tomme from our pastured animals. The new cheese in 2009 was a Fresh Pecorino and it returns in 2010. The Aged Pecorinos, or Pecorino d' Adna, will be available at Christmas-time. This aged nutty flavorful cheese is worth the wait. We also have Feta which took third place at the 2009 American Cheese Society Contest in the sheep milk feta division. This one will also return in 2010.

**OUR SHEEP**

Our sheep are generally grass fed on our land. We are currently milking Rideau-Arcott and East Friesian sheep, and we have recently acquired a Lacaune ram. The milking sheep receive grain in the milk parlour. The only routine treatment we administer is a tetanus vaccine each year. They happily run to pasture each morning and then eagerly run home in the evening to receive grain and be milked. It is a joy to watch them come up the back stretch from the pasture as they are usually running all out. They like to be the first one in line...greedy sheep make good dairy sheep.
THE FLOOD

In 2007, we were taken by surprise as the Chehalis River rose to record heights. Our farm was completely inundated by the quickly moving water. We lost 75% of our flock to the flood waters and scooped muck and debris out of our home and barns for weeks. An outpouring of support came in the wake of the flood. We had cleaning parties of 30 people show up, Beecher’s Cheese of Seattle offered to cave any of our remaining cheese, and our surviving animals were immediately taken to dry and safe barns in the community. The experience has led us to develop an animal evacuation plan, and we feel we could evacuate our animals and family to safe ground in a little over an hour.
**Pesticide Disclaimer**

Documents included in this packet may contain information regarding pesticides used in states other than Washington. It is the responsibility of the reader to determine whether those active ingredients or pesticide products are registered for use in Washington State.

Readers are reminded that all pesticide products, including products certified for use in organic production systems, must be registered by the Washington State Department of Agriculture's Pesticide Division in order to be legal.
Small Farm & Direct Marketing Handbook

Regulations and Strategies for Farm Businesses in Washington State

To receive additional copies of this handbook, contact:
WSDA Small Farm & Direct Marketing Program
P.O. Box 42560
Olympia, WA 98504
(360) 902-1926
smallfarms@agr.wa.gov

Or download from the WSDA Website:
http://agr.wa.gov/Marketing/SmallFarm/directmarketinghandbook.aspx
The sixth edition of this handbook was prepared by Patrice Barrentine, Colleen Donovan and Fred Berman.

To receive additional copies of this handbook, contact:
WSDA Small Farm & Direct Marketing Program
P.O. Box 42560
Olympia, WA 98504
(360) 902-2057
smallfarms@agr.wa.gov

Or download from the WSDA Web site:
http://agr.wa.gov/Marketing/SmallFarm/directmarketinghandbook.aspx

AGR PUB 200-056 (R/1/10)

Do you need this publication in an alternate format? Contact the WSDA Receptionist at (360) 902-1976 or TTY Relay (800) 833-6388.

Note: The information included in this handbook is current at the time of publication. However, laws and regulations can change frequently. Please refer to the contacts listed for the most up-to-date information on requirements and fees.

This handbook was made possible by a Community Outreach and Partnership Assistance grant from USDA Risk Management Agency (RMA). www.rma.usda.gov/
In Washington State, most dairies that do direct marketing are independent businesses. The typical dairy has a small, often multispecies herd and milks by hand or mechanically. In Washington milk is legally sold raw and pasteurized; homogenized and non-homogenized. Some dairies do both milk and cheese. Additional niche products such as yogurts and kefir are also emerging. Producers are selling cow, goat, sheep or other milk directly to consumers from the farm, at farmers markets, on the Internet, and through retail grocery stores. Navigating the regulations on milk and dairy products can be a challenge.

This fact sheet covers:
- support from WSDA Food Safety Program;
- Milk Producers License;
- Milk Processing Plant License;
- Interstate Milk Shippers Program;
- Milk Hauler’s License;
- pasteurized fluid milk sales;
- retail raw fluid milk sales;
- wholesale raw fluid milk sales;
- dairy animal health requirements; and
- cheese, butter and other dairy products.

**Support from WSDA Food Safety Program**

The WSDA Food Safety Program provides one-on-one technical assistance for dairy farms and milk processing plants to help you produce safe dairy products. Milk is a potentially hazardous food product because of its ability to support pathogen growth. It is important to reduce the risk of unintentionally contaminating your milk product.

The WSDA Food Safety Program helps you reduce risk by advising you about your milking parlor and milk processing plant design layout, construction materials, approval of equipment you are seeking to purchase, heating and cooling procedures, evaluation of your water source and cross-connections, and food science techniques for preventing cross-contamination from the farm to your milk processing plant, labeling of dairy products, as well as the application process for your license.

**Milk Producers License**

A "milk producer" is defined as a person or organization that operates a dairy farm and provides, sells, or offers milk for sale to a milk processing plant, receiving station, or transfer station. All milk producers are required to get a “Milk Producers License.” This is an annual license and is free. For more information, please review the Milk Producers Handbook online at http://agr.wa.gov/FoodAnimal/Dairy/docs/milkproducershandbook.pdf or call Food Safety for a copy.

**Milk Processing Plant License**

A "Milk Processing Plant" is defined as a place, premises, or establishment where milk or milk products are collected, handled, processed, stored, bottled, pasteurized, aseptically processed, or prepared for distribution, except an establishment that merely receives the processed milk products and serves them or sells them at retail.

A milk processing plant must obtain an annual Milk Processing Plant License. Under this license, a milk processing plant may choose to process (1) Grade A milk and milk products, or (2) other milk products that are not classified Grade A. Please note that the licenses are only valid for the physical site address noted on the Milk Processing Plant license. They cost $55.00 per year.
The Milk Processing Plant License covers only those products, processes, and operations specified in the license application and approved for licensing by WSDA. When a licensed processor wishes to add another type of milk product that is different than the products specified on their license, the licensee must submit to the WSDA Food Safety Program, a licensing amendment stating the type of product along with the processing steps, and a copy of the label.

All milk-processing plants must obtain the necessary endorsements (which verify approval) from WSDA in order to process products as defined for each type of milk or milk product processing. This may include the need for on-site approval of new equipment and facility design by the local Food Safety Officer.

Licensed Milk Processors are not required to obtain a “Food Processing License” unless they also manufacture non-milk products such as non-dairy creamers, bottled water, juice drinks, etc. Only one licensing fee will be charged when a Milk Processing Plant also manufactures food products. (See RCW 15.16.051 and RCW 69.07.04.)


**Interstate Milk Shippers Program**

Grade A Milk and Milk Products that are to be sold in interstate commerce (out of state) must be participants of the Interstate Milk Shippers Program (IMS). Participants must meet all applicable federal requirements such as the code of federal regulations (CFR) chapter 21. Producer milk that is shipped to an IMS listed facility must meet all IMS requirements even if they also ship milk to a milk processor NOT directly involved in the IMS program. Contact the WSDA Food Safety Program for more information regarding the IMS program and requirements.

**Milk Hauler’s License**

A “Milk Hauler” is defined as a person who transports milk or milk products in bulk to or from a milk processing plant, receiving station, or transfer station. The annual Milk Hauler’s License is free and the application is available online at http://agr.wa.gov/FoodAnimal/Dairy/DairyLicense/Form2042.pdf or by calling the Food Safety Program.

**Pasteurized Fluid Milk Sales** (retail and wholesale)

Pasteurized fluid milk processed by a licensed WSDA milk processing plant can be sold direct to consumers and through all food distribution channels in Washington State and out of state. However, if you want to sell out of state, see Interstate Milk Shippers Program (IMS) above.

**Retail Raw Fluid Milk Sales**

Raw fluid milk produced by a licensed WSDA milk producer and bottled at that farm’s licensed milk processing plant can be sold direct to consumers from the farm, at farmers markets, on the Intranet, or through grocery stores within Washington State. Interstate sales are prohibited.

Raw milk sold in Washington State must bear the following labeling as required by state law (RCW 69.04 and WAC 16-101-990):

- Identification of the product, including the word “Raw” in clear lettering;
- Name and place of business of the producer or packager;
- The quantity, weight, and grade of the milk;
- The words “WARNING: This product has not been pasteurized and may contain harmful bacteria. Pregnant women, children, the elderly and persons with lowered resistance to disease have the highest risk of harm from use of this product.”

When selling raw milk, a sign must be posted near the product that states: “Warning: Raw milk or foods prepared from raw milk may be contaminated with dangerous bacteria capable of causing severe illness. Contact your local health agency for advice or to report a suspected illness.” (WAC 246-215-051)

**Wholesale Raw Fluid Milk Sales**

Raw fluid milk produced by a licensed WSDA Milk Producer can be sold for further processing to a licensed WSDA milk processing plant, food processor or animal feed processor.

**Dairy Animal Health Requirements**

It is illegal to sell or deliver milk or milk products produced from diseased mammalian animals. All milking mammals must meet the animal health requirements established by the state veterinarian (RCW 16.36). In particular:

- Mammalian animals showing chronic mastitis are not allowed to be part of the milking herd.
- Raw milk intended to be consumed in the raw state must come from a herd that has tested negative within the previous 12 months for brucellosis, tuberculosis and other diseases designated by the state veterinarian.

Animals must be tested yearly thereafter to assure their health. Additions to the herd must test negative for the diseases within the previous thirty days before introducing them into the herd.

**Cheese, Butter and Other Dairy products**

Dairy farms wishing to process cheese products, butter, and/or other dairy products must obtain a Milk Producer License and a Milk Processing Plant License from WSDA. A Milk Producer License is only needed when animals are being milked. A food processor that is buying milk from a farm to make cheese does not need a Milk Producer License.

Cheese can be processed from pasteurized milk or raw milk. If processing cheese from raw milk, the cheese must be aged at not less than 35°F for at least 60 days.

Other value-added dairy products (e.g. chocolate milk, buttermilk, egg nog, yogurt) can only be processed from pasteurized milk.

Licensing application packets and help are available from the WSDA Food Safety Program at [http://agr.wa.gov/FoodAnimal/Dairy](http://agr.wa.gov/FoodAnimal/Dairy), or by emailing foodsafety@agr.wa.gov or calling (360) 902-1876.

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**Recommended Fact Sheets:** Food Processing, Insurance, Licensing

For further assistance or to make suggestions on how to improve this fact sheet, please email smallfarms@agr.wa.gov or call (360) 902-2057 or (360) 676-2059.
Dairy farmers can add value to their milk by processing and marketing their own products, such as cheeses, yogurt, butter, ice cream, and farm-bottled milk. Many consumers are willing to pay a premium for locally produced, high-quality, farmstead dairy products; organic certification may further enhance the market potential.

Developing a product line, production facilities, and a niche marketing strategy will take time, money, and commitment. It is unlikely that the enterprise will be profitable in the first three to five years. Additional skills beyond producing milk will be required. Here are some basic questions dairy producers need to ask themselves before they get into processing and marketing:

• Do I have the resources to do this?
• Do I really want to do this?
• Do I have the experience, people skills, and information to do this?
• How much profit potential is there with this enterprise?
• How will I market the product and what is the customer base available?
• Do I have the financial resources needed to support this enterprise during the start-up period?

Regulations

Dairy food processors—including small farms adding value to their own dairy commodities—are subject to a dizzying array of state and local regulations and inspections. Aspiring processors should check carefully with regulatory authorities for specific requirements during the planning stages of the enterprise, and once again as the equipment is ready to be installed. Some states may have training requirements for persons intending to process dairy food products.

State and local regulatory agencies have primary responsibility for enforcement of sanitation requirements on dairy farms and at dairy processing plants. Producers must contact their Department of Agriculture (Department of Health in Arkansas) for specific regulations and requirements before proceeding with any other steps. The National Association of State Departments of Agriculture has a directory at <http://www.nasda-hq.org/nasda/nasda/member_information/gen_main.htm>. A more general listing of all state and local regulatory agencies by state is available at the FDA’s Directory of State Officials 2001 at <http://www.fda.gov/ora/fed_state/directorytable.htm>.
Law professor Neil Hamilton's 235-page *Legal Guide for Direct Farm Marketing* is a good source of information about laws on marketing products directly to consumers and to retail and wholesale buyers. It was written to address producers’ questions about the legal aspects of direct farm marketing. The book provides many contacts and resources across the U.S., including state and federal inspectors, organizations, and others. The cost of the book is $20.00. To order, contact Drake University Agricultural Law Center, Des Moines, IA 50311, (515) 271–2947.

**Organic Milk**

At the time of this writing, the National Organic Program (NOP) is scheduled to begin implementation of the Final Rule for national organic standards in September 2002. As of this date, any producers seeking initial certification will have to comply with the requirements of the Final Rule. Producers who are already certified (by an agent that has received USDA accreditation) will have to achieve compliance with the NOP standard at their next annual inspection. For additional information on organic certification, request ATTRA's *Organic Certification & The National Organic Program* or visit NOP's website and review the Final Rule’s standards for organic dairy production at [http://www.ams.usda.gov/nop/nop2000/nop2/finalrulepages/finalrulemap.htm](http://www.ams.usda.gov/nop/nop2000/nop2/finalrulepages/finalrulemap.htm).

Demand for organic milk and milk products continues to grow nationwide. The *Organic & Natural News* article "Return to the Golden Age of Dairy" (1) states:

> According to SPINS/ACNielsen, the organic dairy industry has experienced tremendous growth in almost every category it tracks. Organic milk gallons have taken the gold medal with a 148.8-percent increase in the 12 months ending July 2000 compared to the previous year. Other categories have made incredible leaps as well. Sales of organic cottage cheese and ricotta have risen 53.58 percent with packaged organic cheese, organic butter and organic sour creams trailing closely behind; all posted increases in the 30-percent range.

The growing demand for organic dairy products is driven primarily by consumers' belief in the higher quality and safety of these products, and their awareness of the positive environmental, animal welfare, and ethical impacts of organic agricultural practices. Many are concerned about the use of antibiotics and of rBST (recombinant bovine somatotropin), a genetically engineered Bovine Growth Hormone that is injected into an estimated 30 percent of lactating cows in conventional dairies. These are some of the reasons why consumers choose organic dairy products despite higher prices (2).

Organic milk comes from cows that are not given any hormones, antibiotics, or pesticides. They have access to open pastures and are fed 100-percent organic feeds—grown in fields that are chemical-free for at least 3 years. Organic milk must be handled separately from conventional milk and never intermixed. Organic milk and milk products must be processed, either on-farm or off-farm, in a certified organic plant.

**Other ATTRA publications that will help you to plan for value-added production and direct marketing:**

- *Adding Value to Farm Products: An Overview*
- *Keys to Success in Value-Added Agriculture*
- *Direct Marketing*
- *Alternative Meat Marketing*
- *Evaluating a Rural Enterprise.*
Sources of Further Information

The state Department of Agriculture is the best source of help and information. The producer will need to comply with state law first; everything else is secondary.

An excellent source of information is the Hometown Creamery Revival Project. This project is funded by the Sustainable Agriculture Research and Education (SARE) program of the USDA and managed by Ms. Vicki Dunaway. The Hometown Creamery Revival promotes on-farm processing as a means of making dairying a sustainable way of life for small farms.

Currently the project produces a quarterly newsletter, CreamLine, and maintains a list of equipment suppliers, events, and links to relevant websites at <http://metalab.unc.edu/creamery/>. A free sample issue of CreamLine is available on request. The subscription cost is $22.00 per year or $40.00 for two years. For more information, visit the project’s website or contact:

Vicki Dunaway
Hometown Creamery Revival Project
P.O. Box 186
Willis, VA 24380
(540) 789-7877 (before 9 p.m. Eastern)
E-mail: ladybug@swva.net

The first major publication of the Hometown Creamery Revival, The Small Dairy Resource Book, is a 56-page annotated bibliography of books, periodicals, videos and other materials on farmstead dairy processing. These resources cover such topics as on-farm cheese, ice cream, butter, and other dairy processing; business and marketing; food safety and feeds; and grazing. This publication is available online at <http://www.sare.org/handbook/dairy>. To order a printed copy, visit <http://www.sare.org/san/htdocs/pubs/> or send $8.00 plus $3.95 for shipping and handling (check or money order) to:

Sustainable Agriculture Publications
Hills Building, Room 10
University of Vermont
Burlington, VT 05405-0082
(802) 656-0484 (to order with Visa or Master Card)

Artisan Cheesemakers Listserv is the original email list for discussing the production, marketing, and history of handcrafted and artisan cheeses, as well as other dairy products. For additional information visit <http://members.xoom.com/cheesemaker/Cheemakers-L.htm>, or to subscribe <Artisan_Cheesemakers-subscribe@yahoogroups.com>.

In March 2000, the Dairy Creamery Listserv was started. This mailing list was created for small, grass-based, traditional dairy farms and for small-scale processors who are pasteurizing and bottling milk, or making value-added products such as cheese, yogurt, cream, or ice cream, and who are selling either on-farm or within their regions. To subscribe to dairycreamery, send email to <dairycreamery-subscribe@yahoogroups.com>.
The April 2001 issue of *Ag Innovative News*, from the Agricultural Utilization Research Institute in Minnesota, did a special series focusing on producer-owned dairy processing. The series of articles included "Bottle at your own risk," "Pasturing for profit," "The milk-fed economy," and "Bittersweet end." These articles focus on feasibility studies showing that the prospects are dim for newcomers to enter the current well-established milk processing and distribution system. However, the studies do show niche marketing opportunities in the natural foods market. These articles are available on-line at <http://www.auri.org/news/ainapr01/contents.htm>.

Many electronic resources are available to those with Internet access (see **Further Resources: Websites** below). Several book suppliers are also listed in the **Further Resources** section.

**References:**


**Enclosures:**


The sale of sheep milk or milk products is often more profitable than selling only lamb or wool. This publication explores the dairy sheep business and helps producers decide whether it is a viable option for their farms. Regulations governing the industry are discussed. Also addressed are production issues, animal health, stock selection, and nutrition issues surrounding dairy sheep. References and resources follow the narrative.

**Introduction**

A prospective dairy-sheep producer faces many potential challenges. First of all, any dairy operation requires a high degree of management skill. Raising dairy sheep involves two production systems—one for sheep and another for milk. People who haven’t done either will need time to learn. Additionally, marketing sheep-milk products is a challenge. While the market for sheep-milk cheese is growing, it’s still very small in this country and remains high-risk.

Production of sheep-milk cheese is a well-developed enterprise in parts of Europe. But sheep milk cheese production in the U.S. was unheard of until about 20 years ago, and is still rare. Some areas of the country lack markets for sheep milk. Still, some producers process the milk and market it directly to consumers.

Most sheep milk is made into cheese, or into products such as yogurt, ice cream, and soap. Prospective producers must invest the time and effort to learn about product development and marketing.

Sheep exhibit a natural ability to efficiently process forage into meat, milk, and wool. To best take advantage of these traits, good grazing strategies must be developed—another area of special knowledge and management skills.

Finally, start-up costs can be high, and it may take several years to show a profit. Outside income or an extended line of credit may be required to subsidize the operation at first.

With all these concerns in mind, certain positives emerge in sheep dairying. A sheep dairy that delivers consistent products in a developed market can be far more profitable than an operation focused only on meat production. Sheep are also easier to handle and less expensive to maintain than cattle. And sheep milk can be frozen and stored for eventual sale as fluid milk or to make into cheese.
Getting Help

As you plan a sheep dairy, explore several sources of information. The University of Wisconsin Cooperative Extension has published an excellent resource, Principles of sheep dairying in North America. This is a comprehensive and up-to-date publication, covering topics such as sheep milk and its uses, choosing a breed, nutrition, milking parlors and equipment, and the economics of raising dairy sheep. This publication can be downloaded from the Web at http://cecommerce.uwex.edu/pdfs/A3767_Sheep_Dairying.pdf or be purchased as a CD-ROM for $20. To order, visit http://cecommerce.uwex.edu/Showcat.asp?id=10.

Another great resource is a publication from the dairy supply company DeLaval, entitled System Solutions for Dairy Sheep. This book covers breeds, handling, feeding, health, and layouts of housing and milking parlors for dairy sheep. For a free copy, contact Tess Wagner at 816-891-1573 or tess.wagner@delaval.com.

The Great Lakes Dairy Sheep Symposium is held each year. The proceedings from these meetings are available at www.uwex.edu/ces/animalscience/sheep/Publications_and_Proceedings/res.html. The proceedings are an excellent resource and include articles from researchers and producers on topics such as new research, new techniques, and practical tips to help producers.

Practical Sheep Dairying, by Olivia Mills, is another resource to explore. It is currently out of print from the U.S. publisher, but may be obtained through interlibrary loan or used book services. See the Resources section for additional publications, Web sites, and contacts.

In addition to exploring these written materials, a prospective producer needs to investigate the market, visit with other producers, and include family members in discussions. The remainder of this publication provides a brief overview of the dairy sheep business to encourage you and your family to consider carefully whether or not the business suits your family and farm goals.

At the end of each section are questions for your consideration.

Getting Started

Before entering a commercial dairy sheep business, carefully consider the following elements:

- availability of labor
- marketing
- processing options
- regulations
- budgeting
- overall economic viability

Have you considered:

- Am I a dairy person?
- Is my family interested in the enterprise?
- Where can I find more information?

Labor

Labor is a major concern. Dairy sheep producers spend mornings and evenings—seven days a week, week after week—feeding, milking, and cleaning up. Do you enjoy sheep enough to meet these demands? Is your family supportive of this level of commitment? Many dairy producers face frustration and burnout after unsuccessful attempts to hire competent help. A family unwilling to help with the business may warrant a less demanding enterprise.

Have you considered:

- Who will do the milking?
- Who will do the farming?
- Who will be in charge of flock health?
- Who will help you? How, and how much will you pay them?
- Who will do construction?
- Who will fix things that break?
Marketing

If labor is available, the next concern is marketing. What product or products do you plan to sell? Is there an unmet demand for that product in your area? If so, what price can you realistically expect to receive? Can you make a profit at that price?

In the case of fluid milk, a prospective producer must first locate a reliable buyer. Judy Kapture, long-time producer and columnist for the Dairy Goat Journal, issues a strong warning to the farmer planning to start a goat dairy, which also applies to those planning to start a sheep dairy.

You are certainly wise to be cautious. I can tell far too many stories about people who used all their money to set up their farm as a goat dairy, and then never did sell any milk. Or their milk market fizzled out within a year... Get in touch with the (the buyer) to find out if they actually are planning to buy more milk. Learn the details—how much milk do they want from a farm, what do they pay for milk, is winter production a necessity, what do they charge for hauling, etc.

Then talk with some of the people who are shipping milk to them now. You want to find out if they feel the pay for the milk is good enough to make the goatkeeping effort worthwhile. (Remember that feed and other costs vary greatly and a “good milk price” in one area may be too low for another.) You may get some surprises when you ask this question... Be cautious about new startups. Sometimes they have a lot of enthusiasm but no idea how difficult it will be to market their milk or cheese or other product in the quantities they need... Are their patrons shipping milk to the buyer now? Talk to them, all of them. Are they getting paid? Is the buyer taking all the milk he promised he would?... How good is the market for what they are planning to sell? (Kapture, 2001)

Consider the same sorts of questions if you plan to process sheep milk into a product. Do you have the labor and expertise to run the dairy and make an additional product? Is there a market for the product in your area? Is the price you can charge for the product enough to make a profit?

Marketing may be one of your biggest obstacles. Because this is an industry in its infancy, there are few established markets.

The biggest demand for sheep cheese is on either coast. As with any other niche product, it takes a lot of effort to develop the market. Some producers are uncomfortable with marketing, while others find it exciting. You may want to read the ATTRA publications Evaluating an Agricultural Enterprise, Adding Value to Farm Products, and Direct Marketing for more information on this essential part of the business.

Have you considered:

- Where and how will you market the milk?
- What is the market?
- Where is the market located?
- How much will you charge for the products? What does the competition charge?
- What kind of advertising will you need?
- What will you use to package? How will you label? What is your logo?

Processing

Some producers choose not to deal with a milk buyer and work to increase farm profits by processing the milk themselves. Diverse products can offer more income and financial stability. These products might include fluid milk, cheese, yogurt, fudge, sheep-milk soap or lotions, sheepskins, or meat.

Cheese is a good alternative to selling milk, particularly if you like direct marketing. It is legal to use raw milk to make cheese if the product is aged at least 60 days before sale. (Dairy Practices Council, 1994) Fresh cheese must be made with pasteurized milk.

Cheese making classes are helpful. But experiment, practice, and sample regularly before trying to market farmstead cheese. You must abide by regulations (talk to your inspector about what is involved). Cheese making resources are discussed

www.attra.ncat.org
in *The Small Dairy Resource Book* (see Resources). Caprine Supply and Hoegger Supply are companies (see Resources) that offer several books about cheese making.

Edible products require a Grade A dairy, a commercial kitchen, and appropriate licensing (contact your state agency for more details). Soap making does not. Soap is non-perishable, easy to ship, and does not require much milk. These advantages make soap an appealing option for small farm enterprises.

Processing beyond bulk fluid milk creates extra demands on sheep farmers. The dairying must still be tended and somehow also the processing, packaging, marketing, delivery, and paperwork. While diversifying products may add stability (not all the eggs in one basket), each new product requires more equipment, labor, storage space, production knowledge and skill, and outlets for marketing. Unless a large labor force is available, too much diversification is unsustainable. “If you try to produce a whole line of products,” points out Tatiana Stanton of Cornell University, “it can make really big marketing demands on you if you are not going to sell them to the same buyer.”

For example, if you are a small producer and are going to sell fudge, soap, and cheese all to the same local food co-op or over the Web, that is one thing. You are going to have to do a lot more marketing if your cheese is going to cheese shops or restaurants, and your fudge and soap to gift shops. You may find in such a case that it is a terrible decision to expand your line. (Stanton, 2002)

The extra constraints of processing and marketing mean less time to spend with the animals. This is a trade-off to be considered. Will you provide the extra labor required, or will you hire someone to process and market the products?

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<tr>
<td>- The kinds of products you are planning?</td>
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<td>- Is the market saturated with this type of product? If it is, why would yours be successful?</td>
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<td>- How much will your products cost to produce?</td>
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**Regulations**

The U.S. Food and Drug Administration (FDA) drafted the Pasteurized Milk Ordinance (PMO) that states only pasteurized milk can be sold as Grade A. Enforcement of this ordinance is under the jurisdiction of state departments of health or agriculture (Zeng and Escobar, 1995). Local requirements may vary. Contact your state inspector early in the process of setting up a commercial sheep dairy. State inspectors may offer helpful suggestions and can assist you to plan and procure FDA-approved equipment. Many producers comment that state inspectors helped them avoid expensive mistakes. Locate the appropriate agency by finding your state on the list of contacts at [http://adga.org/StartDairy.htm](http://adga.org/StartDairy.htm).

Scrapie is a fatal, degenerative disease that affects the central nervous system of sheep. It is of the class of diseases known as transmissible spongiform encephalopathies (TSEs). Other examples of TSEs include Bovine Spongiform Encephalopathy (BSE) or mad cow disease in cattle and Chronic Wasting Disease (CWD) in deer and elk.

There is no clear evidence that scrapie is transmissible to humans, but BSE has been linked to a rare but incurable neurological disease in humans. Therefore concern remains about scrapie’s potential to spread to humans. Negative public perception and the loss of export opportunities have encouraged efforts to eradicate scrapie from U.S. sheep.
Producers are required to participate in the Scrapie Eradication Program. Contact your state veterinarian for details, or go to the National Scrapie Education Initiative Web site, www.animalagriculture.org/scrapie. First contact your state veterinarian to request a premises identification number. For additional information or for help in obtaining a premises ID number, call 866-USDA-TAG (toll-free). You will receive free ear tags with your premises ID printed on them. You must tag breeding animals over the age of 18 months before they leave your farm. In addition, an official Certificate of Veterinary Inspection (health certificate) issued by an accredited veterinarian must accompany breeding sheep that cross state lines (e.g., for show or for sale). (National Institute for Animal Agriculture, www.animalagriculture.org/scrapie)

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<td>• Do you know your inspector? Have you contacted your inspector?</td>
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<td>• Can you comply with all regulations?</td>
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**Budgeting**

Determine economic feasibility before starting a commercial sheep dairy. Many sample budgets are available, but each must be customized to fit an individual farm. Investigate local feed costs as well as the selling price of milk. Other key considerations include cost of building or converting barns, fences, and watering systems. Initial investment in livestock and in milking systems will be a large expense.

Bee Tolman, operator of the Tolman Sheep Dairy Farm, offered advice to prospective dairy farmers at the 8th Great Lakes Dairy Sheep Symposium in 2002.

Do a complete business plan before you do anything else. Include all financial statements in detail. Don’t miss the details—they will be your undoing. And be conservative. I was advised by a goat dairy farmer (who has since folded) to add 30 percent to all budgeted costs. I didn’t. I now know that if I had, my plan would have been far more accurate. (Tolman, 2002)

As Tolman points out, talk to farmers who are currently in the business to ensure that your plan and your budget are realistic. Begin your calculations by taking the following steps.

- **Research the market.** Is there a market? What is the current price for your product, whether fluid milk for processing, cheese, or soap? Is there a strong demand for your product?
- **Estimate production level.** How many ewes do you plan to milk? How productive will they be, on average? (Ask several commercial producers what their flock average is, and be sure to select ewes that can produce enough milk to be profitable.) Be realistic about production and marketing.
- **Investigate costs.** What does feed cost in your area? How much feed do you need to produce the planned quantity of milk? What about buildings, equipment, fencing, hay? You need to project marketing and hauling costs, health costs, utilities, supplies, breeding, and labor. Calculate initial cost of breeding stock, the cost to raise replacements, and build in an extra “cushion” for unexpected expenses. Remember, under-capitalization can doom even a good business plan.
- **Consider labor availability.** Plan for peak seasons such as lambing and breeding, and for processing and marketing.
- **Create a business plan.** Your lender will tell the figures needed; your local Cooperative Extension agent may be helpful. See also the Resources section for help with business plans.

The University of Wisconsin-Madison Center for Integrated Agriculture Systems has developed a budget for sheep dairies. It is an Excel program that allows
you to enter specific numbers. The budget, along with detailed instructions for use, can be found at, www.cias.wisc.edu/archives/2005/05/19/dairy_sheep_enterprise_budget/index.php.

Have you considered:

- A good return on your investment? Is it guaranteed?
- Have you written a business plan?
- Who will keep the records?
- Who will do the accounting?
- What income will you live on the first few years?
- Do you have a contingency plan for when things go wrong?

Production Notes

Selecting Stock

Just as a cow dairy would typically start with Holstein, Jersey, or another breed of dairy cattle, a sheep dairy should begin with a breed of dairy sheep. The East Friesian is the most common breed of dairy sheep. With the importation of half-Friesian rams and frozen semen, there is now percentage breeding stock available in the United States. If you already own a flock, the most economical way to begin a dairy

may be to breed ewes to an outstanding dairy ram, and hold back the best daughters to build a dairy flock.

East Friesian and Lacaune sheep are commonly found in dairy flocks in the U.S. Many producers use various crosses of these breeds with domestic American breeds. For more specific information about dairy sheep breeds, see Principles of sheep dairying in North America and System Solutions for Dairy Sheep (Resources). Yves Berger also has an article, Breeds of Sheep for Commercial Milk Production, that can be found in the Proceedings of the 10th Great Lakes Dairy Sheep Symposium, www.uwex.edu/ces/animalscience/sheep/Publications_and_Proceedings/res.html.

Regardless of the breed, buying stock from a reputable breeder is essential. These people have usually spent several years selecting healthy ewes that milk well. Reputable breeders will produce breeding and health records, and can help you decide which animals are best for your situation.

Have you considered:

- What kind of ewes do you need?
- How many do you need?
- Where will you get your stock?
- Can you visit a reputable breeder and purchase stock?

Friesian sheep. From www.ansi.okstate.edu/breeds/sheep/friesianmilk.

**Nutrition**

Feeding your flock is not simple. Nutritional requirements vary depending on size, age, and stage of sheep production. As ruminants, sheep health and productivity depend on proper function of their complex stomach systems. The rumen is “healthiest” when sheep eat good quality forages, such as vegetative pasture. To get the best milk production from sheep, provide high quality forages. This can be achieved by grazing sheep on appropriate pastures or by feeding hay or silage. For more information about pastures and rotational grazing, see the ATTRA publications *Sustainable Pasture Management*, *Rotational Grazing*, *Paddock Design, Fencing, and Water Systems for Controlled Grazing*, and *Matching Livestock Needs and Forage Resources*. Also check with your local Extension and NRCS agents for information about forage plants that do well in your area.

Concentrates (grain) are often fed to milking dairy ewes to supplement forages and better meet the ewes’ nutritional needs. Careful consideration is necessary when feeding concentrates. To properly meet the nutritional needs of your animals, forages should be tested and the amount of supplement determined based on the quality of the forages available and the feedstuffs used.

Feed a half a pound of supplement per ewe per day for ewes on pasture, recommends Bruce Clement, of the University of New Hampshire Cooperative Extension. (Clement, 2002) His study examined levels of supplement for dairy ewes and dairy goats. The study found no difference in milk yield, milk composition, or animal condition score among ewes fed a half a pound of supplement per day and those fed 1.5 pounds of supplement per day.

The study also found that milk yield and milk composition lowered when 2.5 pounds of supplement per day was fed. The study concluded that dairy sheep on well-managed pastures lactating in the three pounds per day range need no more than a half a pound per ewe per day concentrate supplementation. (Clement, 2002) The article, including the formula for the concentrate, is available by downloading the proceedings from the 8th Great Lakes Dairy Sheep Symposium, 2002, at [www.uwex.edu/ces/animalscience/sheep/Publications_and_Proceedings/symposium%20PDF/Great%20lakes2002%20symposium.pdf](http://www.uwex.edu/ces/animalscience/sheep/Publications_and_Proceedings/symposium%20PDF/Great%20lakes2002%20symposium.pdf) (see page 66).

The best feeding regimen for your animals is found through experience and experimentation with your flock and farm. Regardless of what you feed your ewes, access to clean water is always necessary. Lactating ewes require approximately three gallons of water per head per day. This is the highest water requirement of any class of sheep. (Thomas, n.d.)

**Milking**

Sheep milk production is usually seasonal, with lactation varying from three to eight months, depending on the breed. (Thomas, n.d.) Milk production per lactation period also varies. It can be as little as 100 pounds per lactation for domestic ewes, or as much as 1,100 pounds per lactation for dairy breeds. Crosses between domestic and specialized dairy breeds produce anywhere from 250 to 650 pounds of milk per lactation. (Thomas, n.d.)

Ewes can be milked by hand or by machine. Hand milking is only practical for small flocks. Bucket milking is a popular option in the U.S. There is also the parlor system with a pipeline going into a bulk tank. *Principles of sheep dairying in North America and System Solutions for Dairy Sheep* discuss the many types of milking set-ups and the necessary equipment. There are also many articles about various parlors and methods of milking in the Proceedings of the Great Lakes Dairy Sheep Symposium (see **Resources**).
Sanitary practices are critical, whether hand milking or machine milking. A sanitary environment is vital to the health of your ewes and the safety of the milk. Sanitation requires time and money, but it is time and money well spent. It is cheaper to prevent disease and contamination than to treat it.

A good reference for producers considering a commercial dairy is Small Ruminant Guidelines from the Dairy Practices Council. These Guidelines include a wealth of technical information about the details of setting up a milking parlor, producing quality milk and farmstead cheese, proper handling of wastewater, and much more. The Guidelines are sold separately or as a set; the set costs about $70.00, plus shipping and handling, and is assembled in a binder for easy storage and reference. For more about this resource, see www.dairypc.org, or call 732-203-1194. For a commercial dairy operation, this is an invaluable tool.

Keep production, health, and financial records in order to maintain an efficient operation.

**Production Records**

Accurate records are essential to any good business, including a sheep dairy. Keep production, health, and financial records in order to maintain an efficient operation.

Production records (i.e., how much milk a ewe yields, length of lactation, etc.) help a producer identify the most productive animals. Records also identify animals not pulling their weight. As you consider a purchase, individual production records and those of its relatives offer the best assurance that you have selected a productive animal.

When examining production records, keep in mind that production is naturally much lower during the first lactation. Examine the records for overall production in pounds, length of lactation, and butterfat and protein percentages (if those are important to your operation). Bear in mind that your own management will be a major factor in the ewe’s production on your farm; production records only verify that a ewe has the genetic potential to produce that quantity of milk.

It is also important to keep records of when ewes are bred, when they are due to lamb, the date and type of vaccinations, and the occurrence and specifics of any health problems. Records help you manage your flock and remain the best tool to identify unproductive animals. Elimination of unproductive animals improves the sustainability of your farm.

**Have you considered:**

- How many ewes are you going to milk?
- What type of system/set-up are you going to use?
- How are you going to get the necessary equipment?
- Do you know the requirements you must follow to meet regulations?
- The types of records you will keep?
- How you will keep them—by hand, computer, type of software, etc.?
- How will you process the information the records provide?
- Who will keep and review records?

**Health**

Healthy animals are essential to a productive operation. Acquiring healthy stock and keeping records are ways to maintain a healthy and productive flock. Health problems will arise in any flock, however. In these instances, work with a veterinarian. Find one who knows (or is willing to learn) about small ruminants and who seems compatible with you and with your management style. You may locate a small ruminant veterinarian by contacting the Association of Small Ruminant Practitioners at www.aasrp.org. (See the **Resources** section for full contact information for AASRP.)
This publication provides discussion about a few health concerns of particular concern to dairy sheep producers. Additional pertinent health topics are discussed in ATTRA’s Sustainable Sheep Production and Goats: Sustainable Production Overview. (Goats and sheep share many of the same health problems, including internal parasites.)

**Mastitis**

Mastitis is an inflammation of the mammary gland and may result in reduced production and profitability. It is usually caused by the bacterium *staphylococcus* or *streptococcus*, but it can also be caused by other bacteria or by improper milking machine operation. Symptoms include pain, heat, redness, swelling, and a hard udder. Ewes will not always show physical symptoms of mastitis. A decrease in milk production and an increase in somatic cell counts are good indicators of mastitis. Milk samples can be cultured to determine the organism causing mastitis. *Streptococcus* infections are responsive to antibiotics and are fairly easy to eradicate. *Staphylococcus* infections do not respond well to antibiotic treatment.

Other causes of mastitis may include injury, malnutrition, or a contaminated or malfunctioning milking system. The first line of defense against mastitis is healthy teat skin. The cause of teat injury must be quickly identified and eliminated. Fluctuations in the milking vacuum and improperly designed or improperly functioning milking equipment must be investigated. Mastitis is also linked to diets deficient in vitamins A and E, selenium, and copper. (Pugh, 2002)

**Ovine Progressive Pneumonia (OPP)**

Ovine progressive pneumonia, a chronic progressive pneumonia, is one of the most economically damaging diseases affecting sheep in North America. (Pugh, 2002)

Pneumonia causes losses from sick animals, reduced production, and decreased sales. Signs of OPP include listlessness, emaciation, and difficulty breathing. Nasal discharge and coughing may also be seen. (Pugh, 2002) A vaccine is not available, so the only prevention is to keep animals with OPP out of your flock. This is
accomplished through a blood test (ELISA), which can be conducted at a diagnostic lab prior to purchase. (Pugh, 2002)

Internal Parasites
The control of internal parasites is a major concern for small ruminant producers, especially in humid regions. Control of these parasites is becoming increasingly difficult due to parasite resistance to treatments. Not only are dewormers less effective, but in many cases milk cannot be used during treatment due to drug residues. Therefore, learn to control parasites in your dairy business without relying on chemical dewormers.

Internal parasites are especially a problem in warm, wet climates and in settings where animals are grazed. Control of internal parasites can be nearly impossible where animals graze close to the ground on densely stocked pastures. Therefore, good pasture management (to avoid overgrazing) is critical to the health and productivity of your flock. In addition, several new techniques are aimed at controlling internal parasites without a complete dependence on commercial dewormers. These techniques include Smart Drenching and FAMACHA®. For more information on these and other techniques, visit the Southern Consortium for Small Ruminant Parasite Control Web site at www.scsrpe.org. Be sure to consult with your veterinarian on this issue and on other health problems.

Conclusion
The decision to start a sheep dairy is not an easy one. You probably will not become rich, but if you like sheep, have the markets and an understanding of them, and have the time to build a business, this can be a rewarding enterprise.

There is much more to learn about dairy sheep production, and the Resources section will help you to find more information. Your best sources of information are other farmers; talk to as many as you can, and learn from their experiences.

Have you considered the questions posed to you in this publication? If you can answer all or most of the questions presented, then you are well on your way to starting a successful sheep dairy.

Acknowledgments
Many of the “Have you considered?...” questions were taken from the following.


Have you considered:

- Do you have a veterinarian willing to work with you?
- Does your veterinarian have experience with sheep, or a willingness to learn about sheep?
- Do you have the knowledge to handle minor health concerns?
Northland Sheep Dairy, New York
By Karl North
Pros and Cons of Milking Sheep

It should no longer need arguing that the most sustainable way to make milk is from grass. In some ways sheep are well suited to this sort of dairy farming. They both graze and spread manure more evenly than cows. Milking parlor and other handling machinery is economical because of their small size. All of ours is farm-built. A lactation of less than six months mirrors the grass season length in this [New York] climate, making seasonal dairying a natural. We time lambing for the beginning of grass in May; the lactation ends in early fall, and the flock finishes stockpiled pasture by the end of December.

Sheep milk, mild and unpretentious as mammary products go, nonetheless possesses qualities that become obvious in the processing. The yoghurt is thicker and smoother than cow or goat varieties, without additives. Cheeses do not need the extra butter fat of double and triple creme to come out rich and smooth. Thick milk and fine fat globules are an advantage in fudge-making too. Cooking down, a mix of half maple syrup and half sheep milk becomes a velvety confection.

Now for the disadvantages. Although sheep milk has about twice the solids of cow or goat milk (less useless water to transport all over the country), this hardly compensates for the low yield per milking ewe. Dairy sheep breeds can average three quarts a day or more over a five-month lactation, but like high production Holstein cattle, they force the farm into a high input mode in order to serve their special feed, shelter, and medical needs. We began with ordinary meat sheep—all that were available at the time. After 12 years of genetic selection both for a rustic, pasture-based life and for milk yield, the latter has doubled, but still averages only 1.6 quarts per ewe per day, and that only at the peak of their lactation. The upside of this equation is our success in maintaining our goal for an extremely low input operation. We are currently experimenting with various degrees of cross-breeding with the East Friesian, a dairy sheep of long pedigree in Northern Europe. Our goal is to discover what percentage of Friesian will add to milk yield without upsetting our low input system.

The second main disadvantage of sheep, whether for milk or meat, is the damage internal parasites can do to the health and growth of lambs. Here as elsewhere in farming there is a management solution to replace the chemical quick fix. But it takes a level of organization and development of the forage acreage of the farm that we have attained only in the last two years.

First the main forage fields of the farm must be fenced, supplied with water, cleared of trees and rocks to permit haying, and all must produce a quality of forage suitable for either hay or pasture, and for empty, dry stock or lactating ewes and growing lambs. Then a three-year rotation can be devised that always puts the weaned lambs on parasite-free pasture, by grazing them on fields used only for hay the year before. The main forage fields are divided into three sections, and the rotation proceeds as a given field is used for hay, then weaned lambs, then ewes (with lambs until weaned). Plans for the future are to add enough animal units of another hardy pasture species, like a few Highland cattle, along with our team of Haflinger draft horses, to balance the dairy ewe and lamb flocks, and provide the annual alternation of stock that we need for sustainable pest control in the sheep.

Lastly, although the sheep dairy industry in the United States has barely begun, there are already signs that wholesaling sheep milk may be dogged by the same profitability problems that have plagued cow dairies: forcing unwanted expansion, the use of high production (but also high maintenance) dairy breeds, debt, and a downward spiral of quality of life for the whole farm ecosystem (people, animals, plants, and soil).

To avoid this we planned for on-farm artisanal quality cheese-making and direct marketing of most of our products in a local farmers market. It was an easy decision, for when we started farming in New York we had just come from years of homesteading in France, where just this sort of small, vertically integrated dairy farm, and weekly local farmers’ markets as well, are old traditions. Still, the sale of cheese, lamb, yarn, and tanned skins from a base flock of only 50 ewes barely provides a livable income, and then only because we enjoy considerable self-sufficiency in food (vegetables, meat, and dairy), energy (solar, wood heat, and draft horses), and of course fertilizer.

A younger couple (we are pushing 60) could operate the farm with 100 ewes and bring in a net cash income of close to $20,000 without a great deal more capital investment. But the quality of life is excellent; we are free of much of the cost/price squeeze and resultant debt that is destroying family-scale dairy farming, and we enjoy the diversity of work: milking, processing, marketing, haying and logging mostly with draft horses, sheep and horse husbandry, composting and spreading, sheep dog training, gardening, and building and repairing simple structures and equipment with simple tools. Work gives way to semi-vacation when the grass season ends.

Visit www.geocities.com/northsheep or e-mail Karl North at northsheep@juno.com for more information about his operation.
References

Berger, Y., P. Billon, F. Bocquier, G. Caja, A. Canna- 
America. University of Wisconsin-Extension, 
Madison, WI. 151 p.

Clement, B. 2002. Supplemental Feeding of Dairy 
Sheep and Goats on Intensively Managed Past- 
tures. In: Proceedings of the 8th Great Lakes 
Dairy Sheep Symposium. Cornell University, 
Ithaca, NY. p. 66-77.

Dairy Practices Council. 1994. Guidelines for Pro- 
donction and Regulation of Quality Dairy Goat 
Milk. Publication DPC 59. Dairy Practices 

79, No. 1. p. 17.


Stanton, T. Extension Associate, Department of Ani- 
mal Science, Cornell University. 2002. Per- 
sonal communication.

Thomas, D. Dairy Sheep Basics for Beginners. In: 
Proceedings of the Great Lakes Dairy Sheep 
70–77. 
www.uwex.edu/ces/animalscience/sheep/ 
Publications_and_Proceedings/Pdf/Dairy/ 
Management/Dairy%20sheep%20basics%20for 
%20beginners.pdf

Tolman, B. 2002. Introduction to Dairy Sheep Farm- 
ing—Getting Started. In: Proceedings of the 
8th Great Lakes Dairy Sheep Symposium. Cor- 
nell, University, Ithaca, NY. p. 2.

Zeng, S., and E.N. Escobar. 1995. Grade A Dairy 
Goat Farm Requirements. Langston Univer- 
sity. 8 p. 
www.lurexst.edu/goats/library/fact_sheets/d04. 
htm.

Resources

Contacts

Dave Thomas, PhD
Animal Science Building, Room 438

1675 Observatory Drive
University of Wisconsin
Madison, WI 53706
608-263-4306
dlthomas@wisc.edu

Faculty member at the University of Wisconsin and a valuable contact who has a lot of know-
ledge about sheep dairying, dairy breeds, and the cooperative in Wisconsin.

Yves Berger, PhD
Spooner Agricultural Research Station
W6646 Highway 70
Spooner, WI 54801-2335
715-635-3735
715-635-6741 FAX
ymberger@wisc.edu

Faculty member at the University of Wisconsin and a valuable contact who has a lot of know-
ledge about sheep dairying, dairy breeds, and the cooperative in Wisconsin.

Vicki Dunaway
Hometown Creamery Revival Project
P.O. Box 186
Willis, VA 24380
540-789-7877
ladybug@swva.net
www.smaldairy.com

Vicki Dunaway manages this project. It produces 
CreamLine and Home Dairy News. Dunaway 
has also published The Small Dairy Resource 
Book (see Books).

Carol Delaney
Small Ruminant Dairy Project
UVM Center for Sustainable Agriculture
63 Carrigan Drive
Burlington, VT 05405
802-656-0915
Carol.Delaney@uvm.edu
www.uvm.edu/sustainableagriculture/smallrumi.html

Carol Delaney is the Small Ruminant Dairy 
Specialist at the Vermont Small Ruminant Dairy 
Project.

Web Sites

University of Wisconsin-Extension Sheep 
Department
www.uwex.edu/ces/animalscience/sheep/Publica- 
tions_and_Proceedings/res.html
Wisconsin Sheep Dairy Cooperative
www.sheepmilk.biz

Small Ruminant Dairy Project
www.uvm.edu/sustainableagriculture/smallrumi.html

The Hometown Creamery Revival
www.smaldairy.com

Spooner Agricultural Research Station-
Sheep Dairy
www.uwex.edu/ces/sars/sheep.htm
www.sheepmilk.biz/spooner.htm

Southern Consortium for Small Ruminant
Parasite Control
www.scsrpc.org

National Scrape Education Initiative
www.animalagriculture.org/scrapie

Associations
American Sheep Industry Association
9785 Maroon Circle, Suite 360
Centennial, CO 80112
303-771-3500
303-771-8200 FAX
www.sheepusa.org

Dairy Sheep Association of North America
www.dsana.org

American Cheese Society
304 West Liberty St., Suite 201
Louisville, KY 40202
502-583-3783
502-589-3602 FAX
acs@hqtrs.com
www.cheesesociety.org

American Association of Small Ruminant
Practitioners (AASRP)
1910 Lyda Avenue, Suite 200
Bowling Green, KY 42104
270-793-0781
www.aasrp.org

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Subscription is $25 per year.

Small Ruminant Dairy Newsletter
Small Ruminant Dairy Project
Carol Delaney
UVM Center for Sustainable Agriculture
63 Carrigan Drive
Burlington, VT 05405
Carol.Delaney@uvm.edu
www.uvm.edu/sustainableagriculture/smallrumi.html

Books/Publications
Principles of sheep dairying in North America
Berger, Y., P. Billon, F. Bocquier, G. Caja,
A. Cannas, B. McKusick, P. Marnet, and D.
Cost is $20 for a CD version of the publication.
Order from:
Cooperative Extension Publishing
877-WIS-PUBS (947-7827)
http://cecommerce.uwex.edu

System Solutions for Dairy Sheep
Alfa-Laval. 1981. Alfa-Laval AB, Tumba,
Sweden. 141 p.
No charge.
Order from:
Tess Wagner
DeLaval
816-891-1573
tess.wagner@delaval.com

Proceedings of the Great Lakes Dairy Sheep
Symposium
www.uwex.edu/ces/animalscience/sheep/
Publications_and_Proceedings/res.html
Copies of the 1st through 3rd Proceedings can be purchased from:

Wisconsin Sheep Breeders Cooperative
7811 Consolidated School Road
Edgerton, WI 53534
608-868-2505
www.wisbc.com

Copies of the 4th through 7th Proceedings can be purchased from:

Yves Berger
Spooner Agricultural Research Station
W6646 Highway 70
Spooner, WI 54801-2335
715-635-3735
715-635-6741 FAX
ymberger@wisc.edu

Practical Sheep Dairying

Small Ruminant Guidelines

www.dairypc.org

Cost is $70 for complete set.
Order from:
732-203-1194
www.dairypc.org

The Small Dairy Resource Book

Can be viewed on-line at

Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses

Available for $14.00 + $3.95 S/H by calling 800-909-6472 or e-mailing misamail@umn.edu.

For further ordering instructions or to view the publication, visit http://www.misa.umn.edu/vd/bizplan.html.

The Legal Guide for Direct Farm Marketing

$23.00, including shipping.
Order from:
Karla Westberg
Agricultural Law Center
2507 University Ave.
Des Moines, IA 50311
515-271-2947
Karla.westberg@drake.edu

For more information, visit www.statefoodpolicy.org/legal_guide.htm.

Home Cheese Making: Recipes for 75 Homemade Cheeses

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www.storey.com

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www.westfaliasurge.com  

The Schlueter Company  
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Janesville, WI 53545  
608-755-5444  
608-755-5440 FAX  

The Coburn Company  
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Whitewater, WI 53190  
800-776-7042 (toll-free)  
www.coburnco.com  

Budgets  
University of Wisconsin-Madison Center for  
Integrated Agriculture Systems  
www.cias.wisc.edu/archives/2005/05/19/  
dairy_sheep_enterprise_budget/index.php  

Small Ruminant Dairy Project  
Contact Carol Delaney at 802-656-0915.  
For additional resources, please refer to ATTRA’s  
Small Ruminant Resource List.
Disaster Plan For Pets

Animals enrich our lives in more ways than we can count. In turn, they depend on us for their safety and well-being. The best way to protect your family from the effects of a disaster is to have a disaster plan. If you have animals, that plan must include them. Being prepared can save their lives. Different disasters require a different response. But whether the disaster is a flood, barn fire, earthquake, chemical spill or volcano eruption, you may have to evacuate your home and your city.

In the event of a disaster, if you must evacuate, the most important thing you can do to protect your animals is to evacuate them, too. Leaving animals behind, even if you try to create a safe place for them, is likely to result in their being injured, lost, or killed. So prepare now for the day when you and your animals may have to leave your home.

Red Cross disaster shelters can’t accept pets because of state health and safety regulations and other considerations. Service animals that assist people with disabilities are the only animals allowed in Red Cross shelters. It may be difficult, if not impossible, to find shelter for your animals in the midst of a disaster, so plan ahead. Do not wait until disaster strikes to do your research.

Know What To Do As a Disaster Approaches

Often warnings are issued hours, even days, in advance. At the first hint of disaster, act to protect yourself and your animals.

Call ahead to confirm emergency shelter arrangements for you and your pets.

Check to be sure your pet disaster supplies are ready to take at a moment's notice.

Make sure all dogs and cats are wearing collars and securely fastened up-to-date identification.

Attach the phone number and address of your temporary shelter, if you know it, or of a friend or relatives outside the disaster area. You can buy temporary tags or put adhesive tape on the back of your pet's ID tag, adding information with a permanent marker.

You may not be home when the evacuation order comes. Find out if a trusted neighbor would be willing to take your pets and meet you at a pre-arranged location. This person should be comfortable with your pets, know where your animals are likely to be, know where your pet disaster supply kit is kept, and have a key to your home. If you use a pet setting service, they may be available to help, but discuss the possibility well in advance.

Planning and preparation will enable you to evacuate with your pets quickly and safely. But bear in mind that animals react differently under stress. Outside your home and in the car, keep dogs securely leashed. Transport cats in carriers. Don't leave animals unattended anywhere they can run off. The most trustworthy pets may panic, hide, try to escape or even bite or scratch. And, when you return home, give your pets time to settle back into their routines. Consult your veterinarian if any behavior problems persist.

Friends of Lewis County Animal Shelter (FOLCAS)
PO Box 1421, Chehalis, WA 98532
360-508-0151
www.folcas.org
Evacuation Tips for Pets

Take your pets with you. Many people mistakenly leave their pets behind when they evacuate during an emergency, thinking their pet’s instincts will prevent them from being harmed. Nothing could be farther from the truth. Most animals depend on us for their survival, much as children do.

Identify your pet. Securely fasten a current identification tag to your pet’s collar. If you face evacuation, it is a good idea to attach to the collar the phone number of a friend or family member who is well be able to reach a person who knows how to contact you. Photograph your pet. Carry a photo of your pet for identification purposes.

Transport your pet safely. Use secure pet carriers and keep your pet on a leash or in a harness.

Find a hotel that will allow your pet. Because most emergency shelters DO NOT admit pets, call hotels in a safe location and ask if you can bring your pet. If the hotel has a no-pet policy, ask the manager if the hotel can wave the policy during the disaster.

Foster your pet. If you and your pet cannot stay together, call friends, family members, veterinarians, or boarding kennels in a safe area to arrange safe foster care.

Have supplies on hand. Be sure to have a 72 hours kit for your animals (see 72 hours kit for animals), week’s worth of food, water, medication, cat letter, or any other supplies your pet needs on a regular basis.

Plan your evacuation and leave in plenty of time. Do not wait until the last minute to evacuate. When rescue officials come to your door, they may not allow you to take your pets with you.

Carry a list of emergency telephone numbers with you. This should include your veterinarian, local animal control, local animal shelters, the Red Cross, and any other individuals or groups you might need to contact during the disaster. Also carry a local phone book – you may not have access to one when you need a phone number.

**EMERGENCY PHONE NUMBERS**

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Assemble a Portable Pet Disaster Supply Kit

Whether you are away from home for a day or a week, you'll need essential supplies. Keep items in a accessible place and store them in a sturdy container that can be carried easily (duffel bags, 5 gallon covered bucket, Rubbermaid containers, etc...). Your pet disaster supplies kit should include:

- Medication, health records, veterinarian information (stored in a waterproof container or zip lock)
- Pet Health insurance records (if you have pet insurance
- A pet first-aid kit.
- A Sturdy collar or harness and leash for each pet.
- A carrier to transport pets safely and ensure that your animals can't escape.
- Current photos of your pets in case the get lost. (stored in a waterproof container or zip lock)
- Food & water to last 72 hours, bowl, and can opener
- Bottled water - Note: 2-3 gallons of water per animal will supply 60 lb pet for 3 50 4 days).
- Pet beds and toys, if easy transportable.
- FOR CATS - cat litter/pan
- Information on formation on feeding schedule, medical conditions, behavior problems, and the name and numbers of your veterinarian in case you have to foster or board your pets.
- Paper towels & plastic bags for clean up
- Plastic bags for disposal of waste.

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360-508-0151
www.folcas.org
Horse and Livestock Disaster Preparedness Tips

Just as you plan for your family members and companion animals in the event of an emergency, you also need a plan for any horses or livestock you own.

Barn fires represent the leading disaster for horses. Take every precaution: prohibit smoking in or near barns. Inspect wiring regularly for rodent damage and immediately correct any problems. Avoid parking tractors in the barn, where engine heat or backfires could ignite bedding or hay. Always have fire extinguishers at the ready. Do not store hay that is still damp in the barn. Keep aisles and stalls free of debris and equipment. Have an evacuation plan, and practice it with your horses.

Emergency preparedness for these animals presents special challenges due to their large size and transportation needs. Decisions about sheltering in place depend on the type of disaster, the location and soundness of the sheltering buildings, and the presence or absence of hazards in or around your pastures.

Assemble a list of important phone numbers – neighbors, veterinarians, reputable haulers and the county extension office. Make sure every animal has durable and visible identification. Store animals’ veterinary records and photographs in a watertight envelope where they’re easily accessible. Store horses’ halters at the ready, with identifying information attached to them. Inform friends and neighbors of your evacuation plans.

Arrange with neighbors to assist with horses and livestock, and become familiar with their care needs and handling, if you’re away when disaster hits.

Train horses to move forward, and to enter a closed space such as a trailer, on command.

Keep herbicides, pesticides, fertilizers and fuels secure so as to prevent spillage during high winds, earthquakes or flooding, and to prevent contamination of feed, groundwater or animals.

Securely fasten down anything that could become windblown debris.

For livestock in flood-prone areas, bring them to higher ground or into a safe, covered enclosure in advance of flooding if possible. To mitigate the risk, build up a section of each occupied pasture to allow animals to get above flood waters. Provide compaction and allow vegetation to become established. Consider re-routing fencing to take advantage of topography.

At the first hint of disaster such as major storm warnings, public alerts or an approaching disaster witnessed first hand, act quickly to protect your livestock. Confine them in a safe, covered enclosure, or in-pasture if hazards there are minimal. Be aware that in a disaster, gates and fences can be destroyed, allowing animals to run away in panic.
Evacuation Tips for Farm Animals

Evacuate animals as soon as possible.

Be ready to leave once the evacuation is ordered.

Arrange your evacuation route & an alternate evacuation route.

Plan another alternate route in case the planned routes become inaccessible.

Arrange for a place to house your animals.

Set up safe transportation. Make sure that you have available trucks, trailers, or other vehicles suitable for transporting farm animals.

Arrange to have experienced animal handlers and drivers to transport them.

Take your supplies with you. Different food can upset their systems.

At evacuation site, you should have, or be able to readily obtain, food, water, veterinary care, handle equipment, and generators if necessary.

Work with the State Department of Agriculture, Farm Bureau and any local reputable animal rescue groups in your area. If your animals cannot be evacuated, your state department of agriculture can provide on-farm oversight.

Caring for Birds in an Emergency

Birds should be transported in a secure travel cage or carrier. In cold weather, wrap a blanket over the carrier and warm up the car before placing birds inside. During warm weather, carry a plant mister to mist the birds' feathers periodically. Do not put water inside the carrier during transport. Provide a few slices of fresh fruits and vegetables with high water content. Have towels and change them frequently. Try to keep the carrier in quiet area. Do not let the birds out of the cage or carrier.

Caring for Reptiles

Snakes can be transported in a pillowcase but they must be transferred to more secure housing when they reach the evacuation site. If your snakes require frequent feeding, carry food with you. Take a water bowl large enough for soaking as well as a heating pad to keep them warm. When transporting house lizards, follow the same directions as for birds.

Caring for Pocket Pets

Small mammals (hamsters, gerbils, etc.) Should be transported in secure carriers suitable for maintaining the animals while sheltered. Make sure not to use anything they can chew out of. Take bedding materials, food, food bowls, and water bottles.

Evacuate animals as soon as possible.

Be ready to leave once the evacuation is ordered.
Tips for planning ahead

All vaccinations are up to date. Boarding facilities will require proof of vaccinations.

Listen for EBS (Emergency Broadcast System) messages on the procedures for companion animals if you have to evacuate.

Be sure your dogs or cats are wearing a properly fitted collar with a current license attached.

Have a collar or harness and leash on hand at all times to control your companion.

If possible, acquire a portable carrier or cage for each pet, if you plan to travel. These crates should be large enough for the animal to stand up, turn around and lie down flat.

Take time to adjust them to this portable crate. Make it a fun place to be.

Store portable carriers where there is easy access.

Have supplies for 72 - hours by your carrier. If you are using your portable kennel daily, place the kennel in an area where nothing will keep you from getting to it quickly.

Emergency public shelters DO NOT allow companion animals inside, due to public safety reasons.

Establish a plan for your pets, should you have to leave your home and go to a public shelter.

Check with friends or relatives who live farther away, out of the disaster, to see if you and your pet can stay with them.

When practicing your escape routes for a disaster, involve your pets.

Use caution in allowing your pets outdoors after the disaster has passed.

Downed power lines, stay animals, broken glass, tremors, cold present a real danger to your pets.

Always walk your dog / cat on a leash.

Veterinarian care after disaster for injury and other possible health problems. Be available to help neighbors that have pets, especially if they are disabled or elderly to correctly follow guideline and care during and after the disaster.

ALWAYS HAVE YOUR PET WEARING PROPER IDENTIFICATION AT ALL TIMES AND/OR HAVE A MICRO CHIPS IMPLANTED. Have photos of your animals. This is the best way for your pet to find their way back to you if you should get separated.

Friends of Lewis County Animal Shelter (FOLCAS)
PO Box 1421, Chehalis, WA 98532
360-508-0151
www.folcas.org
First Aid Kit Supplies

Adhesive tape, 1" and 2" wide rolls

Gauze bandage rolls, 1" and 2" wide

Sterile gauze pads, 1" and 2"

Scissors EMT or bandage

Triangular muslin bandage

2" and 3" strip of clean cloth, 4 foot long with 2 safety pins

Package of safety pins

4 wooden rulers of 12 tongue depressor for tourniquet

4 wooden paint mixing sticks for tourniquet

3% hydrogen peroxide

Kaopectate for diarrhea (3 to 4 drops every 3 to 4 hours for small dogs)

Pepto Bismol

Antibacterial ointment for skin (bacitracin)

Plastic or nylon eyedropper of syringe

Eye wash

Razor blades

Ice bag or chemical ice pack

Empty distill water or gallon milk containers for holding hot water

Blankets

Towels

10 feet of 1/4" to 3/8" nylon rope for restraint

Wire cutters

Pliers

Cotton Balls

Tweezers

Salt - to put on tongue to induce vomiting
The following Internet links will take you to agencies and resources that can assist you and provide information about the flood. These include general flood preparation and recovery information as well as information specifically for farmers and livestock owners.

**Access Washington**
http://access.wa.gov/emergency
*Access Washington* is the state’s primary source of emergency information during a disaster. It includes
- Storm assistance information
- Finding county contact information
- Emergency resources
- Flood information
  - Facts about floods
  - Preparation for a flood
  - Information for business owners
- Restoring your home or business for a flood

**Farm and Ranch Resources**

**USDA Farm Services Agency**
www.fsa.usda.gov/wa
FSA assists farms and agricultural enterprises during and after a disaster and recommends federal declarations of disaster. FSA has a variety of disaster assistance programs including the Noninsured Crop Disaster Assistance Program. FSA Service Centers are located in most counties.

**USDA Risk Management Agency**
www.rma.usda.gov
RMA provides a variety of insurance tools. The state office is located in Spokane (tel: 509-228-6320).

**Kansas State University**
KSU’s Flood Survival and Recovery Fact Sheets cover a variety of farm flood topics - from dealing with children and emotional problems to recovering farm land, soil nutrient management, compaction, etc.

**Extension Disaster Education Network**
http://eden.lsu.edu
EDEN is a cooperative effort by land-grant universities to share resources to reduce the impact of disasters. The *Floods and Flooding* page addresses farm issues with pages on crops, livestock, and buildings. *First Steps to Flood Recovery* is at www.ces.purdue.edu/floodpub

**North Dakota State University Extension**
www.ag.ndsu.edu/disaster/flood.html#Farm
NDSU has a number of useful pages and video clips on preparing a farm for floods, evacuation, dealing with equipment and livestock and then recover – salvage, tilling, replanting, etc.

**Washington State University**
Animal Health for Dairy Producers Affected by Floods:

**Dealing with livestock during floods:**
http://cahnrnews.wsu.edu/flood/livestock.html

**Disposal of Dead Livestock Rules**

**US Food & Drug Administration**
Crops and Foods Affected by Flooding
www.fda.gov/Food/FoodDefense/Emergencies/FloodsHurricanesPowerOutages/ucm112723.htm

**Other Sources of Useful Information**

**Washington State Department of Agriculture:**
http://agr.wa.gov

**Washington State Department of Ecology:**
www.ecy.wa.gov

**Washington State Emergency Management Division:**
www.emd.wa.gov
EMD coordinates state disaster responses and provides updated disaster information.

**Washington State Department of Transportation**
Statewide traveler information: www.wsdot.wa.gov/traffic
County road information: www.wsdot.wa.gov/News/Update/countynavigation.htm

**Federal Emergency Management Agency**
www.fema.gov
FEMA is the primary federal agency providing disaster assistance. To apply for FEMA disaster assistance see: www.fema.gov/assistance

**National Flood Insurance Program**
www.floodsmart.gov
Sign up for flood insurance at least 30 days in advance.

**Center for Disease Control:**
http://emergency.cdc.gov/disasters/floods
Floods - Disease, hygiene and safety issues during and after a flood.

**USDA: Keeping Food Safe**
www.fsis.usda.gov/Fact_Sheets/keeping_food_Safe_during_an_emergency/index.asp

**American Red Cross**
www.redcross.org
The ARC has information on preparing for floods, what supplies are needed, etc. under *Flood Safety Fast Facts.*

**University of Missouri:**
Resources for Your Flooded Home
Safety Measures When Flooding is Expected
Modified from North Dakota State University Extension Service’s Preparing to Evacuate Your Farm.

When flooding is hours or minutes away, keep your priorities straight. Ensure family safety first. Be certain you have enough time to get to higher ground before access is cut off. If you have time before receiving an evacuation order, a number of precautions may help you protect your property and livestock.

**Long-range Preparation**
Take these precautions if flooding is common to your area or anticipated this season:

- Check your insurance coverage. Contact the National Flood Insurance Program (www.floodsmart.gov) about flood insurance or your local USDA offices about other crop insurance tools.
- Create an emergency plan of action, considering such things as areas of high ground for animal relocation, temporary milking facilities and approval to use them, equipment relocation and safe pesticide storage.
- Properly dispose of old or unneeded chemicals, pesticides, motor oil, batteries, etc. to reduce risk of contamination. Store remaining chemicals securely.
- Be sure cattle and other livestock are properly immunized before being exposed to floodwaters.
- Arrange or be aware of standby services for emergency milk pick-up.
- Have a plan for moving grain and other harvested crops out of reach of floodwaters.
- Provide riprap on banks of earthen manure storages where flowing water may erode berms.
- Keep a list of key contact numbers (doctors, vets, relatives, etc.), banks accounts, credit card numbers, and copies of important documents readily available.
- Protect business records. Keep deeds, titles, computer back-up files and other essential documents in a safe, remote location (e.g., safety deposit box). Seal computers, ledgers, tax returns, other files and records in plastic bags and move upstairs or to attic.

**Short-term Preparation**
If time is available, take the following precautions:

- Move machinery, feed, harvested crops, pesticides and herbicides to a higher elevation. If you have a two-story barn, the upper level makes a good temporary storage facility.
- Open gates so livestock can escape high water.
- If water is rising, try to drive stock through water free of obstructions. Grazing animals swim well, but the greatest problems for them are fences and other obstacles. Long swims through calm water are safer than short swims through a swift current.
- Leave building doors and windows open at least 2 inches to equalize pressure and help prevent buildings from shifting.
- If possible, move motors and portable electric equipment to a dry location.
- Disconnect electric power to all buildings which may be flooded. If in doubt about how to disconnect power, call your utility company. Shut off other utilities.
- Tie down lumber, logs, irrigation pipes, fuel tanks and other loose equipment or material. Secondary containment is another possibility for fuel tanks, as well as pesticide storage.
- To keep surface water out of your well, use materials such as heavy plastic and duct tape to seal the well cap and the top of the well casing.
- Photograph the farm equipment, buildings, etc. to document these assets.
**Additional Resources**

**Dairy Sheep and Goats:**
- [www.sheepandgoat.com](http://www.sheepandgoat.com)
- [http://www2.luresext.edu/goats/index.htm](http://www2.luresext.edu/goats/index.htm)

Herd health on organic dairy farms, eOrganic Extension:
- [http://www.extension.org/article/18322](http://www.extension.org/article/18322)

**Cheesemaking:**

Home Cheesemaking, by Ricki Carrol. The cheesemaker’s bible.

The new Cheesemaking Made Easy and New England Cheesemaking Supply,
- [http://cheesemaking.com](http://cheesemaking.com)

Creamline magazine published by Vicki Dunaway, [www.smalldairy.com](http://www.smalldairy.com)


American Farmstead Cheese: the Complete Guide to Making and Selling Artisan Cheeses,
Paul Kinstead, the Vermont Cheese Council

Vermont Institute for Artisan Cheese: *Dedicated to Education, Research & Service*  


November 2008 Vermont Institute of Artisan Cheese Workshop with French cheese specialists from Poligny France exploring several of the Alpine Cheeses of France.