

Starting up a Dairy in New Hampshire

Regulation:

The production and processing of milk and milk products in New Hampshire is regulated by the Department of Health and Human Services, Food Protection Section, Dairy Sanitation Program, 29 Hazen Drive, Concord, NH 03301 (603) 271-4673. www.dhhs.state.nh.us/dhhs/dairysanitation

State Law: RSA 184.

Administrative Rules: He-P 2700 Milk Producers, Milk Plants, Producer/Distributors, and Distributors - rules for permitting of farms and licensing milk plants and producer/distributors.

Mil 300 Milk Sanitation - this rule adopts the 2011 revision of the federal Pasteurized Milk Ordinance.

The PMO is available from FDA by writing to: Department of Health & Human Services, Public Health Services, Food and Drug Administration (HFS-626), 5100 Paint Branch Parkway, College Park, MD 20740-3835 or on line at www.fda.gov/downloads/Food/GuidanceRegulation/UCM291757.pdf

Milk and milk products include: fluid milk, cultured fluid milk, cream, yogurt, raw milk yogurt, sour cream, eggnog, butter, ice cream, and cheese.

Products made from milk or cream, such as puddings, candies, etc., are not classified as milk products and are regulated by the Department of Health and Human Services, Bureau of Food Protection, Food Sanitation Section. They can be reached at (603) 271-4589. www.dhhs.state.nh.us/dhhs/foodprotection

Permits and licenses:

All facilities which process or pasteurize milk or make cheese must have a Milk Sanitation License, except as exempted below. This is an annual license. All licenses expire on the 1st of January after the year of issuance.

The milking operation receives a Milk Producer Permit if the milk is to be processed at a licensed facility. This permit is issued once and is good until 6 months after operations have ceased on the farm or it is revoked for some reason.

According to RSA 184:79 a milk producer who is also a distributor and who sells more than an average of 80 quarts (20 gallons) of milk a day is classified as a producer/distributor. A producer/distributor must have a Milk Sanitation License unless exempted by RSA 184:84 V.

Exemptions from Licensing:

If less than an average of 80 quarts (20 gallons) of raw milk are sold per day and the milk is only sold directly from the producer to the consumer from the producer's own farm, farm stand or at a farmer's market and if the milk is not sold to or used by a licensed milk plant, then no license or permit is necessary.

RSA 184:84 V exempts milk producer-distributors who process less than 20 gallons of raw milk per day into raw milk cheese aged at least 60 days, cream, yogurt, butter or kefir from licensing provided they only sell their products directly to the consumer from their own farm or farm stand or at a farmer's market within the State of New Hampshire. Producer-distributors who qualify for this exemption are required to clearly label their product with the name of the product, their farm name, address and phone number and the following statement: "This product is made with raw milk and is exempt from New Hampshire licensing and inspection."

Sale of Raw Milk:

RSA 184:30-a states that "No milk or milk products as defined in RSA 184:79 shall be sold, offered for sale or served unless pasteurized. This shall not serve to prohibit the direct sale of raw milk or cream from the producer, store or milk pasteurization plant to the final consumer, or milk or cream from a producer to stores, nor the serving of raw milk at bona fide boarding houses where the milk is produced on the premises, provided that in the dining room of such boarding houses a sign is prominently displayed stating that such raw milk is served therein."

The Food Protection Section Administrative Rule He-P 2300 requires that all food sold in stores come from an approved source. All raw milk sold in stores must come from a licensed facility regardless of the volume of milk sold.

The Department of Health and Human Services does not advocate or recommend the sale of raw milk. Raw milk, improperly pasteurized milk and raw milk fresh cheeses have been implicated in foodborne illness outbreaks of *Salmonella*, *Campylobacter*, *Listeria* and *E. coli* 0157:H7 in recent years. Pathogenic bacteria such as *Brucellosis*, *Campylobacter*, *Salmonella* and *Tuberculosis* can be shed in the milk of apparently healthy animals. *Listeria monocytogenes* is the leading cause of death from a foodborne pathogen.

Sale of cheese, yogurt, butter or other dairy products made from raw or heat treated milk:

RSA 184:30-a allows for "the sale, within the state, of cheese made from raw milk when such cheese has been aged a minimum of 60 days at a temperature above 35 degrees Fahrenheit, and is clearly labeled as unpasteurized." This matches the language in section 21 of the Code of Federal Regulations part 133, the federal cheese laws.

RSA 184:30-a also states that "This section shall not prohibit the direct sale of yogurt made with raw milk by the producer in this state, provided that such yogurt is clearly labeled as having been made with raw milk." This is contrary to federal requirements for yogurt and applies only to raw milk yogurt made within the state and sold directly to consumers within the state.

Fresh cheeses and all other processed dairy products, except for kefir and butter made by a producer-distributor who is exempt from licensing under RSA 184:84 V, must be made with pasteurized milk.

New Hampshire has no provisions for the use of heat treated milk in making products that will not be aged.

Facility:

Milking Parlor or Barn:

Floors and milking stands, if used, must be impervious, easily cleanable and in good repair. Floors must be graded to drain. Concrete, metal or tile are acceptable materials for floors and milking stands.

Walls and ceilings must be smooth, tight, easily cleanable, light colored and in good repair. Painted wood, plaster, concrete, brick and plastic wallboard are acceptable materials.

Adequate lighting (50 foot candles) and ventilation are also required.

Milk Room:

Floors must be smooth, impervious, graded to drain and in good repair. The milk room drain must have a trap between the milk room and the waste handling facility. This can be below the surface inside or outside of the building. Concrete, metal and tile are acceptable materials.

Walls and ceilings must be smooth, tight, easily cleanable, light colored and in good repair. Painted wood, plaster, concrete, brick, sheet metal, tile and plastic wallboard are acceptable materials.

Adequate lighting (50 foot candles) and ventilation are required.

The milk room cannot open directly into any living quarters. Doors between the milk room and the parlor or barn must be solid, tight, and self closing.

Potable water under pressure must be provided to the milk room. Hot water must also be provided to the milk room.

A 2 bay wash sink and a hand sink must be provided.

All doors must be tight and self-closing. Outer doors may be screened in warm weather provided the doors open outward. Windows may be opened provided they are screened.

Bulk milk tank for cooling and storing the milk:

A bulk tank is not necessary but it is recommended.

Milk must be cooled down to 45° or less with in 2 hours of the completion of milking and stored at 45° or less. Improper cooling of milk will show in elevated bacteria counts and decreased shelf life. If a bulk tank is used, there must be enough milk to reach the agitator after the first milking in order for the milk to cool properly.

Proper cooling is difficult to achieve in a refrigerator unless the milk is put into small containers. Generally it works best to pre-cool the milk by placing it in a covered stainless steel or glass container and putting that in an ice water bath. Stirring the milk occasionally helps bring the temperature down more quickly. When the milk is cold it can be put in a refrigerator to store it. Use a thermometer to check the temperature of the milk at different stages when you are cooling the milk to see if your method works or if it needs adjustment.

Milk Processing Room:

All milk processing, including pasteurizing and cheesemaking, must be done in a room separate from the milk room. Raw milk may be stored in the processing room but all milking equipment, buckets and utensils must be washed and stored in the milk room. The processing room may not open directly into the barn or the milking parlor. The processing room may open into the milk room provided there is a solid, self-closing door between the rooms. The processing room should not be located so that it is used for routine traffic in and out of the milk room.

Floors, walls, ceilings, lighting, ventilation, water, and sink requirements are the same as for the milk room.

If pasteurized milk is being bottled and sold in returnable bottles, bottles may be hand washed provided the processing room is equipped with a 3 bay wash sink for washing and sanitizing the bottles. If more than 1,000 lbs of milk are being processed and bottled per day the plant must be equipped with a proper bottle washer.

All milk room and processing room waste which does not go into a sanitary sewer must go into a system that meets the standards of the USDA Natural Resources Conservation Service (NRCS). A copy of the design shall be provided to the Dairy Sanitation Program. A septic system is generally not recommended for milk room and cheese room waste.

All containers, utensils, and equipment must be made of glass, stainless steel, or other non-toxic and corrosion resistant metals, or durable plastic, rubber or rubber-like materials which cannot be easily scratched or scored and which are non-toxic.

Bottling Pasteurized Milk:

Pasteurized milk shall be bottled in a sanitary manner by approved mechanical equipment. Capping of milk containers is also required to be done in a sanitary manner and using approved mechanical equipment. Caps may be hand slotted into the capper provided the person handling the caps is wearing a clean pair of gloves.

Under no circumstances shall raw milk be bottled using the same equipment as pasteurized milk.

Pasteurizers:

The pasteurizer must meet the requirements in the Pasteurized Milk Ordinance.

Stove top or home use type pasteurizers that are currently available are not acceptable.

The simplest pasteurizer available is the vat pasteurizer. Milk is held in the vat at a minimum temperature of 145° for at least 30 minutes. A vat pasteurizer must have:

- Three Thermometers:
 - an indicating thermometer. This is the official thermometer
 - a recording thermometer. This provides the record of legal pasteurization and is checked daily against the indicating thermometer.

- an air space thermometer. This checks the temperature of the air between the top of the milk and the lid of the pasteurizer. This temperature needs to be at least 150° to ensure that any foam on top of the milk is properly pasteurized.
- An agitator to mix the milk.
- A shoe box type lid with raised edges around any openings in the lid.
- The outlet valve needs to be a leak protector type which allows any milk leaking past the valve to be diverted to the floor.

Vat pasteurizers work by having very hot water in a jacket surrounding the milk which in turn heats the milk. Most small vats have built in elements that heat the water in the jacket. Larger vat pasteurizers may require external hot water sources, generally a boiler to produce hot enough water.

The other common pasteurizer is the high temperature short time (HTST) which pumps the milk through a plate heat exchanger with hot water on the other side, a holding tube, past thermometers and then through a cooling unit after the milk has been pasteurized. Milk is heated to 161° for at least 15 seconds.

At the very least an HTST requires:

- A raw milk balance tank the top of which is below the lowest part of the heat exchanger,
- A positive displacement pump or homogenizer to pump the milk through the unit,
- An indicating thermometer located at the end of the holding tube,
- A recorder/controller with a recording thermometer located in close proximity to the indicating thermometer,
- A diversion valve which automatically diverts milk below pasteurization temperature back to the raw milk balance tank,
- A boiler for heating water to heat the milk,
- A chilled water source for cooling the milk, and
- Access to the beginning and end of the holding tube for measuring the holding time.

Inspections:

Inspections or site visits can be conducted at any time prior to licensing. The earlier we get involved the better.

After a facility is permitted or licensed:

Inspections of milking facilities are conducted at least once every 6 months with follow-up if any critical violations are found or if the inspection score is less than 90. Critical violation include:

- Improper milking of treated animals;
- Improperly protected or unsafe water supplies;
- Unclean milking equipment;
- Improper cooling of milk; and
- Improper labeling on extra-label drugs. These are drugs not specifically labeled for the species of animal they are being used on or for the condition they are being used to treat.

Inspections of milk processing facilities are conducted at least once every 3 months with follow-up if any critical violations are found. Critical violations include:

- Improperly protected or unsafe water supplies;
- Unclean equipment;

- Cross connections between raw and pasteurized products;
- Improperly pasteurized products;
- Adulteration of milk;
- Improper cooling of milk.

Pasteurizers are checked every 3 months to make sure they are working properly. For a vat pasteurizer this involves checking the thermometers, checking that the leak detect valve is working properly, and checking to make sure the timing device is accurate. For an HTST pasteurizer this includes, checking the thermometers, operation of the valves, the temperature at which the diversion valve move into forward flow and back to diverted flow. The holding time is checked every 6 months.

Facilities making raw milk aged cheeses are inspected every 6 months.

If pasteurized milk or yogurt is to be sold across state lines the facility must be inspected by a federally certified state inspector and by the federal Food and Drug Administration.

Raw Milk Offered for Sale to Consumers.

General Bottling Requirements:

All containers and closures must be stored and handled in a sanitary manner to prevent contamination. Single-service containers and closures can not be reused.

Multiple use containers must be washed, rinsed, sanitized and drained no more than 4 hours prior to filling, such as by using a 3-compartment sink or a commercial dishwasher with a chemical sanitizer step.

Containers provided and washed by the consumer are exempt from the washing and sanitizing requirements. The filled bottles shall only be sold back to the consumer who originally washed and provided them. Any consumer-washed bottles with visible filth or contamination shall not be refilled.

Any person who bottles or handles raw milk offered for sale to consumers, who has a communicable disease shall be prohibited from handling the raw milk, and any equipment or containers which may come in contact with the raw milk.

Any person filling and capping bottles must wear effective hair coverings, and shall wash their hands immediately prior to starting and as necessary throughout the filling operation.

Bottled raw milk shall be kept cooled to a temperature of 40 degrees Fahrenheit or less until delivered to the consumer.

All bulk milk storage tanks or other containers used to store raw milk prior to bottling must be washed and sanitized at least once every 48 hours.

Bottling Requirements – Small Operations

These requirements apply to anyone bottling up to 1,000 pounds of raw milk per day.

- Filling shall be done using suitable stainless steel piping equipped with a positive shut off valve not through dipping or ladling of the milk.
- Capping may be done by hand provided the operator is wearing clean, disposable plastic gloves.
- During filling, the pouring lip of the container must be protected from overhead contamination by the use of a drip deflector installed on the filling device.

Bottling Requirements – Large Operations

These requirements apply to anyone bottling more than 1,000 pounds of raw milk per day.

- Filling and capping shall be done in a sanitary manner to prevent contamination using mechanical equipment that complies with Section 7 of the PMO.
- The pouring lip of the container must be protected from overhead contamination until the cap is placed on the container.

Raw Milk Labeling Requirements

All containers shall be clearly labeled as “Raw Cow’s Milk”, “Raw Goat’s Milk” or “Raw Sheep’s Milk” as applicable.

All labels must meet federal labeling requirements including the producer’s name, address and zip code and the net amount of the contents.

All containers for retail sale shall bear the following statement: “Raw milk is not pasteurized. Pasteurization destroys organisms that may be harmful to human health.” This warning statement must be in letters of contrasting color to the label and in type no less than one-eighth (1/8) inch in height.

Raw milk sold only at the farm where it is bottled is exempt from the warning statement label requirement above provided there is a sign with the following statement on it: “Raw milk is not pasteurized. Pasteurization destroys organisms that may be harmful to human health” posted conspicuously in the area where the milk is sold and placed in a location where it can easily be observed by anyone entering the room. This sign must be no less than eight (8) inches by eleven (11) inches in size with contrasting lettering no smaller than one-half (1/2) inch in height.

Raw milk sold for consumption as raw milk shall be tested for antibiotic residues prior to sale or be labeled as follows: “This raw milk has not been tested for antibiotic residues prior to sale.”

Raw milk sold only at the farm where it is bottled is exempt from the warning statement label requirement above provided there is a sign with the following statement on it: “This raw milk has not been tested for antibiotic residues prior to sale” posted conspicuously in the area where the milk is sold and placed in a location where it can easily be observed by anyone entering the room. This sign must be no less than eight (8) inches by eleven (11) inches in size with contrasting lettering no smaller than one-half (1/2) inch in height.

All containers shall be labeled with a “sell by” date, and the milk shall remain in compliance with quality standards until the sell by date.

Milk bottled in containers provided by the consumer is exempt from all labeling requirements above except that the farm must have the cautionary sign as specified above posted where the milk is sold.

Sampling and testing of milk and products:

Testing of product by DHHS:

1. Raw and pasteurized milk:

Samples of bottled raw milk will be collected at least once each month for analysis. Raw milk for processing and pasteurized milk samples are collected for testing at least 4 out of every 6 months. This generally means that milk samples are collected 2 months in a row. If the samples are within the standards, no sample is collected in the 3rd month and sampling is renewed the 4th month. If the samples exceed the standards, the 3rd month will not be skipped.

Notices of high bacterial and somatic cell counts are issued as warnings and additional follow-up testing is done if any 2 out of the last 4 samples exceed the standard. Milk permits and licenses are suspended if any 3 out of the last 5 samples exceed the standard.

Bottled raw milk that has exceeded the Coliform standard on 3 out of any 5 consecutive samples shall be tested for pathogens. Pathogens tested for shall include, but not be limited to, E. coli O157:H7, Listeria monocytogenes, Campylobacter, and Salmonella. Sales of raw milk shall cease and the producer-distributor shall recall all products if any pathogens are detected in the milk.

Raw milk for processing is tested for:

- Bacteria (standard plate count),
- Somatic cell count,
- Antibiotic residues, and
- Temperature.
- Tests can also be run for butterfat and total solids.

Bottled Raw milk is tested for:

- Bacteria (standard plate count),
- Coliform bacteria,
- Somatic cell count,
- Pathogens as needed due to 3/5 high Coliform counts,
- Antibiotic residues, and
- Temperature.
- Tests can also be run for butterfat and total solids.

Pasteurized milk samples are tested for:

- Bacteria (standard plate count),
- Coliform bacteria,
- Butterfat,
- Phosphatase (an enzyme which if present indicates improper pasteurization),
- Antibiotic residues, and
- Temperature.

2. Yogurt:

Yogurt is sampled and tested with the same frequency as pasteurized milk except that yogurt is only tested for Coliform bacteria and butterfat.

3. Cheese, Ice Cream and other dairy products:

Samples of these dairy products are tested on a random basis. Follow-up testing is conducted if a sample exceeds the standards.

These products, including cheeses made from either raw or pasteurized milk are tested for:

- Coliform,
- Fecal coliform and
- *Staphylococcus aureus*.
- Cheese samples are randomly tested for *E.coli*, *Listeria*, and *Campylobacter*.

4. Water:

Water is tested for coliform bacteria.

Water obtained from public water supplies is not tested.

Water supplies for milk producing operations are tested at least once every 3 years.

Water supplies for milk processing operations are tested at least once every 6 months.

Water supplies that need continuous disinfection are tested at least once every 6 months.

Follow-up samples are collected if any sample shows the presence of coliform bacteria.

Water samples are collected by DHHS and taken to the NH Public Health Lab or the Department of Environmental Services Lab (DES).

5. Milk bottles:

At Grade "A" milk plants listed on the Interstate Milk Shippers (IMS) list, returnable bottles are tested 4 months out of 6. A set of 4 washed, sanitized and capped empty bottles is considered a sample. Bottles may be tested more frequently if there appears to be contamination of the milk.

At non-IMS listed plants which use and wash returnable bottles for any milk or milk products, raw or pasteurized, the returnable bottles will be tested if bacteria counts indicate the cleaning and sanitizing of the bottles is not effective to prevent contamination of the product.

Testing conducted by the producer/processor:

Prior to processing, all milk must be tested for antibiotics using an approved test. Prior to the sale of bottled raw milk, all milk must be tested for antibiotics using an approved test, unless the raw milk has the appropriate label discussed above in the Raw Milk Labeling Requirement section of this handout. If any milk is received from another farm the milk must be tested for antibiotics prior to processing or to commingling with milk produced on your own farm.

Antibiotic tests suitable for use on farms include:

- Charm II or Charm SL, (Charm Sciences, 659 Andover St., Lawrence, MA 01843 800-343-2170);
- Delvo Test, (Available from Nelson Jameson 800-826-8302);
- Snap test. (Idexx Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092, 800-321-0207). **Note: the Snap test has not been approved for goat milk.**

All milking animals shall be tested for tuberculosis and brucellosis within the 12 months prior to a producer-distributor obtaining a license and once every 3 years thereafter.

Quality Standards:

Bacterial (standard plate count) standard:

Raw milk intended for processing100,000/ml.
 Raw milk intended for retail sale 20,000/ml.
 Pasteurized Milk20,000/ml

Somatic cell count:

Cows Milk 750,000/ml
 Goats Milk1,000,000/ml for milk intended for consumption as fluid milk.

Coliform in bottled raw milk, raw milk yogurt, pasteurized milk and milk products including cheese 10/ml

In New Hampshire only, unofficially, 100/ml is the acceptable level for coliform in raw milk aged cheese.

Antibiotic residues none present

Pathogenes.....none present

Phosphatase none present

Water No coliform present

Fees and other costs:

Milk Producer Permit: There is no fee for this permit.

Milk Sanitation License: There is a sliding scale fee for this license depending on how much milk is processed.

\$100.00	Up to 1,000 pounds of milk or milk products per day.
\$175.00	1,000 – 10,000 pounds of milk or milk products per day.
\$275.00	10,000 – 25,000 pounds of milk or milk products per day.
\$350.00	Over 25,000 pounds of milk or milk products per day.

Inspections: There is no fee for inspections.

Sample testing:

Raw and pasteurized milk and milk product samples: \$25 per sample for a complete analysis

Cheese samples: There is no fee for these samples

Milk Bottles: \$15 per bottle/\$60 per sample set of 4

Water: \$15 per sample if tested through the DES lab

\$21 if tested through the Public Health Lab