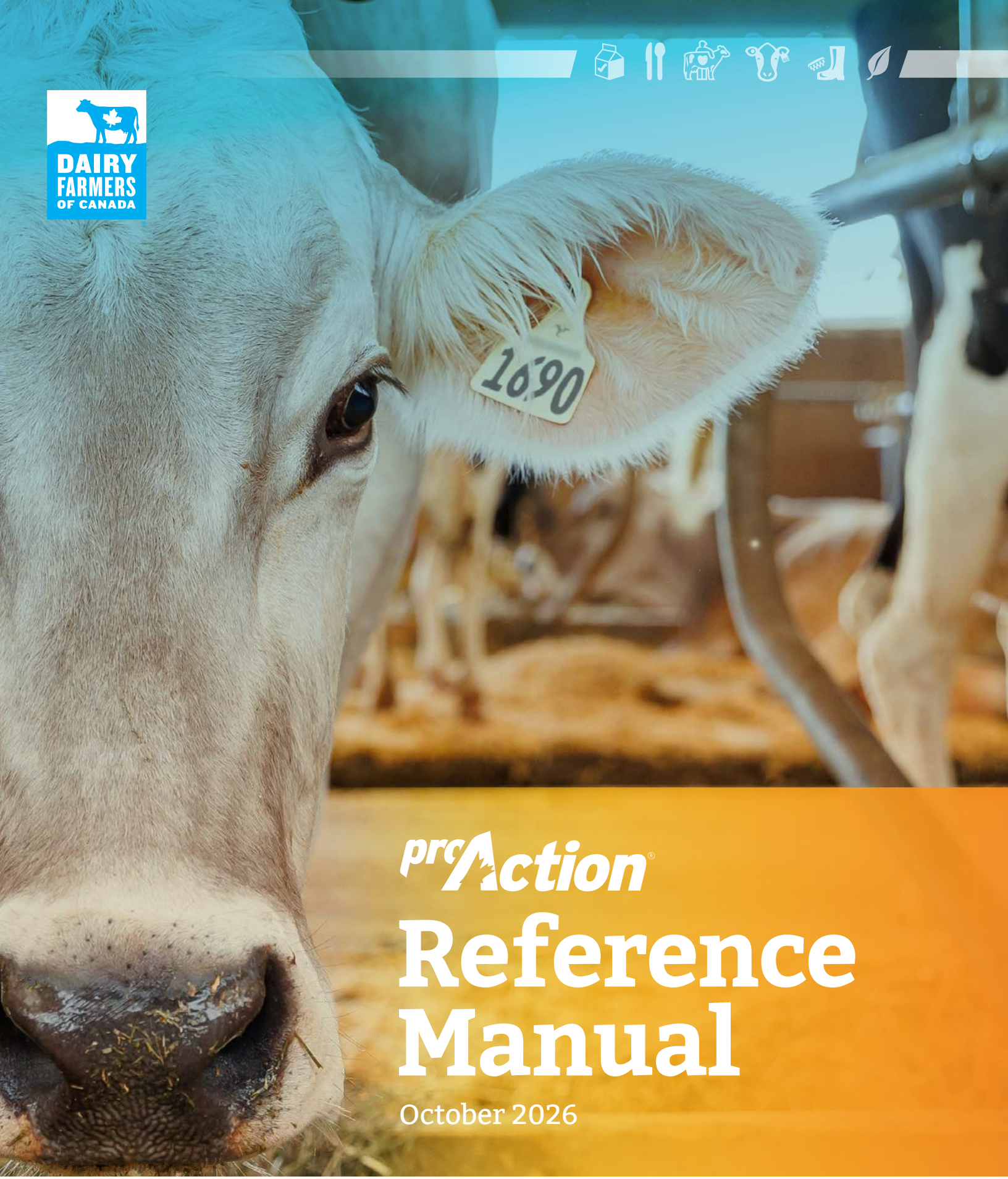


DAIRY FARMERS OF CANADA

proAction®

Reference Manual

October 2026

Sustainable Canadian Agricultural Partnership

Canada



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ACKNOWLEDGEMENTS

The development of proAction® is jointly funded by the Government of Canada and Dairy Farmers of Canada (DFC).

DFC extends a special thanks to all those who have contributed to this publication by lending their expertise and resources. DFC also thanks all of the farmers, whose participation has strengthened the development of this program.

Sincere thanks are addressed specifically to the members of the proAction Committee and the Technical Committees. Many different individuals and experts have contributed to all of the committees over the years, but those listed below are the current members at the time of publication.

In addition, DFC thanks all of the farmers, validators, assessors and provincial dairy association staff who participated in the on-farm pilots and provided valuable feedback to the development of proAction.

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Introduction

proAction® Overview

Consumers want to know more about what is in their food and where it comes from. That is why Canadian dairy farmers developed proAction, Dairy Farmers of Canada's (DFC's) on-farm quality assurance program that groups six key modules under one umbrella:

1. Milk Quality
2. Food Safety (previously known as the Canadian Quality Milk program)
3. Animal Care
4. Livestock Traceability
5. Biosecurity
6. Environment

DFC utilized the national framework that was developed for the Canadian Quality Milk (CQM) program for proAction, which allows Canada's dairy industry to continue its business leadership in producing quality milk and meat by integrating on-farm customer assurance programs.

Each module was developed and is maintained via Technical Committees with representation from farmers, scientists, veterinarians and industry specialists. The proAction Committee, which consists of a representative from each provincial farmer association and five DFC Board Members, provides overall direction to the Technical Committees. The proAction Committee is also responsible for the program requirements, at all stages of development and implementation, and its recommendations require the DFC Board of Directors' approval in order to be implemented.

Each module was developed and implemented in a staged manner, with all modules now incorporated into one integrated program: proAction:

- **Milk Quality** is addressed in provincial regulations. DFC was instrumental in reducing the somatic cell count regulatory limit to 400,000 cells/ml in 2012.
- The **Food Safety** module (previously known as the CQM program) has been implemented on farms across the country, and farms have been validated and registered upon meeting the requirements for over 20 years.
- The **Animal Care** and **Livestock Traceability** modules have been validated on farms since September 2017.
- The **Biosecurity** module has been validated on farms since September 2019.
- The **Environment** module has been validated on farms since September 2021 and continues to work closely alongside DFC's sustainability efforts.

proAction is based on the principle of continuous improvement, both at the farm level and at the national program level. The proAction committees routinely review the program for opportunities to improve.

In May 2015, DFC was pleased to receive a Letter of Recognition from the Canadian Food Inspection Agency, which officially stated that the Food Safety program (CQM program) successfully completed the recognition process under the Food Safety Recognition Program. Since this time, the program has been revised to become proAction by including additional elements pertaining to animal care, traceability, biosecurity and environment. However, please note that at the time of publication of this document, the recognition only applies to the Food Safety module of proAction.



Food Safety

The Food Safety module is an on-farm HACCP-based food safety program developed by DFC. The Food Safety module is designed to maintain milk and meat safety on dairy farms through improved management practices, increased communication and effective record keeping.

The key concepts are:

- Hazard Analysis Critical Control Point (HACCP) approach.
- Best Management Practices (BMPs).
- Critical Control Points (CCPs).
- Standard Operating Procedures (SOPs).
- Corrective Actions.

Dairy farmers are in the business of producing food. They aim to ensure that the safety, flavour and quality of their milk and meat will satisfy the highest expectations of the food industry and consumers alike.

Food safety is everyone's business in the dairy industry. Milk quality and safety are checked after the farmer harvests the milk, before the bulk tank milk graders pick up the milk and before the milk is unloaded at the processor. Dairy steers, young stock and cull cows' carcasses are graded and inspected for safety. Only safe meat is used for human consumption. Results that fall outside standards lead to warnings, rejection of milk or meat, penalties and loss of market access.

End-product testing for milk and meat are reasonably effective detectors of food safety and quality problems; however, by that point, the defects have already occurred, and a dollar loss sustained. On-farm food safety programs strive to help farmers use control measures at strategic points during production to prevent, control and reduce problems. For example, farmers monitor the temperature of the milk in the bulk tank to ensure that it stays cold while on farm.

Animal Care

Dairy farmers are committed to providing excellent care for their cattle. The National Farm Animal Care Council (NFACC) and DFC published "*The Code of Practice for the Care and Handling of Dairy Cattle.*" The Code of Practice is a national guideline that outlines BMPs and requirements for dairy farmers related to animal care.

DFC's goals with the Animal Care module are to provide recognition to those farmers who are doing an excellent job of caring for their dairy cattle, and to encourage farmers to strive for continual improvement.

The module is designed to address requirements for housing, feed and water, animal health and biosecurity, handling and shipping animals, staff training and communication. Animal abuse and/or neglect are addressed through regulations. In the event that activities related to the implementation of this module uncover evidence of potential abuse and/or neglect, the situation would be reportable to the appropriate authorities.

Livestock Traceablity

Livestock Traceability module requirements are the foundation of any traceability system. In fact, they are recommended and proven procedures that help to prepare for, manage and reduce the impact of an animal disease outbreak. Traceability allows the tracking and tracing of concerned animals in the event of a sanitary emergency and ensures a better management of emergencies to help maintain market access and limit losses after animal disease outbreak. The Livestock Traceability module gathers requirements into five (5) sections:

1. Premises Identification
2. Animal Identification
3. Tag Activation
4. Animal Movement
5. Tag Retirement

Traceability systems are important, effective tools that can be used for many things, including the protection of animal health, public health, and food safety. They can help reduce response time, thereby limiting economic, environmental and social impacts of emergency situations such as disease outbreaks. Traceability systems also support the Canadian economy and livestock sector by helping meet international export standards.

For the dairy industry, traceability:

- Plays a critical role in maintaining the trust of our consumers and trading partners.
- Is increasingly important for many countries to which we export animals and genetics; and is also important if we want to access new markets.
- Is one of the six modules of proAction and a keystone in providing assurance to our customers that we are responsible food farmers.
- Is and must be regulated. Government, farmers and other industry stakeholders (processors, transporters, etc.) all have a role in ensuring that we can rapidly trace back any issue that may need to be addressed. It is essential in ensuring food safety or controlling outbreaks before they take an economic toll on the industry.
- Helps the industry identify and eliminate logistical inefficiencies in the production, transportation and marketing system, as well as facilitates the supply chain management.

Full traceability is about helping consumers find the answer to the question, "where does my food come from?"

The information contained within traceability systems can be used for other proAction modules; therefore, traceability can help proAction integrate all of its modules. For example, animal identification is a key traceability pillar that can also be used for herd management such as treatment records, herdbook registration, exportation certification, etc. By implementing traceability systems, there is potential to reduce on-farm labour and handling costs as well as improve herd and operational management practices.

Biosecurity

To produce safe and high-quality products, dairy farmers in Canada are continually identifying and managing biosecurity risks. If not identified and addressed, biosecurity hazards can impact farm profitability.

DFC and the Canadian Food Inspection Agency have developed a National Biosecurity Standard for Dairy Farms. This Standard is a national guideline that outlines BMPs for dairy farmers related to biosecurity.

The Biosecurity module is based on this Standard and contains a risk assessment tool to assess biosecurity risk on individual farms and records, such as Standard Operating Procedures (SOPs) to assist in the management of biosecurity hazards.

The Biosecurity module includes requirements in three categories:

1. Cattle Health Management
2. Cattle Additions and Movement
3. Service Providers, Visitors, Vehicles and Equipment

Environment

Dairy farmers are committed to caring for the environment. Because the health of their land is essential to the continued success of their farm, careful management also has positive economic outcomes.

Dairy farmers manage a host of environmental concerns on their farms on a daily basis, in the farmyard, fields and pastures, or in other land on their farms, such as wetlands or woodlots. Beyond the requirements of the environment module, it is the farmer's responsibility to meet the applicable provincial regulations. For more information on these, farmers should contact their provincial agriculture department, provincial environmental department or provincial dairy association.

Reference Manual

The Reference Manual contains the detailed information associated with each requirement, and explains what farmers need to do to meet the requirement. The Reference Manual is designed to be a useful tool for you as you develop your farm plans and train your staff. It is also intended to help you implement BMPs and a HACCP-based program on your farm and strive for continuous improvement.

The book is organized into chapters that focus on the production components, inputs, outputs and processes of dairy operations. It covers areas such as the animals' environment, feed, animal health, milking procedures and water.

Most chapters contain:

- Descriptions of BMPs and requirements
- Management tools and processes
- Troubleshooting keys and corrective actions
- Cross-referencing to other chapters and resource material

The appendices contain a list of potential food safety hazards, and detailed directions on how to assess dairy cattle for animal care indicators, such as Body Condition Score, hock, knee, neck and mobility scores.

Workbook

The Workbook is a quick summary of the requirements. See the Workbook for tools to assess your current practices and review the mandatory records

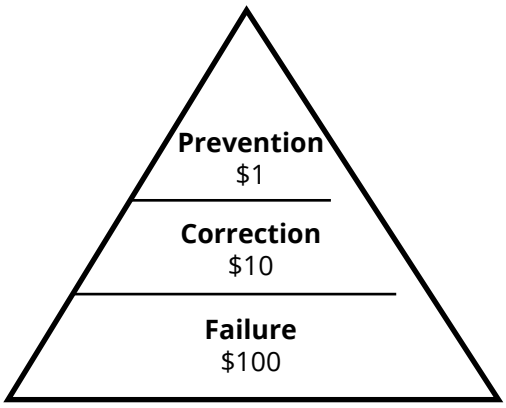
Shaded areas within both the Workbook and the Reference Manual are mandatory.

Unshaded areas within both the Workbook and the Reference Manual are recommended. Review the recommendations and select those that are applicable to your operation.

Further Notes: Hazard Analysis Critical Control Point (HACCP) Approach

A Hazard Analysis Critical Control Point Analysis (HACCP)-like approach is a systematic, science-based method of identifying and assessing food safety hazards in an operation and then developing steps to prevent, control and reduce those risks to acceptable levels.

Figure 1: Prevention savings



$1 spent on prevention
will save
$10 on product correction and
$100 to deal with product failure.

Advantages of a HACCP-based program are:

- A consistent supply of safe milk and meat to processors and consumers.
- Prevention of problems, which is cheaper than solving problems.
- Reduced penalties and less raw and finished product wastage.
- Increased farmer and processor milk and meat production efficiencies and improvements.
- Increased industry and consumer confidence.
- Better mechanism to respond to consumer demand for food safety.
- Better control over management = lower production costs = higher farmer profits.
- Standardization of daily routines.
- Improved herd health.
- Reduced environmental impact.
- Increased farmer gains from quality incentive payments (where applicable).
- Increased competitive edge over competitors (within milk and beverage industries).
- Food safety assurance for export trade.

HACCP refers to the systematic process of:

- Identifying **hazards** to food safety.
- Specifying **CCPs** in the production process where control measures are essential.
- Implementing and documenting **BMPs** to prevent problems.
- Setting **critical limits** to ensure each CCP is under control.
- Setting-up **monitoring procedures** for each CCP.
- Using **troubleshooting** procedures and **corrective actions** to eliminate or reduce food safety problems.
- Setting-up **verification procedures** to prove that the control program is working.
- Developing a **record-keeping** system to monitor the effectiveness of the HACCP system, which uses BMPs.
- **Hazards** are risks to food safety. Hazards are chemical, biological or physical in nature, for example:
  - **Chemical** — livestock medicine, pesticide residues, cleaning compound residues, and contaminated feeds.
  - **Biological** — harmful bacteria, parasites and other disease-causing organisms.
  - **Physical** — sediment, dust, flies, hair, glass, 'black specks' in milk and broken needles in meat.

The Food Safety module is HACCP-based because it is difficult to achieve full control of hazards on a farm: a farm is an open system, not a closed system like a processing plant. HACCP-based programs apply the principles of HACCP where applicable and practical on a farm. Furthermore, a HACCP-based program does not guarantee that the end product will be 100 percent safe. A HACCP-based program focuses on improving food safety management and addressing the process to reduce food safety risks.

Best Management Practices

BMPs are recommended and proven management procedures that help prevent on-farm food safety problems from occurring. They are the foundation of any HACCP program and are very important to an on-farm food safety program.

The Food Safety module has grouped BMPs into eight sections:

BMP1: Dairy facilities, pesticides and nutrient management

BMP2: Feed

BMP3: Animal health

BMP4: Medicines and chemicals used on livestock

BMP5: Milking management

BMP6: Facility and equipment sanitation

BMP7: Use of water for cleaning milk contact surfaces

BMP8: Staff training and communication

Critical Control Points

A CCP is a point, step or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level. Neglect or error in observing these points or practices could lead to *irreversible* problems with the end food product. The Food Safety module requires dairy farmers to monitor the Critical Control Points:

CCP 1: Milking treated animals

CCP 2: Cooling and storage of milk

CCP 3: Shipping animals

The irreversible damage that can be done to milk or meat if the CCPs are neglected can take several forms:

- Antimicrobial residues in the raw milk or meat cannot be removed.
- Milk may have a high bacteria count if it is not properly cooled or stored.
- Broken needles in meat damage the meat and pose a human health risk

None of these situations can be 'fixed' once the hazard has occurred; therefore, HACCP-based prevention programs are essential.

If a problem occurs at a CCP, a HACCP-based system requires corrective action plans to be in place to correct the problem.

Table 1: Critical control points, hazards and critical limits

CCP #	Hazard	Critical Limit
CCP 1: Milking Treated Animals	Chemical: *Pharmaceuticals*	Negative by a recognized test by the provincial regulatory authority
CCP 2: Cooling and Storage of Milk	Biological: *Pathogenic bacteria*	1st milking: greater than 0°C and less than or equal to 4°C within two hours after milking Subsequent milkings: temperature never above 10°C and greater than 0°C and less than or equal to 4°C within one hour after milking and maintained within that temperature range.
CCP 3: Shipping Animals	Chemical: *Pharmaceuticals, pesticides, biological products*	Negative by a recognized test by the federal or a provincial regulatory authority or information is communicated to the next buyer
	Physical: *Broken needles*	Zero tolerance or information is communicated to the next buyer

Standard Operating Procedures

Safe food can be produced on a continuous basis if every person involved works consistently. BMPs are the foundation of an on-farm food safety program and establishing SOPs is the first step in applying BMPs in a consistent manner. SOPs are documented procedures that describe step-by-step how an activity, such as milking, should be carried out. Examples of acceptable SOP methods are: written, pictorial, video or electronic files. SOPs in electronic format should be backed-up. Consistency with a repetitive task, such as milking, is necessary to produce safe milk and to produce it efficiently. Furthermore, if something goes wrong, the SOP can be re-evaluated to determine if it can be improved to prevent the problem from re-occurring.

Standard operating procedures, for example, can help farmers and their staff to:

- Know which animals produce milk that cannot go into the bulk tank - to prevent contamination of milk in the bulk tank.
- Apply the same milking routine with each milking - essential to obtain good milking performance.

SOPs need to be accessible and regularly updated. Employees need to be trained and evaluated on a regular basis to ensure consistency. Samples of some standard SOPs can be found throughout the Reference Manual.

Corrective Actions

Corrective Action Plans outline the steps family and staff should take to correct a problem if a problem occurs at a CCP and some BMPs (BMPs 4, 6 and 7). Corrective Action Plans should contain detailed instructions and contact numbers.

If a problem or deviation occurs at a CCP or some BMPs (BMPs 4, 6 and 7), the Food Safety module requires farmers to implement corrective actions to correct the problem and try to prevent the same problem from re-occurring. The module also requires that each deviation and chosen corrective action be documented. Many of the sample records in the Workbook have a place for deviations and corrective actions to be recorded and a separate sheet is provided as well.

Making HACCP Work

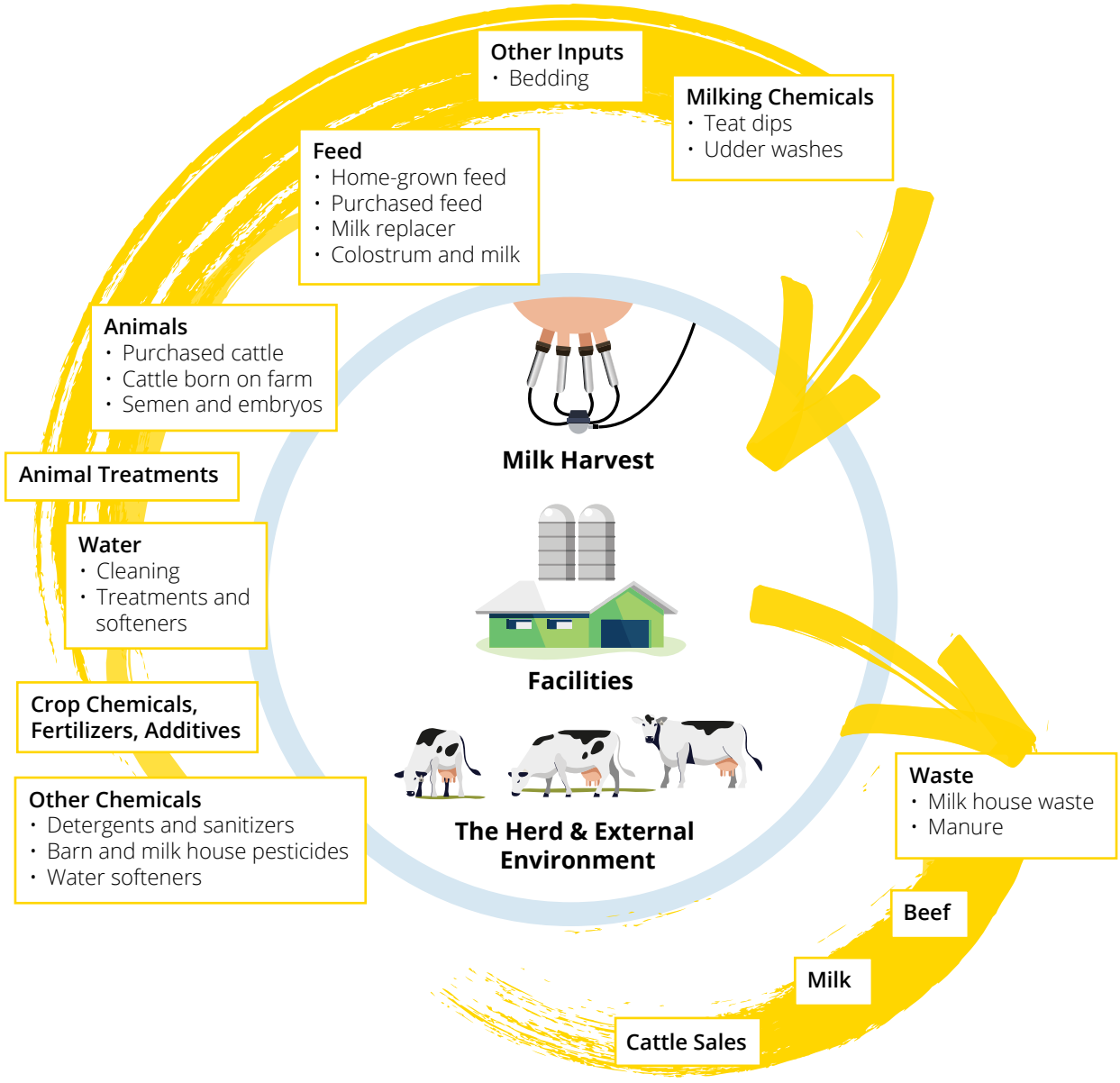
Implementing a HACCP-based program on a dairy farm requires:

- An honest, critical analysis of the operation.
- An assessment of hazards and CCPs in the production system.
- A practical and reliable record-keeping system.
- Time to assess the BMPs, corrective measures and alternatives.
- A training program for family members and staff.
- An ongoing commitment to food safety and continuous improvement.



Inputs and Outputs for the Production of Milk and Meat

The flow chart highlights the inputs and outputs for the production of milk and meat.



1.0 DAIRY FACILITIES AND PESTICIDES



INDEX:

Regulatory requirements

Pesticides and chemicals

Dairy facilities

Treated wood in cattle environments

Purchased inputs

Pest control

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 1		Validation Info		Chapter section #
		Major/ Minor	Demerits	
Regulatory Requirements				
FS1	**Licensed dairy farm:** Is your farm currently licensed to ship milk by the provincial regulatory authority?	✓		1.1
Pesticides and Chemicals				
FS2	Do you **only** use pesticides registered for use in the: • milk house? • barn? • fields?		✓	1.2.1
FS3	Do you use registered pesticides according to the label and follow pre-harvest intervals to harvest or grazing?		✓	1.2.1
FS4	Do you store pesticides, treated seed and fertilizer in a safe and secure manner and according to provincial dairy regulations?		✓	1.2.2
FS5	Is any hose connected to the milk house or barn water system used for filling pesticide sprayers or containers? ☐ Yes ☐ No If yes, do you have an anti-backflow device?		✓	1.2.2
Cattle Facilities				
AC1	Do you ensure that ANY housing systems, for unweaned calves: a) Is maintained in good condition to minimize injury and lameness? b) Allows calves to easily stand up, lie down, turn completely around, stand fully upright (without touching the top of the enclosure), adopt sternal and lateral resting postures and groom themselves? c) Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness? d) Permits calves to have visual contact with other cattle? e) Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress? f) If group housing, provides a bedded area large enough to allow all calves to rest comfortably at the same time? Do you ensure that INDOOR housing for unweaned calves: g) Does not include tethering? h) Do you have a plan for transitioning to pair/group housing by 2031? Do you ensure that OUTDOOR housing for unweaned calves: i) Allows physical contact with other calves? j) If tethered, allows calves to have access to an area out of the hutch and must include a collar?		✓	1.3.1.1

Farmer Requirements Reference Manual, Chapter 1		Validation Info		Chapter section #
		Major/ Minor	Demerits	
AC2	Do you ensure that housing for weaned heifers, including flooring: a) Is maintained in good condition to minimize injury and lameness? b) Allows heifers to easily stand up, lie down, adopt normal resting postures (including in a head back position) and groom themselves? c) Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness? d) Permits heifers to have physical contact with other cattle? e) Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress? f) If tethered, allows heifers to rest in a head back position?		✓	1.3.1.1
AC3	Do you ensure that breeding bull housing, including flooring (if applicable to your farm): a) Is maintained in good condition to minimize injury and lameness? b) Permits bulls to easily stand up, lie down, turn around, adopt normal resting postures, groom themselves and mount safely? c) Provides a resting surface with enough bedding to achieve comfort, traction, and cleanliness? d) Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress?		✓	1.3.1.1
AC21	Do you ensure that lactating cattle housing, including flooring: a) Is maintained in good condition with sufficient traction to minimize injury and lameness? b) Allows cattle to easily stand up, lie down, adopt normal resting postures and groom themselves? c) Provides a resting surface with enough bedding to achieve insulation, dryness, and comfort? d) Permits cattle to have visual and physical contact with other cattle? e) Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress? f) If tethered, allows lactating cattle to rest in a head back position?		✓	1.3.1.1
AC22	Do you ensure cattle are not housed in stanchions?	✓		1.3.1.1
AC23	Do newly built barns allow for: a) Lactating and/or dry cows to have daily, untethered freedom of movement and social interactions year-round? b) Cows to calve in an area that allows them to turn around?	✓		1.3.1.1
AC24	Do you provide opportunity for freedom of movement for cows during the production cycle (calving to calving)?		✓	1.3.1.1

Farmer Requirements Reference Manual, Chapter 1		Validation Info		Chapter section #
		Major/ Minor	Demerits	
AC18	Do you ensure that dry cattle housing, including flooring: a) Is maintained in good condition to minimize injury and lameness? b) Allows cattle to easily stand up, lie down, adopt normal resting postures and groom themselves? c) Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction and cleanliness? d) Permits cattle to have visual and physical contact with other cattle? e) Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress? f) If tethered, allows dry cattle to rest in a head back position?		✓	1.3.1.1
AC4	Do you ensure that dry cattle and lactating cattle housing provides adequate stocking densities?		✓	1.3.1.1
AC19 (FS)	Do your animal husbandry, manure and waste management systems ensure the cleanliness of lactating cattle's udders, legs and flanks?		✓	1.3.1.1
AC5	Do you ensure that the calving area (prior to and after delivery of calf): a) Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness? b) Is separated from the lactating herd? c) Provides enough space for the cow to be assisted?		✓	1.3.1.1
AC6	Do you have a designated area for the segregation and treatment of sick, lame and injured cattle and does it include enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness?		✓	1.3.1.1
AC7	Use of electricity for crowd gates and tie stall trainers: a) Do you ensure that crowd gates are not electrified? For tie-stall barns, are electric trainers: b) Adjustable and positioned correctly to enable normal eating, standing, and lying behaviour? c) Only used when needed to train or retrain individual cattle?		✓	1.3.1.1
FS7	Do you restrict cattle access to manure storage or manure run-off?		✓	1.3.2
FS8	At the time of milk pick-up, is the laneway and loading area free of manure contamination?		✓	1.3.3
FS9	If you use sewage sludge, do you have the necessary approval/permits required to use sewage sludge on your farm?		✓	1.3.4

Introduction

Whether cattle are grazing in pastures, passing time in exercise yards, standing in the milking parlour or lying in their stalls, their environment can pose hazards if improperly managed. Exposure to chemicals, contaminated water sources, hazardous objects (e.g., discarded wire, boards with nails), manure and muddy areas can affect cattle health and, in turn, milk quality and safety.

The proper management of pesticides, animal manure and pests is important to the production of safe milk and meat. Livestock wastes include potentially harmful components: nitrates, phosphates, organic material and microbes (e.g., bacteria, viruses, protozoa and parasites). Improperly handled livestock waste can pollute water sources, cause diseases, and result in fly outbreaks.

The milk house is the final stop for quality control on the farm. Milk safety and quality can be affected by hazards such as insects and improperly stored cleaning, pest control and pharmaceutical products.

BMPs for dairy operation facilities, from simple cleanliness to overall facility design, can minimize these hazards and keep livestock dry, comfortable, safe and healthy.

Well-designed and maintained housing systems provide cattle with an environment to promote health, comfort and safety.

1.1 Regulatory Requirements

Food Safety (FS) 1: Licensed dairy farm: Is your farm currently licensed to ship milk by the provincial regulatory authority?

Reference: BMP 1

Issue: Farmers have to have a license or shipper number to legally ship milk and farmers must follow provincial requirements to qualify for proAction.

Explanation: proAction is not designed to replace or supersede regulations pertaining to food safety on dairy farms. A farm/farmer must be licensed to ship milk by the provincial regulatory authority. The farm/farmer must also meet the minimum acceptable standards set out in the dairy regulations of that province that apply to food safety, as well as any food safety-related Federal regulations (e.g., Feeds Regulations). As regulations are added or amended in a province, they will apply to proAction.

1.2 Pesticides and Chemicals

Pesticide and chemical use on dairy farms must be properly controlled to ensure that milk and meat are not accidentally contaminated. Pesticides include chemicals used on crops or pastures, and in and around the milk house and barns.

1.2.1 Pesticide and Chemical Application

FS2: Do you only use pesticides registered for use in the: (Demerits)
- **milk house?**
- **barn?**
- **fields?**

Reference: BMP 1

Issue: Pesticides used in the milk house may contaminate the milk either directly or indirectly (e.g., pesticide residue on equipment). Pesticides used in the barn and/or fields may contaminate animal feed and water, which may result in residues in the milk and meat.

Explanation:

- **Only use registered pesticides.** All products used on pastures, crops, feeds and surrounding land or in farm buildings must be registered for use in Canada. This includes pesticides used to control rodents and flies.
- Manage **all** chemicals used on the farm, regardless of whether they are specific to dairy animals, in a manner that will avoid the accidental introduction of these products into the feed and, as a result, into milk and meat.

Pesticide is the generic term used for any substance used to destroy an organism harmful to plants, animals, stored food, etc. More specific terms are herbicides (e.g., weeds), avicides (e.g., birds), insecticides (e.g., insects), and rodenticides (e.g., rodents).

FS3: Do you use registered pesticides according to the label and follow pre-harvest intervals to harvest or grazing? (Demerits)

Reference: BMP 1

Issue: Pesticides used extra-label may have an extended withdrawal time for harvesting or grazing and may have other negative impacts on the crop. Withdrawal times have to be followed to ensure there are no chemical residues on the crop or pasture.

Explanation:

- **Always follow label directions** when applying pesticides (e.g., herbicides, rat poison) to pastures, crops, surrounding land or in farm buildings.
  - Check labels for compatibility with lactating and meat animals, withdrawal requirements for milk and meat, and proper application rates of products to the conditions, plants and feeds being targeted.
  - Pay particular attention to "Days Before Grazing" intervals before allowing animals access to pastures. Follow "Pre-harvesting Intervals" or "Days To Harvest" for forage fields.
  - Be aware of any cautions regarding toxicities to animals (e.g., rat poison).
  - Fly sprays and pesticides used in the milk house or milking parlour must be registered for use in those areas.
- Follow all recommended procedures for using, mixing and applying pesticides. Never mix and store any pesticides nor rinse or clean pesticide containers or equipment near dairy feed or milking facilities.
- Beware of other factors when handling pesticides or chemicals:
  - Avoid over-spraying and spills.
  - Never use equipment or facilities meant for dairy use to mix chemicals or drug treatments — residues will remain on equipment or allow for cross-contamination through spills, air dispersal, back-siphoning effects, etc. Remember that water systems are often connected; therefore, contaminating water in one section of the farm may contaminate the entire water system.
- Keep an inventory record of all pesticides used on the farm.
- Check pasture for signs of pesticide drift when walking the fields by looking for herbicide injury symptoms on forage plants. If symptoms are present, investigate further before allowing animals to enter.
- Ensure all individuals on the farm who work with pesticides:
  - Know where and how pesticides used on the farm should be mixed, used, stored and disposed of.
  - Know how to dispose of empty pesticide containers.
  - Follow good hygiene practices after handling pesticides, chemicals and drugs.

1.2.2 Pesticide and Chemical Storage and Handling

FS4: Do you store pesticides, treated seed and fertilizer in a safe and secure manner and according to provincial dairy regulations? (Demerits)

Reference: BMP 1

Issue: Pesticides stored improperly can come into contact with cattle and milking equipment, potentially contaminating milk or meat.

Explanation: Generally, dairy cattle are at risk of coming into contact with contaminants in areas where these products are stored and mixed. Improper storage and handling practices can cause spills and leaks or cross-contamination with feedstuffs. The following practices will help minimize risk:

- Store pesticides, treated seed and fertilizers separately and in original containers in a location where there is no livestock access or risk of contaminating milk, and according to provincial dairy regulations.
  - Crop or animal pesticides must not be stored in the milk house, unless registered for use in the milk house.
  - Pesticides, cleaners and other substances that are not for use on or in cattle must not be stored with livestock medicines and chemicals. They must be stored separately (e.g., another cupboard or different shelves). Pesticides should pose no risk of contaminating feed, milking equipment or products used on milk contact surfaces.
  - Access to the storage area must not be through the milking parlour or milk house because, if it were, a spill during transport could contaminate the parlour/milk house equipment resulting in a food safety hazard. If there are no other options, farmers must be able to show how they can safely transport those products or they must re-locate them.

FS5: Is any hose connected to the milk house or barn water system used for filling pesticide sprayers or containers?
☐ **Yes** ☐ **No**

If yes, do you have an anti-backflow device? (Demerits)

Reference: BMP 1

Issue: Without an anti-backflow device, pesticides may be drawn up hoses when the water is turned off. This contaminated water may then be sprayed in the milk house, parlour, etc., potentially causing a milk and meat safety concern. The contaminated water may also flow back into a cistern, contaminating that water, which may in turn be used to wash equipment.

Explanation:

- Handle pesticides, treated seed, and fertilizers properly.
  - If any hose connected to the milk house or barn water system is used to fill pesticide sprayers or containers, use an anti-backflow device or air-gap on the hose to effectively prevent back-siphoning; hence, contamination of lines or cisterns.
  - Never mix any pesticides, treated seed or fertilizers near dairy feed or milking facilities. Do so only in a properly designed storage or handling facility.
  - Never clean or rinse any equipment related to the use of pesticides, treated seeds or fertilizers near dairy feed or milking facilities.
  - Dispose of containers properly. Triple rinse to flush remaining pesticide. Bring empty and rinsed containers to designated disposal areas.
  - Follow proper spill clean-up procedures. Check product Material Safety Data Sheets (MSDS) for specific instructions.

For further information, contact your provincial or regional authority on pesticides.

1.3 DAIRY FACILITIES

1.3.1 Cattle Environment

1.3.1.1 Housing

Animal Care (AC) 1: Do you ensure that ANY housing systems, for unweaned calves: (Demerits)

a. **Is maintained in good condition to minimize injury and lameness?**
b. **Allows calves to easily stand up, lie down, turn completely around, stand fully upright (without touching the top of the enclosure), adopt sternal and lateral resting postures and groom themselves?**
c. **Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness?**
d. **Permits calves to have visual contact with other cattle?**
e. **Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress?**
f. **If group housing, provides a bedded area large enough to allow all calves to rest comfortably at the same time?**

Do you ensure that INDOOR housing for unweaned calves:

g. **Does not include tethering?**
h. **Do you have a plan for transitioning to pair/group housing by 2031?**

Do you ensure that OUTDOOR housing for unweaned calves:

i. **Allows physical contact with other calves?**
j. **If tethered, allows calves to have access to an area out of the hutch and must include a collar?**

Code of Practice: Sections 2.1, 2.2.1, 2.4, and 2.8

Issue: Calf housing should be designed and maintained to ensure calves are clean, dry, comfortable and healthy and have some social contact and freedom of movement.

Explanation: Indoor housing is defined as housing that involves a roofed structure with four closeable sides. Calf hutches located under a roofed structure with four closeable sides would be considered indoor housing and must abide by the indoor unweaned calf housing requirements.

Outdoor housing is defined as housing that does not involve a roofed structure with four closeable sides. Calf hutches located under a roofed structure with less than four closeable sides would be considered outdoor housing and must abide by the related outdoor unweaned calf housing requirements.

Calves must be able to easily stand up, lie down, turn completely around easily and without touching the sides of the pen, stand fully upright (without touching the top of the enclosure), adopt sternal and lateral resting postures and groom themselves over the whole body so that they can maintain health and thrive. If group housing is used, all calves must have space to lie down at the same time.

There must be enough bedding to keep calves clean and dry while providing them with a comfortable place to rest and minimize slipping and falling. Bare concrete or hard rubber mats without bedding are not acceptable. Bedding is required even with softer stall surfaces (e.g., mattresses).

To test bedding quality, kneel down on the bedding and rock back and forth. The bedding should provide enough cushion so that rocking back and forth does not hurt your knees. If your knees are wet after 10 to 20 seconds, the bedding is not sufficient to keep cattle dry and clean.

Calf barns and hutches must be designed and equipped with the necessary features that result in fresh air during expected temperatures. Air quality, dust, moisture and temperature must be acceptable for cattle health and welfare. This will be assessed via BIO2 and calf health records – there must be no strong odours of ammonia - observe animals for coughing and runny eyes. Heaters, fans, etc., may be provided if necessary, and be in good working order. Verify by observing that calves are not shivering in cold weather and not panting (i.e., open-mouth breathing) in hot weather.

Cattle are herd animals and can become stressed if housed alone. As a result, calves must be able to have visual contact with other cattle. If extreme weather is expected, it is acceptable to temporarily block hutch doors to safeguard the health and welfare of calves. While this practice prevents calves from having visual contact with other cattle, it is acceptable as it is only for a short period of time (i.e. typically only 3-5 days). Note that calves will require increased monitoring in such a situation.

Calves that are housed indoors must not be tethered. Farmers that house calves indoors must have a plan to transition to pair/group housing. Effective April 1, 2031, indoor-housed calves must be housed in pairs or groups by 4 weeks of age. Movement into pairs/groups may need to be delayed for individual calves that are not healthy and thriving. In buildings where calves are at risk of frozen extremities during sustained cold weather, nose-to-nose contact should be sufficient during this cold period. Once moved into pairs/groups, individual calves may need to be singly housed temporarily if they have a health condition that would improve with separation. Movement into pairs/groups may also need to be delayed to ensure there are a sufficient number of calves that are compatible with their age, size, and drinking speed. To maximize calf welfare, calves should be paired or grouped with calves of similar size and age. If possible, groups of calves should be managed in an all-in/all-out method to reduce the risk of disease transmission. The facility should be cleaned and disinfected between groups.

Calf hutches are an acceptable outdoor housing option. If buddy hutches are used, calves should have access to an area outside the hutch. The 2023 *Code of Practice* only allows calves to be tethered to an outdoor hutch if calves have additional benefits of an outdoor area and therefore fresh air and increased space allowance. However, farmers are strongly encouraged to use hutches that allow calves to have untethered freedom of movement and social interactions to align with the long-term social sustainability of the industry, research on consumer/public viewpoints, and the future direction for dairy cattle housing more generally.

Calves can only be tethered to a hutch outside and must have access to an area outside the hutch so that their whole bodies can be outside the hutch. A window that allows just their head and neck out of the hutch is not adequate. If tethered, appropriate collars must be used – materials such as chain, wire, or baler twine are not acceptable.

Outdoor-housed calves must be able to have physical contact with other cattle. Continuous opportunity for nose-to-nose contact is the minimum acceptable level of contact. Calves may be separated for health reasons, or the need to be protected from inclement weather, and safety.

Outdoor housing includes hutches or pens located under a roofed structure with less than four closable sides.



AC2: Do you ensure that housing for weaned heifers, including flooring: (Demerits)

a. **Is maintained in good condition to minimize injury and lameness?**
b. **Allows heifers to easily stand up, lie down, adopt normal resting postures (including in a head back position) and groom themselves?**
c. **Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness?**
d. **Permits heifers to have visual contact with other cattle?**
e. **Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress?**
f. **If tethered, allows heifers to rest in a head back position?**

Code of Practice: Sections 2.1, 2.2.2, 2.4, 2.5 and 2.8

Issue: Heifer housing should be designed and maintained to ensure heifers are comfortable and healthy.

Explanation: Heifers must be able to easily stand up, lie down, adopt normal resting postures (including being able to lay in the head back position) and groom themselves. If heifers are housed in free-stalls, the free-stall stocking density requirements apply, which are 1.1 heifers/stall. If heifers are housed in tethered stalls, their tether must be long enough to allow their head to rest in a head back position.

There must be enough bedding to keep heifers clean and dry while providing them with a comfortable place to rest and minimize slipping and falling. Resting surfaces without bedding are not acceptable. Some form of bedding is required for all surfaces, including softer stall surfaces (e.g., mattresses).

To test bedding quality, kneel down on the bedding and rock back and forth. The bedding should provide enough cushion so that rocking back and forth does not hurt your knees. If your knees are wet after 10 to 20 seconds, the bedding is not sufficient to keep cattle dry and clean.

Heifer facilities must be designed and equipped with the necessary features that result in fresh air during expected temperatures. Air quality, dust, moisture and temperature must be acceptable for cattle health and welfare. There must be no strong odours of ammonia – observe animals for coughing and runny eyes. Heaters, fans, etc., may be provided if necessary, and be in good working order. Verify by observing that cattle are not shivering in cold weather and not panting (i.e., open-mouth breathing) in hot weather.

Cattle are herd animals and can become stressed if housed alone. In routine management, heifers must be able to have physical contact with other cattle. In circumstances where a heifer may need to be isolated, physical contact may not be possible, but the opportunity for visual contact must be maintained.

AC3: Do you ensure that breeding bull housing, including flooring (if applicable to your farm): (Demerits)

a. **Is maintained in good condition to minimize injury and lameness?**
b. **Permits bulls to easily stand up, lie down, turn around, adoptnormal resting postures, groom themselves and mount safely?**
c. **Provides a resting surface with enough bedding to achieve comfort,traction, and cleanliness?**
d. **Provides fresh air and prevents the buildup of harmful gases,dust and moisture, and reduces the risk of heat and cold stress?**

Code of Practice: Sections 2.1, 2.2.4, 2.4, 2.5, and 2.8

Issue: Bull housing should be designed and maintained to ensure bulls are comfortable and healthy.

Explanation: Breeding bull housing must enable bulls (dairy and/or beef bulls) to easily stand up, lie down, adopt normal resting postures, groom themselves and mount safely. Bulls must not be tethered.

There must be enough bedding to keep breeding bulls clean and dry while providing them with a comfortable place to rest and minimize slipping and falling. Resting surfaces without bedding are not acceptable. Some type of bedding is required for all stall surfaces, including mattresses. To test bedding quality, kneel down on the bedding and rock back and forth. The bedding should provide enough cushion so that rocking back and forth does not hurt your knees. If your knees are wet after 10 to 20 seconds, the bedding is not sufficient to keep cattle dry and clean. Make sure the bull isn't in the pen when you test the bedding.

Breeding bull facilities must be designed and equipped with the necessary features that result in fresh air during expected temperatures. Air quality, dust, moisture and temperature must be acceptable for cattle health and welfare. There must be no strong odours of ammonia – observe animals for coughing and runny eyes. Heaters, fans, etc., may be provided if necessary, and be in good working order. Verify by observing that breeding bulls are not shivering in cold weather and not panting (i.e., open-mouth breathing) in hot weather.

AC21: Do you ensure that lactating cattle housing, including flooring: (Demerits)

a. **Is maintained in good condition with sufficient traction to minimize injury and lameness?**
b. **Allows cattle to easily stand up, lie down, adopt normal resting postures and groom themselves?**
c. **Provides a resting surface with enough bedding to achieve insulation, dryness, and comfort?**
d. **Permits cattle to have visual and physical contact with other cattle?**
e. **Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress?**
f. **If tethered, allows lactating cattle to rest in a head back position?**

Code of Practice: Sections 2.1, 2.2.3, 2.4, 2.5, and 2.8

Issue: Lactating cattle housing should be designed and maintained to ensure cattle are clean, dry, comfortable and healthy and have some social contact.

Explanation: Lactating cattle must be able to easily stand up, lie down (e.g., complete the movement in a few seconds, stand up and lie down in a single

uninterrupted movement without slipping or falling), adopt normal resting postures (lying on their side as well as the sternum, including head back position) and groom themselves over their whole body so that they can maintain health and thrive.

There must be enough bedding to keep cattle clean and dry while providing them with a comfortable place to rest and minimize slipping and falling. Bare concrete or hard rubber mats without bedding are not acceptable. Some type of bedding is required for all stall surfaces, even mattresses.

To test bedding quality, kneel down on the bedding and rock back and forth. The bedding should provide enough cushion so that rocking back and forth does not hurt your knees. If your knees are wet after 10 to 20 seconds, the bedding is not sufficient to keep cattle dry and clean. Alternatively, observe cleanliness of cows, as described in AC19.

Cows must have the opportunity for visual contact with other cattle. In routine management, cows must be able to have physical contact with other cattle. In circumstances where a cow may need to be isolated, physical contact may not be possible, but visual contact should be maintained.

Lactating cattle facilities must be designed and equipped with the necessary features that result in fresh air during expected temperatures. Air quality, dust, moisture and temperature must be acceptable for cattle health and welfare. There must be no strong odours of ammonia – observe animals for coughing and runny eyes. Heaters, fans, etc., may be provided if necessary, and be in good working order. Verify by observing that lactating cattle are not shivering in cold weather and not panting (i.e., open-mouth breathing) in hot weather.



AC22: Do you ensure cattle are not housed in stanchions?

Code of Practice: Section 2.5

Issue: Stanchions are not acceptable forms of housing for cattle.

Explanation: Stanchions interfere with an animal's ability to adopt normal resting postures, including a head back position. Stanchion housing is not permitted.



AC23: Do newly built barns allow for:

a. **Lactating and/or dry cows to have daily, untethered freedom of movement and social interactions year-round?**
b. **Cows to calve in an area that allows them to turn around?**

Code of Practice: Sections 2.2.3 and 2.3.1

Issue: Cows housed in newly built barns must be provided daily untethered freedom of movement and social interactions year-round. Newly built barns housing cattle that are going to calve must permit them to turn completely around.

The number of tie stall barns being built in Canada and internationally has been steadily declining for many years. Farmers building a new barn are encouraged to continue this trend, one that was initiated within the dairy industry and that aligns with research on consumer/public viewpoints and the long-term social sustainability of the industry. Farmers building a new barn are encouraged to select options that most effectively achieve the requirement below for daily, untethered freedom of movement and social interactions year-round. Bedded packs and free stalls are among the many examples of systems that effectively meet the needs of the cattle.

Housing systems should be designed, constructed, operated, and maintained to meet the needs of the cows. There are advantages and disadvantages to all housing systems–this is reflected in both the research and everyday experience of those who care for cattle. Regular freedom of movement and the ability to socialize are among the benefits of loose housing, but cows can experience competition in these systems. Tie stalls offer cattle a competition-free environment that facilitates observation of individual cattle and, therefore, earlier detection of changes (e.g., body condition). However, freedom of movement is only possible when they're given access to loose housing or an outdoor area.

Research shows no overall benefit for several welfare indicators (e.g., lameness, hock and knee injuries) when comparing tie and free stalls. Yet cattle clearly benefit from, and are motivated to have, regular opportunities to move freely. Increased movement opportunity through less restrictive indoor housing and/or outdoor access improves dairy cow health, behaviour, performance, and welfare. More specifically, giving cattle regular access to open outdoor areas or bedded packs improves hoof health, reduces the frequency and severity of injuries, and can reduce the occurrence of lameness by 3.5–8%. Outdoor access and/or less restrictive indoor housing also enables social grooming and walking/trotting. More research is needed to determine ideal frequencies and durations of freedom of movement, and what constitutes sufficient regular opportunities for freedom of movement will be defined according to research as it becomes available.

Explanation: Increased freedom of movement benefits cow health, behaviour, performance, and welfare. Barns built, where construction of the housing facility started on or after April 1, 2024, for the purpose of housing lactating and/or dry cows, must allow for cows housed in the newly built barn to have a minimum of one hour per day of daily untethered freedom of movement. This allows for social interactions (nose-to-nose contact

is acceptable for cattle in individual box stalls) with other cattle if it is safe to do so. Providing cows with at least one hour of access to an exercise area has been shown to promote locomotion and natural behaviours. Temporarily, during extreme weather conditions, cows may not have freedom of movement if the opportunity involves outdoor access (e.g., icy conditions can pose a risk for cows to slip and fall). Options available to farmers to offer freedom of movement include, but are not limited to:

- Offering loose housing.
- Offering pasture access.
- Offering access to an exercise yard.

As of April 1, 2024, a newly built barn is defined as a new, separate building, or a rebuild of any pre-existing dry and/or lactating housing facility. Facilities that were not previously used for housing dairy cattle will also be considered newly built barns if they are converted for dry and/or lactating housing on or after April 1, 2024. A newly built barn does not include a renovation within pre-existing dry and/or lactating housing facility and extension to an existing facility.

Barns built on or after April 1, 2024, for the purpose of housing animals that are going to calve, must permit cows to turn completely around. Cows must not be tethered at calving.

Effective April 1, 2029, cattle on all farms must calve in loose-housed maternity pens, yards, or pastures that permit them to turn around.



AC24: Do you provide opportunity for freedom of movement for cows during the production cycle (calving to calving)? (Demerits)

Code of Practice: Section 2.2.3

Issue: Cows must not be tethered throughout the entirety of their production cycle (calving to calving) and must have the opportunity for freedom of movement.

Explanation: Increased freedom of movement benefits cow health, behaviour, performance, and welfare. (e.g., mental state). In tie stall barns where construction of the facility began prior to April 1, 2024, cows must be provided an opportunity for unrestricted movement for a minimum of 55 days in a production cycle, consecutive or not (exercise must be a minimum of 1 hour per day). Providing cows with at least one hour of access to an exercise area has been shown to promote locomotion and natural behaviours. Weather conditions may not allow for cows to have unrestricted freedom of movement in inclement weather (e.g., icy conditions can pose a risk for cows to slip and fall) but cows must still receive a minimum of 55 days of movement per production cycle. The provision of unrestricted freedom of movement can be met by one or more of the following, but are not limited to:

- Housing lactating cows in free stall or loose housing or on pasture.
- Housing dry cows in loose housing or at pasture.
- Providing regular access to exercise yards and/or pasture for lactating and dry cows year-round, weather and conditions permitting.

Research shows that the benefits to animal health are higher with increased freedom of movement. This is the minimum and should be expected to increase in future publications of the proAction program.



AC18: Do you ensure that dry cattle housing, including flooring: (Demerits)

a. Is maintained in good condition to minimize injury and lameness?
b. Allows cattle to easily stand up, lie down, adopt normal resting postures and groom themselves?
c. Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction and cleanliness?
d. Permits cattle to have visual and physical contact with other cattle?
e. Provides fresh air and prevents the buildup of harmful gases, dust and moisture, and reduces the risk of heat and cold stress?
f. If tethered, allows dry cattle to rest in a head back position?

Code of Practice: Sections 2.1, 2.2.3, 2.4, 2.5, and 2.8

Issue: Dry cattle housing should be designed and maintained to ensure cattle are clean, dry, comfortable and healthy and have some social contact.

Explanation: Dry cattle must be able to easily stand up, lie down (e.g., complete the movement in a few seconds, stand up and lie down in a single uninterrupted movement without slipping or falling), adopt normal resting postures (lying on their side as well as the sternum, including head back position) and groom themselves so that they can maintain health and thrive.

There must be enough bedding to keep cattle clean and dry while providing them with a comfortable place to rest and minimize slipping and falling. Bare concrete or hard rubber mats without bedding are not acceptable. Some type of bedding is required for all stall surfaces, even mattresses.

To test bedding quality, kneel down on the bedding and rock back and forth. The bedding should provide enough cushion so that rocking back and forth does not hurt your knees If your knees are wet after 10 to 20 seconds, the bedding is not sufficient to keep cattle dry and clean.

Cows must have the opportunity for visual contact with other cattle. In routine management, cows must be able to have physical contact with other cattle.
In circumstances where a cow may need to be isolated, physical contact may not be possible, but visual contact should be maintained.

Dry cattle facilities must be designed and equipped with the necessary features that result in fresh air during expected temperatures. Air quality, dust, moisture and temperature must be acceptable for cattle health and welfare. There must be no strong odours of ammonia - observe animals for coughing and runny eyes. Heaters, fans, etc., may be provided if necessary, and be in good working order. Verify by observing that dry cattle are not shivering in cold weather and not panting (i.e., open-mouth breathing) in hot weather.

AC4: Do you ensure that dry cattle and lactating cattle housing provides adequate stocking densities? (Demerits)

Code of Practice: Section 2.6

Issue: Dry and lactating cow housing should be designed and maintained to ensure cows are comfortable and healthy, and to minimize competition.

Explanation: Your housing design should encourage cattle to rest. Adequate space allowances will minimize competition between cattle for lying areas, feed and water, and allows for sufficient cleanliness and health. Cattle produce more milk when they can rest for adequate amounts of time during the day.

If you have a free-stall barn, the stocking density must not routinely exceed a ratio of 1.1 cows to stalls (i.e. for a maximum of 6 months without a plan to correct the stocking density).

For example, if you are milking 110 cows, you must have at least 100 stalls available to them (110 cows/100 stalls = 1.1 cows/stall). This applies to all free-stall barns (parlour, automated milking systems, etc.).

Effective April 1, 2031, stocking density must not routinely exceed 1 cow/stall.

Stocking density can go up to 1.2 cows per stall, but never as routine management.

During any period of increased stocking density, cow welfare should be closely monitored for deviations from normal conditions that could compromise welfare (e.g., lameness, cleanliness, or injuries). If welfare concerns are identified, prompt corrective action should be taken.

If you have a bedded-pack barn, each dry and lactating cow must be provided with 9.3 m^2 (100 ft^2) of useable resting space. The stocking density of the hospital area to house lactating and dry cattle must be 9.3 m^2 (100 ft^2) of bedded resting area per cow. You can calculate the square footage of the bedding area (length x width) and divide it by the number of cattle in the pen to determine your bedded-pack stocking density.

Smaller breeds (e.g., Jerseys) require 80% of the space (7.4 m^2 (80 ft^2) that a mature Holstein cow requires.

AC19 (FS): Do your animal husbandry, manure and waste management systems ensure the cleanliness of lactating cattle's udders, legs and flanks? (Demerits)

Code of Practice: Section 5.1.1

Reference: BMP 1

Issue: Dirty lactating cow's udders can lead to bacterial contamination of the udders and, subsequently, milk. Clean udders, legs and flanks are indicators of a clean environment, which will also contribute to healthy udders and lower somatic cell counts.

Explanation: The goal is that dairy cattle housing provides an environment that is clean, dry, comfortable and safe. A clean environment will help reduce hazards to milk safety that are related to dirty udders (e.g. bacteria), and also help prevent health issues, such as mastitis. Your housing system should be designed and maintained to ensure the cleanliness of lactating cattle's udders, legs and flanks. Adequate bedding contributes to cleaner cattle. If your cattle are dirty, you may need to evaluate your bedding choice and volume, as well as stall design.

Ideally, all cattle in your herd should score a 1 or 2. Over 20% of the herd scoring a 3 or 4 is unacceptable. You can use hygiene scoring as a tool to assess your housing environment, but you do not need to keep a record of hygiene evaluations. When a validator visits your farm, they will observe your milking herd to assess cattle hygiene.

Clean udders are the first priority, then flanks and then legs.

Refer to the Cow Cleanliness Assessment chart in Figure 2.



Figure 2: Cow cleanliness assessment

Source: Canadian Bovine Mastitis and Milk Quality Research Network (CBMQRN)

Cow Cleanliness Assessment

Réseau canadien de recherche sur la mammite bovine
Canadian Bovine Mastitis Research Network

The cleanliness of cows has a significant impact on udder health and more particularly on the rate of environmental mastitis. Maintaining a clean udder and legs helps reducing the spread of environmental pathogens to the teat canal. Depending on what part of the cow is soiled, it is possible to determine what areas of the barn have an inadequate level of cleanliness, therefore appropriate corrective action can be taken.



Adapted from fact-sheets produced by the Faculty of Veterinary Medicine, University of Wisconsin, and Pfizer Animal Health. Most photos courtesy of Pfizer Animal Health.

Udder cleanliness
(back and sides)

is an indicator of the cleanliness of stalls and bedding.
(Examine right before milking)

If the standard is not met, check:
- Cleanliness of stalls
- Amount of bedding
- Need to shave/singe udder hair
- Manure consistency

Hind legs cleanliness

is an indicator of the cleanliness of alleyways and the length of tie stalls.

If the standard is not met, check:
- Cleanliness of alleyways and exterior areas
- Cleanliness of holding area
- Dimension of stalls
- Manure consistency

Flanks and hips cleanliness

is an indicator of the cleanliness of stalls and bedding.

If the standard is not met, check:
- Cleanliness of stalls
- Amount of bedding
- Manure consistency

Photo credits: «*Less Mastitis, Better Milk*» (Pierre Lévesque, 2004), distributed by Hoard's Dairyman (www.hoards.com).

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01/09/10

The following BMPs describe some methods to help keep lactating cows clean:

- Design stall area for cattle safety, cleanliness, maximum comfort and space for movement.
  - Ensure proper slope (recommended minimum 2-3%) for surface drainage.
  - Construct curbs at recommended heights to keep manure, scrapings and flush water out and to minimize udder damage.
  - Design stalls to provide enough lunge space in front of the cows so they can get up and down naturally. If they cannot lunge forward naturally, they may lunge diagonally, increasing stall dirtiness.
    - In free-stalls, mounting loops on posts eliminates horizontal mounting pipes in the "bob" zone of cattle.
    - In tie-stalls, a higher head rail and a longer chain allow cows to get up and down naturally and to rest in their favourite position.
  - Stall width and length and neck rail position are a compromise between cow comfort and stall cleanliness.
  - In tie-stalls, install the water bowl over the manger to prevent overflow on the bedding.
- Maintain stalls:
  - Keep stalls clean, dry and drainable.
  - Clean stalls at least twice a day and rake as required to maximize cow cleanliness, comfort and use.
  - Regardless of whether the stall surfaces are concrete, rubber mats or mattresses, keep them covered with a layer of fresh bedding. See the "Test it" section below.
- Ensure stall bedding materials are absorbent, comfortable and do not encourage bacterial growth. Two choices of bedding materials are:
  - Organic (e.g., sawdust, shavings, straw, earth).
  - Inorganic (e.g., sand).
- Limit access to manure-cleaning equipment.

Test it: To test stall comfort, kneel down where your cattle have to lie. Rock back and forth; the surface should be comfortable and cushion your knees. If it hurts your knees to fall on this surface, your cattle will be reluctant to use this area. If after 10 to 20 seconds your knees are wet or dirty, udders will get dirty as well. In both cases, bedding management should be improved.

All cattle should be kept clean to reduce hazards associated with meat safety due to manure accumulations on hides when the animals are shipped. The BMPs described above also apply to keeping animals' hides clean.

AC5: Do you ensure that the calving area (prior to and after delivery of calf): (Demerits):

a. Provides a resting surface with enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness?
b. Is separated from the lactating herd?
c. Provides enough space for the cow to be assisted?

Code of Practice: Sections 2.3, 2.3.1 and 5.4

Issue: The calving area must be kept clean and dry to minimize the risk of disease transfer to the calf from the dam and the environment and must be designed and managed in a way to maximize the chance of positive calving outcomes for cow and calf.

Explanation: The calving area must have enough bedding and fresh bedding provided as often as necessary to keep cattle clean and dry, to rest comfortably and to minimize slipping and falling. Cleanliness is particularly important in the calving area to protect the newborn calf from diseases that can be transferred from manure to the calf.

In barns built prior to April 1st, 2024, cattle can be kept in the tie-stall to calve as long as the gutter is covered in



a manner to prevent the calf from landing in it. Calving areas must be separated from the milking herd if cows are loose housed. For barns built on or after April 1st, 2024, refer to AC23 (newly built barn requirements).

To mitigate disease transmission, it is best practice to have the calving area separate from a hospital special needs pen. However, if this cannot be accommodated, avoid housing sick cattle together with cattle that are calving, whenever possible. Disease transfer to the calf is the main concern. A temporary gated area is acceptable as a calving area, as long as it is kept clean and dry, and cattle have access to feed and water at all times for use for calving.

Effective April 1, 2029, cattle must calve in loose housed maternity pens, yards, or pastures that permit them to turn around.

The space allowance of the calving area is recommended to be 15 m^2 (160 ft^2) of useable resting area for individual maternity pens or 14m^2 (150 ft^2) of useable resting area per mature cow in a group calving pen. The stocking density requirement AC4 applies to the calving area, and the dry cow housing requirements under AC18 apply to this question.

AC6: Do you have a designated area for the segregation and treatment of sick, lame and injured cattle and does it include enough bedding to achieve insulation, dryness, comfort, traction, and cleanliness? (Demerits)

Code of Practice: Section 2.3.3

Issue: Sick, lame and injured cattle may need a designated area where they can comfortably recover from their disease or ailment, without having to compete for food, water or a resting area. The "hospital" area can also be used to protect the rest of the herd from contracting a contagious disease.

Explanation: The designated area for sick, lame or injured cattle must be clean and must have bedding for cattle to remain clean and dry, to rest comfortably and to minimize slipping and falling, and all other required housing elements of AC21. Cleanliness is particularly important to help cattle recover. Cattle housed in a tie-stall barn may remain in their stalls if that is a sufficient environment for their recovery (i.e., they can lie down and get up comfortably).

The "hospital" area should be separate from the calving area. However, if your barn cannot accommodate this, you should avoid having sick cattle housed together with cattle that are calving whenever possible.

Disease transfer to the calf is the main concern. The hospital area must provide cattle with easy access to feed and water.

AC7: Use of electricity for crowd gates and tie stall trainers: (Demerits)

a. Do you ensure that crowd gates are not electrified?

For tie stall barns, are electric trainers:

b. Adjustable and positioned correctly to enable normal eating, standing, and lying behaviour?

c. Only used when needed to train or retrain individual cattle?

Code of Practice: Sections 2.1 and 2.5.1

Issue: Electricity must be used cautiously and carefully.

Electric trainers in tie-stall barns are used to correctly position cattle in their stalls to ensure their cleanliness, hoof health and comfort; however, incorrectly installed or maintained electric trainers can interfere with normal cattle behaviour, such as eating, standing or showing heat.

Explanation: The use of electrified crowd gates is not acceptable. Crowd gates refers to any mechanism used to guide or move cattle forward in a controlled manner. Crowd gates must only be used without the use of an electrified aspect/component.

For tie stall barns, electric trainers are permitted, however, the electrified component of trainers may only be used temporarily for training or retraining individual cattle. The trainers must have a height adjustment and be positioned to enable normal eating, standing, and lying behaviour, and not remain continuously in the training position. To allow for normal behaviour, the trainer should be located over the chine when the animal is standing with her hind feet near the gutter curb. The chine is the region on the back just behind the shoulder and before the short ribs. See Figures 3 and 4 for illustrations of the proper positioning of electric trainers.

The requirements apply to any age group of cattle housed with electric trainers.

Barns with any AMS occasionally incorporate electrified components, which are used to encourage animals to exit the robot. This feature may be used temporarily for training or retraining individual cattle but is not part of this requirement.

Figure 3: Position of the electric trainer over the chine

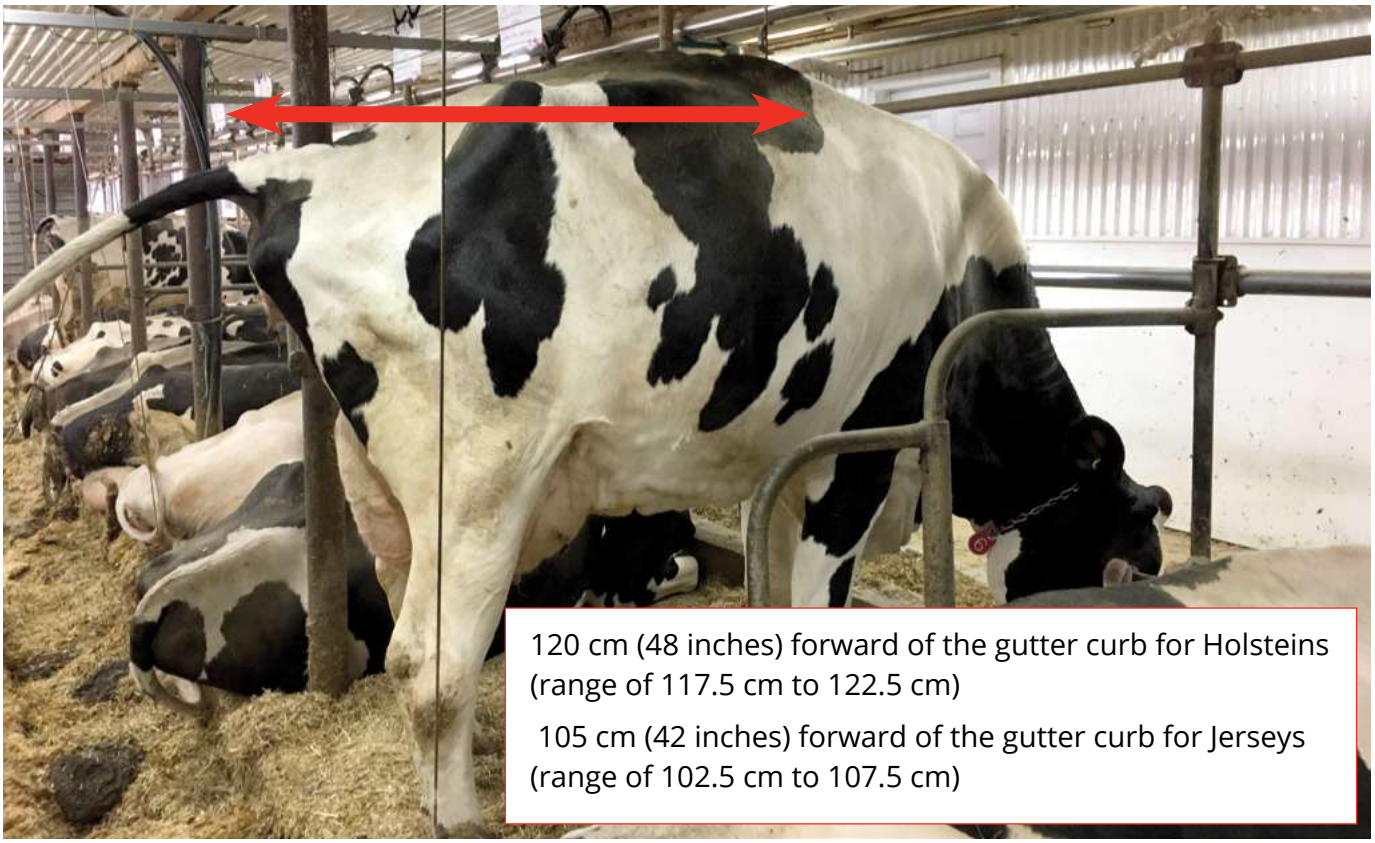


Figure 4: Height of the electric trainer



1.3.1.2 Pastures

The goal of good pasture management is to balance cattle needs with pasture quality and availability, while reducing the risk of biological hazards (e.g., bacteria in manure) to raw milk and meat.

- Assess stocking rates and reduce grazing intensity when necessary, by assessing pasture quality, supply and manure accumulation.
- Manage access where necessary with:
  - Gradual grazing — cattle pastured for small periods initially.
  - Rotational grazing — sequential intensive grazing of subdivided pasture.
  - Forward grazing — allowing lactating animals to graze high-quality forage, followed by other cattle to graze down to desired levels.
- Manage high traffic areas by:
  - Using one of the grazing systems described above to reduce muddy areas.
  - Restricting access to muddy and manure-covered areas because mud can develop in shady areas and can be a source of infectious diseases (e.g., environmental mastitis).
  - Removing debris (such as old fencing, equipment, concrete slabs, sharp stones and glass) that poses a risk of udder/body injury and evaluate animal access to debris and alternate storage areas.
- Managing shaded areas, e.g., shade provides some relief from heat and biting flies, but the shaded area can become excessively trampled and manure-laden, which can lead to environmental mastitis.

  Two possible solutions are to:
  - Allow animals back to the barn during very hot weather or provide a mister — if artificial shade is provided, it should be built to allow for good air flow.
  - Design the grazing system to allow fields/paddocks with shaded areas to be rested when shade is not essential.
- Restrict cattle access to surface waters and other natural areas.
  - Check herd health records for environmental diseases.
  - Check natural areas for excessive erosion and compaction.
  - Consider permanent fencing and alternate watering devices for frequently used areas.
  - Consider temporary barriers (e.g., electric fencing or controlled access) for less heavily used areas.
- Provide alternative watering devices.
  - Provide a clean water supply from nearby or other water sources for heavily used areas.
  - Supply water using nose pumps, gravity-fed springs, solar pumps, or external power sources.
  - Inspect alternate water sources to ensure proper functioning and sanitation.
  - Use gravel or other wear-resistant surfaces near watering areas to improve sanitation.
  - Use proper base and resilient surface materials to ensure adequate drainage around watering areas.



1.3.2 Manure Storage and Handling

FS7: Do you restrict cattle access to manure storage or manure run-off? (Demerits)

Reference: BMP 1

Issue: The more cattle are in contact with manure, the greater the risk of disease transmission and contamination. Dirty cattle can lead to *E.coli* contamination of udders and increase the mastitis risk. At slaughter, the dirtier the cattle, the higher the risk that the meat will be contaminated with manure during processing.

A **manure management system** has two main components: equipment to collect and transfer manure; and a storage facility where manure is held when it cannot be spread.

Explanation:

- Restrict cattle access to manure storage. Reduce the risk of disease transmission by preventing cattle access to the manure storage. Cattle must also be prevented from coming in contact with runoff from the manure storage or cattle yards.

  Check with your provincial or regional authority for the recommended or required storage.

  Microbes that are present in manure cause many diseases. The *E.coli* (*Escherichia coli*) organism, for example, commonly found in bedding and manure, can be transmitted if cows' teats contact manure. This can lead to mastitis and other diseases, as well as contamination of the milk. Contamination of hides with manure also increases the risk of spreading *E.coli* in the processing plant when cattle are slaughtered for meat.
- Select an appropriate manure management system. Manure must be regularly removed from cattle housing and feeding facilities to prevent the spread of disease, maintain good health and keep cattle clean. The system should prevent cattle access to manure, reduce odour and fly infestation, and prevent the contamination of drinking water.
- Ensure adequate size for dairy manure storage. Manure storage facilities should be large enough to store manure, bedding, wasted feed and all liquids, including precipitation, for the periods between acceptable land application times. Inadequate storage may cause problems with cattle cleanliness.

Exercise yards and dry lots are areas that can be a source of manure-based bacteria.

- Restrict cattle access to manure and runoff storage by fencing cattle out of these areas.
- Design exercise yards for animal safety and cleanliness. Consider paved or mud-control materials where yards are perpetually wet and where traffic is heavy.
- Divert clean water (uncontaminated), such as water from rain, snow, snowmelt, roofs and eaves before it comes in contact with manure on exercise yard.
- Contain contaminated runoff by channeling it (e.g., from stored manure) to liquid manure storages or to artificial wetlands.
- Keep paved areas clean by regularly removing manure to manure storage area.
- Maintain forage cover in grassed exercise yards by managing the lot using a rotational grazing management system.

1.3.3 Laneways

FS8: At the time of milk pick-up, is the laneway and loading area free of manure contamination? (Demerits)

Reference: BMP 1

Issue: Milk trucks that pick up from multiple farms risk spreading disease between farms. The greater the contamination of the laneway and loading area, the higher the risk of contaminating the milk truck and subsequently contaminating the milk at pick-up or delivery to the plant.

Explanation:

- Ensure laneway and loading area for milk pick-up are free of manure contamination at the time of milk pick-up.
  - Limit cattle access to lanes used by off-farm transport vehicles. Cattle should not have unlimited access to the portion of the yard and lane travelled by the milk or feed transporters. Manure accumulations on farm yards or lanes are considered to be a possible source of contamination because of the soil and manure that adheres to the underside of the trucks and truck tires. There is increasing pressure within the industry to minimize the spread of pathogens from farm to farm and from farms to processing plants.
- Construct and maintain proper lanes and traffic areas to prevent environmental mastitis and maintain clean udders.

- Reinforce lanes closest to the barn.
  - For example, excavate the top 35 cm, line the area with geotextile fabric, backfill with stone and cover with lime dust to bind the stone.
  - Never use gravel-size stone on the surface of a laneway, as it causes stone (hoof) bruising.
- Locate water troughs in areas that minimize traffic and mud problems (water troughs in lanes can make moving cattle difficult).

1.3.4 Nutrient Application

FS9: If you use sewage sludge, do you have the necessary approval/permits required to use sewage sludge on your farm? (Demerits)

Reference: BMP 1

Issue: Application of sewage sludge in a manner outside of that approved/permitted in your area increases the risk that the sewage could contaminate water, feed, and milk with pathogenic bacteria and heavy metals. You must ensure that the use of sewage is legal and safe.

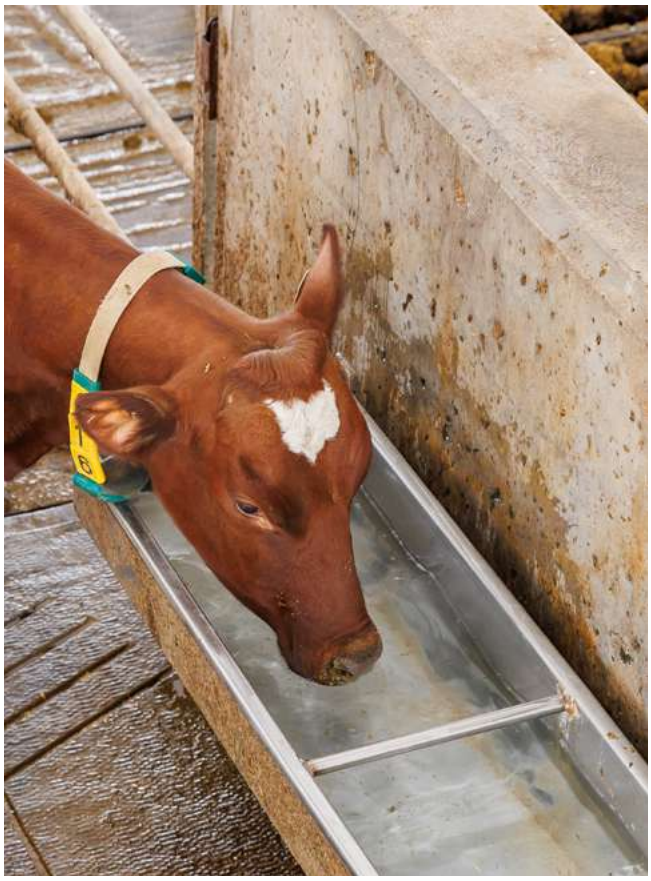
Explanation: Manure, whether applied as fertilizer or deposited by grazing cattle, is a source of bacteria, some of which are disease-causing organisms.

- Some BMPs for applying nutrients for cropland and pastures are the following:
  - Ensure there is enough land to spread all of the stored manure and milk house wastes.
  - Apply nutrients in quantities that crops can use.
  - Apply manure when crops can use it (during growing season).
  - To reduce the risk of run-off and to help protect water sources, do not spread manure on frozen ground.
  - Pre-till land before applying liquid manure on tile drained land.
  - Incorporate manure as soon as possible following application.
  - Do not apply manure too close to wells, ponds and watercourses.
  - Distribute manure evenly over pasture by harrowing after each grazing cycle.
  - Monitor tile outlets for effluent immediately following application on tile drained land.

Clean water is a key element in ensuring a safe milk product because it is used to clean milking equipment.

How you manage wastes may affect water quality. If improperly handled, livestock wastes can pollute surface water and groundwater. This can affect not only the existing livestock operation, but also other operations and residences downstream or on the same aquifer (or system).

- **Avoid contamination of feed with pathogenic bacteria.** Pathogenic contamination of feed is usually caused by fouling of feed with manure. Such diseases as *Salmonella* and *Neospora* can be linked to fecal-contaminated feed. Some practices that help avoid feed contamination are:
  - If sewage sludge is used, follow **approved/permitted** application, if applicable in your province or municipality, and withdrawal times for grazing or harvesting forage treated with sewage sludge (hazards include pathogens and heavy metals).
  - Ensuring feeding equipment (e.g., front-end loaders) is not contaminated with manure.
  - Avoiding standing or walking in feed bunks. In drive-through feed alleys, do not step on the feed itself.
  - Waiting appropriate time intervals before harvesting or pasturing after applying manure. There are a variety of factors to consider such as:
    - Volume of manure spread
    - Weather
    - Soil type
    - Crop/forage
  - Designing a grazing system and following controlled grazing management to stop animals from causing excessive damage to the fields.
  - Avoiding fouling of feed by vermin, pets or wildlife (e.g., birds, cats, dogs, coyotes, deer).



1.4 Treated Wood in Cattle Environments

Treated wood can be toxic to animals if animals are allowed to come into contact with it either through the skin or ingestion. While treated wood may be needed to construct some buildings and structures on a farm, some BMPs are:

- Avoid use of treated wood in areas where animals can access it or cover the treated wood with a safe covering.
- Avoid exposing cattle feed to treated lumber.
- Ensure bedding is not made from treated materials. Confirm with your bedding supplier if you are not certain.

1.5 Purchased Inputs

The safety of all purchased products can have a significant impact on a farm. It is important to ensure that purchased products are safe and contain an unaltered product to avoid contamination of milk and meat. Inputs include items such as fertilizers, animal treatments, pesticides, sewage sludge, bedding, milking chemicals and teat disinfectants. Some BMPs are:

- Only purchase products from suppliers who use HACCP-based programs, and who offer a prescription, warranty or guarantee to the safety of those products for dairy animals or dairy farms.
- Purchase products that come in original, intact, unopened containers. For more information on pesticides, see Section 1.2 of this Chapter. For more information on livestock medicines and chemicals, see Chapter 5, Section 5.2.1.

1.6 Pest Control

Insects, birds and vermin can introduce biological hazards into a dairy farm, so pest control programs should be developed and implemented. Some common BMPs are:

- Establish an insect and vermin control program.
- Keep all exterior doors, windows and openings in the milk house closed or fitted with screens to prevent entry of pests.
- Ensure exterior milk house doors are tight-fitting and self-closing.
- Trap floor drains to prevent entry of odours, insects or rodents.
- Keep exterior of building clean and in good repair, and eliminate all potential fly breeding and feeding grounds.
- Prevent contamination of cattle feeds with feces from animals, including farm cats, dogs, deer and birds.
- Prevent access to rafters and ledges for perching birds by:
  - Using netting on the underside of rafters to discourage roosting and nesting.
  - Closing in roosting ledges or installing perch repellents (e.g., sharp wire or nails protruding from a solid base).
- Remove nests.
- Apply appropriate measures of insect control (e.g., removal of any spilled grain, electronic fly killers provided, properly placed and maintained).

Houseflies do not directly affect the health of cattle, but they are a general sanitation concern. They can spread microbes such as bacteria and viruses during their feeding activity. Large numbers of adult flies are also a nuisance and indicate poor sanitation.

Houseflies reproduce by laying eggs in decaying organic matter such as manure, bedding and feed. The eggs develop into larvae, then into pupae. Pupae develop into adults to repeat the cycle. In warm summer weather, the life cycle can be completed within seven to 10 days. Starting control programs early in the season gives the best results. To break the life cycle of the fly, follow the BMPs outlined in Table 2.

Limit access of birds to barns, feed and bedding storage areas. Bird droppings represent a general risk to sanitation and animal health. Birds can also carry and transmit specific diseases such as *Salmonellosis.*

Table 2: BMPs to control houseflies

What To Do	Best Management Practices
Removal of manure	☐ Clean alleyways and main congregation areas at least daily. ☐ Clean barn corners and crevices at least every week during summer months. ☐ Pay particular attention to calf bedding in pens and hutches.
Storage of manure, bedding and feed	☐ Store manure and feed away from the barn. ☐ Keep bedding dry and under cover. ☐ Compost or allow a crust to form.
Eliminate breeding sites	☐ Promptly remove spilled or spoiled feeds, particularly wet feeds like corn silage or haylage. ☐ Cover silage. ☐ Store baled straw and hay in a manner that ensures it remains dry. ☐ Remove feed and silage weekly from feed bunks, around waterers, feed racks, and partially emptied feed storage areas.
Implement biological fly control	☐ Use natural predators of larval and adult flies and other strategies.
Place traps	☐ Control adult houseflies by using mechanical and sticky traps. • Place traps where flies have been seen to congregate. • Set out traps before the traditional fly season begins. • Check traps at least weekly and replace if needed.
Use registered pesticides	☐ Store pesticides in original containers and in a safe and secure manner that does not contaminate milk, feed or water. ☐ Follow all label directions when using pesticides. ☐ Use only Canadian-registered pesticides. ☐ When using insecticides, take special care to ensure the safety of animals and people on the farm, as well as the safety of food produced on the farm. Baits are insecticides combined with an attractant such as sugar, beer, molasses and insect hormones called pheromones. ☐ Use in places where houseflies have been seen to congregate. ☐ Registered larvicides may be used to treat manure and other fly breeding sites to reduce the number of developing flies.


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2.0 FEED AND WATER



INDEX:

Medicated feed

Feeds and feeding

Water

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 2		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
FS10	Do you use medicated feed? ☐ Yes ☐ No If yes: have you established and implemented a Standard Operating Procedure for feeding medicated feeds? (SOP 7)		✓	2.1
FS11	Do you receive medicated feeds with milk or meat withdrawals or that are prohibited for use in lactating cattle? ☐ Yes ☐ No If yes, are feed bins and storage containers clearly marked for those who deliver the feed and for those that use it?		✓	2.1
FS12	Do you have pet foods on your farm or feeds that are labeled not for use for ruminants (i.e., clearly labeled with the warning: Feeding this product to cattle, sheep, deer or other ruminants is illegal and is subject to fines or other punishment under the Health of Animals Act)? ☐ Yes ☐ No If yes, do you store and handle those feeds to avoid feeding those feeds to cattle or cross-contaminating feeds for cattle?	✓		2.2
AC8	Have you established and implemented a Standard Operating Procedure for colostrum feeding management, calf feeding and calf weaning? (SOP 8)		✓	2.2
AC9	Do all cattle receive daily access to feed: a. In sufficient quantity that is adequate for maintaining body condition, health, vigour, promotes satiety, and is palatable? b. In a manner that provides adequate linear feed bunk space?		✓	2.2
AC10	Do all cattle have access to a clean and palatable water source in sufficient amounts to meet their needs?		✓	2.3

Introduction

An animal's health and productivity, along with the quality and safety of milk and meat, depend on the quality and management of feed and access to water.

2.1 Medicated Feed

If medicated feed is delivered or used on the farm, a few simple BMPs will help ensure that animals do not accidentally become contaminated with drug residues.

FS10: Do you use medicated feed?
☐ Yes ☐ No

If yes: have you established and implemented a Standard Operating Procedure for feeding medicated feeds? (SOP 7) (Demerits)

Reference: BMP 2

Issue: The inappropriate feeding of medicated feed can result in residues in the milk and meat.

Explanation: Farmers using medicated feeds must follow the same BMPs for storage and administration that are required for other medications, including following the label instructions and appropriate withdrawals for milk and/or meat. Remember that this includes all animals (e.g., calves). All medicated feeds must follow the Compendium of Medicating

Ingredient Brochures (developed from requirements set out in the Feeds Act), or be mixed according to written directions for use from a licensed veterinarian. Medicated feeds must also be included on the List of Medicines and Chemicals Used for Livestock (Record 9).

Veterinary Health Products (VHPs) (e.g., homeopathic or natural remedy substances) are considered medications. The BMPs for medicated feeds also apply to VHPs used in cattle feed. See Chapter 5 for more information on VHPs.

Farmers that feed medicated feed to any group of animals must establish a documented (e.g., written, video) SOP for feeding medicated feed, if the medication has a milk or meat withdrawal or if the medication is prohibited for use in lactating cattle (e.g., Deccox® 6% Premix in calf feed). The SOP must contain enough information to ensure that someone feeding animals would not cause a hazard to milk or meat. A sample form is provided in the Workbook (SOP 7). **The same BMPs that apply to livestock treatments, such as antimicrobials, apply to medicated feeds.** You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- Follow recommended milk and meat withdrawal times for all feed medications and additives.
- Use only approved feed medications, VHPs and feed additives.
- Use feed medication according to the label or written instructions from a veterinarian.
- Record all animals (e.g., calves, replacement heifers, lactating or dry cattle) being fed medicated feed on the livestock treatment record, when records are required (see Chapter 5, Section 5.6.1). Animals can be recorded as individuals or groups, provided that groups can be properly identified.

Rule of Thumb

If a product has on the label or on the written veterinary directions:

- A milk or meat withdrawal, **farmers must record the details of the treatment.** See Record 10 in the Workbook for a sample.
- No milk or meat withdrawal, **farmers do not need to record the details of the treatment.**

Note: If you manufacture a medicated feed without a withdrawal period (e.g.,TMR with Rumensin, Monensin, Coban, etc.), to comply with the Feeds Regulations, 2024, SOP 7 must be applied to medicated feeds without a withdrawal period.

If mixing feed with medication or medicated feed:

- Follow feed mixing instructions to ensure correct amount of medication or medicated feed is used.
- Ensure feed is adequately mixed to prevent "hot spots" of medication. If feed is not mixed thoroughly, medication may be concentrated in pockets of the feed, resulting in some cattle getting higher doses of medication than others and potentially causing a meat or milk residue concern. Remember, the feed type (moisture, fibre length, quantity, etc) will impact mixing time.
- Ensure medicated feed is fed to the appropriate group of animals.
- After feeding a group of animals medicated feed, if the feed would cause a milk or meat withdrawal for the next group of animals to be fed, always have any remaining medicated feed in augers, bins, feed mixers, etc., flushed with 'clean' feed to ensure there is no co-mingling of 'clean' feed with medicated feed. Dispose of flushed feed.
- If medicated feed is mixed and/or fed to other species (e.g., chickens, hogs) on the farm and the same mixing and feeding equipment is used for cattle, prevent feeding residues to dairy animals by cleaning the equipment or flushing the equipment with clean feed. Dispose of flushed feed.
- Ensure all scales and metering devices used are calibrated annually.
- Have written procedures for:
  - Mixing
  - Calibration of scales and metering devices
- More information on treating animals is found in Chapter 5.

Note: Farms that manufacture (prepare or mix) medicated feed (i.e., feed that includes a drug with a DIN) must comply with the applicable requirements of the Feeds Regulations, 2024. Feeds manufactured on farm with drugs that do not have a withdrawal period, such as TMR with ionophores (e.g., Rumensin, Monensin, Coban, etc.), must also comply with the Regulations. This includes developing a Preventive Control Plan (PCP) that identifies hazards, assesses risks, and implements control measures to address those risks (see Appendix 3 for a template).

proAction has numerous requirements that serve as control measures for common dairy farm hazards that meet many of the Regulations' expectations for farms that manufacture medicated feed. However, **some requirements (FS10, FS11, FS20, and FS41) do not apply to medicines without a withdrawal period. Farmers can choose to apply those requirements to medicated feed without a withdrawal period to comply with the Regulations.**

Certain areas of the Regulations are not covered by proAction requirements. These include:

- Cleaning and sanitation activities,
- Testing for uniformity of mix,
- Testing for chemical and physical composition,
- Balancing scales,
- Investigations, and

Record keeping - Farms must retain a copy of the mix sheet, mix formula, and any veterinary prescriptions issued for a custom medicated feed for 2 years after the last day the feed was mixed. Farms must also keep a copy of each version of their PCP for 2 years after the day it ceases to be implemented.

Farms that sell or export feed will encounter additional requirements under the Feeds Regulations. Those that manufacture animal food (i.e., feed containing an animal product or by-product, such as whey) will also be subject to the Health of Animals Regulations Part XIV (e.g., keep records for 10 years after the day the feed was made).

FS11: Do you receive medicated feeds with milk or meat withdrawals or that are prohibited for use in lactating cattle?
☐ Yes ☐ No

If yes, are feed bins and storage containers clearly marked for those who deliver the feed and for those that use it? (Demerits)

Reference: BMP 2

Issue: Medicated feed must be handled separately to avoid accidental feeding to the wrong group of animals or cross-contamination of other feed, which may result in a milk or meat residue.

Explanation:

- Clearly identify all medicated feed storage areas, feed bins and carts (for medicated feeds with a milk or meat withdrawal or that are prohibited for use in lactating cattle) for those that deliver feed (e.g., feed-truck drivers) and for those that use it (e.g., employees), indicating that the feed is medicated and indicating the target group of animals the feed is intended for (numbering a bin is not adequate).

This will ensure that the correct medicated feed is delivered to the correct area or bin and it will also ensure that staff feed the medicated feed to the correct group of animals.

Note: If you manufacture a medicated feed without a withdrawal period (e.g.,TMR with Rumensin, Monensin, Coban, etc.), to comply with the Feeds Regulations, 2024, the feed bins and storage containers must be marked the same as bins and containers containing medicated feed with a withdrawal period.

2.2 Feeds and Feeding

The CFIA is responsible for regulating feed for animals through the Feeds Act. Schedule IV of the Feeds Act lists all of the approved feeds for livestock. The list provides farmers with a reference on which feeds they can freely provide to cattle and which feeds are excluded.

FS12: Do you have pet foods on your farm or feeds that are labelled not for use for ruminants (i.e., clearly labelled with the warning: Feeding this product to cattle, sheep, deer or other ruminants is illegal and is subject to fines or other punishment under the Health of Animals Act)?
☐ Yes ☐ No

If yes, do you store and handle those feeds to avoid feeding those feeds to cattle or cross-contaminating feeds for cattle?

Reference: BMP 2

Issue: Feed designated not for use for ruminants and pet foods may contain products, such as ruminant material, that may compromise milk and meat safety if fed to cattle.

Explanation: Some general BMPs for feeds and feeding related to food safety are:

Note: Pet foods may contain ruminant by-products, and, therefore, must be stored in a manner that prevents cattle access and contamination of cattle feed with pet food.

- Ensure that pet foods and feeds that are labeled not for use for ruminants are **not fed** to dairy cattle. These feeds are labeled with the warning: "Feeding this product to cattle, sheep, deer or other ruminants is illegal and is subject to fines or other punishment under the Health of Animals Act."

Note: That pet foods will not contain a warning but they should not be fed to cattle (see side bar). If there is feed on the farm used for non-ruminant livestock (e.g., hogs or chickens), the feed may be designated not for use for ruminants; therefore, this feed must be properly stored and handled in a manner to prevent contaminating cattle feed (e.g., stored separately, properly labeled and if mixed using the same mixing and/or distribution systems, the equipment must be flushed with "clean" feed). All flushed feed must not be fed to cattle.

- **Ensure feed received on the farm is not contaminated.** All newly purchased feed should be considered a potential health risk. All feeds should be purchased from feed manufacturers and/or feed supplier(s) that have recognized HACCP-based plans in place. Newly purchased feed, including forages, should be scrutinized and sampled. Samples should be analyzed for basic nutrient content with sub-samples saved for future testing should a problem arise. If feed is suspect, consult with a nutritionist, veterinarian or dairy specialist.
- **Avoid contamination of feed with pathogenic bacteria, particularly from manure.** Pathogenic contamination of feed is usually caused by fouling of feed with manure. Diseases such as *Salmonella* and *Neospora* can be linked to manure contaminated feed. Some practices that can help avoid feed contamination are:
  - Ensuring feeding equipment (e.g., front-end loaders) is not contaminated with manure. If equipment is used for manure and feed, manure should be washed off before using the equipment for feeding.
  - Avoiding standing or walking in feed bunks. In drive-through feed alleys, do not step on the feed itself.
  - Avoiding fouling of feed by vermin, pets or wildlife (e.g., birds, cats, dogs, coyotes, deer). Wildlife control can be difficult for a farmer to achieve; however, a pest control program can be put in place in barns and feed storage to minimize the impact of vermin, pets and wildlife. See Chapter 1 for more details on pest control.
- **Maintain a biosecurity program for feed.** Biosecurity describes management practices that help prevent entry of contamination into the herd. To do this, the farmer must:
  - Know the source of origin of all materials.
  - Know how the feed or feed additive interacts with other feed components and the animal.
  - Protect the herd from contamination by maintaining clean and dry feed environments.
  - Clearly mark all feed storage bins, commodity sheds and general storage areas.
- **Keep accurate records of all potential residue sources.** It is a proven fact that communication is critical in preventing residues. To ensure all necessary parties are informed, set-up a pathway of information that includes family, staff, veterinarian(s), relief milkers, feeders – anyone who may come in contact with the herd. Make everyone responsible for checking the records before they feed. Maintain a record of feeds and feed ingredients grown or received on the farm.

  Use notice boards and permanent record-keeping charts of any potential feed contamination or if any feed or feed additive is being used anywhere on the farm. Use a central location for updates, making one person responsible for daily up-dates. Date the board so everyone knows if information is current.
- **Know how and when to use labs and test kits.** If you suspect that a feed may be contaminated, you could have the feed tested. Not all potential contaminants are easily tested for. Some may be picked up in the milk with simple cow-side test kits (e.g., antimicrobial residues in milk). Others (e.g., pesticides) may require more elaborate lab tests with some knowledge of what specific chemical is being traced. See Chapter 6 for more information on using on-farm test kits (antimicrobial milk residues).

  To collect an appropriate feed sample, follow instructions provided by the laboratory. The following are general guidelines:
  - Retain a sample of purchased or homegrown feed for future reference.
  - Clearly label all samples with name of product, source, storage location, date of sampling, and requested test.
  - Use proper sampling techniques to get a representative sample.
  - Check with the lab beforehand to determine size of sample and whether special handling or storage of sample is required.

Iodine is an important element in dairy cattle and human health, and it has minimum and maximum recommended dietary levels to ensure that deficiencies and over consumption do not occur in both cattle and humans. Dairy farms may introduce iodine into milk in a number of ways including feed and feed supplements and iodine-based pre and post-milking teat sanitizers. See Chapter 6 for more information on iodine in milking systems.

Some general BMPs related to iodine in feeds are:

- The maximum allowable level of iodine in feed, expressed in mg of iodine per kg of dry matter consumed, is 2.5 mg/kg for lactating dairy cows, and 10 mg/kg for all other cattle (e.g., heifers).

- Ensure that all feed supplements and mineral mixes (added to the total mixed ration or top-dressed individually) are included in the total feed ration iodine calculation for lactating cows. Forage and grains contain low levels of iodine, but feed supplements can contain very high levels.
- When getting a custom formulated mineral mix, supplement or complete feed manufactured, inform nutritionist of all ingredients being fed to the lactating cows (and their feeding rate). This includes ingredients such as kelp meal, iodized salt and trace mineralized salt which have high iodine levels and may influence milk iodine levels to become too high if not taken into account when formulating the ration.
- Consider iodized salt blocks as a potential source of iodine.



AC8: Have you established and implemented a Standard Operating Procedure for colostrum feeding management, calf feeding and calf weaning? (Demerits)

Code of Practice: Section 3.3, 3.3.1 and 5.5.1

Issue: Calves need to receive adequate colostrum and nutrition to grow and stay healthy. Calves' ability to absorb immunity factors from colostrum starts to decrease soon after birth. As a result, farmers need to ensure calves receive adequate colostrum as soon as possible, and then receive adequate milk, milk replacer and starter to maintain health, growth and vigour. Gradual weaning reduces stress and leads to outcomes, such as increased weight gain and improved long-term milk production and reproductive results.

Explanation: A documented SOP for colostrum management, calf feeding and calf weaning must contain enough information to ensure someone feeding calves would feed them enough to maintain their health, growth and vigour. Consider the following BMPs when developing a develop SOP, **however, the BMPs that are shaded grey must be included in any farm's SOPs if the practice is implemented on the farm:**

Newborn calves:

- Use colostrum from: dam/frozen stores/colostrum powder.
- Ensure newborn calves receive at least 4 litres (for a 45 kg (100 lb) calf) of good quality colostrum within 12 hours of birth, with the first meal occurring as soon as possible, and no more than 6 hours after birth. A newborn Jersey calf (23 kg (50 lb)) would need at least 2 litres of good quality colostrum within 12 hours of birth.
- Check quality of colostrum with a colostrometer or refractometer and only use good quality colostrum. With a colostrometer, if the colostrum registers in the green zone, it is of sufficient quality to feed.
- Ensure newborn calves receive colostrum for at least 3 days.

Unweaned calves:

- Feed calves a volume and quality of milk or milk replacer to maintain health, growth and vigour. Feed calves milk at least 2 times per day or free choice, with the total daily intake equal to 15% birth weight (about 6 L per day for Holstein calf) for newborn, and 20% of the calves' body weight from 7 days old on (a minimum of 8 L per day for a Holstein calf).
- Incrementally increase the volume of milk offered during cold weather by about 25% over the 15% of the calf's birth weight for newborn calves and 20% of the calf's birth weight from 7 days of age (e.g., 8 L increases to 10 L). Sudden increases can lead to gastric problems. For all calves, the colder the temperature becomes, the more milk they need. As a result, feed more as the temperature drops.
- Milk feeding levels in automated feeders can usually be adjusted at a group or individual calf level, depending on the settings. However, farms with automated milk feeders often feed more than the minimum volume. If offering more than calves' basic needs already, when it is colder, the calves may already be able to meet their requirements.

  If feeding calves ad libitum (free choice), farmers do not need to increase the amount, as this is not possible.
- Wash all calf feeding tools, such as buckets or bottles, thoroughly after each feeding.
- Provide clean water to calves ad libitum.
- Provide calves with access to grain when they are >2 weeks of age. Provide hay to calves around weaning to help prepare them for the weaning process.

  If calves are left with their dam or using nurse cows, ensure each calf receives adequate milk daily to meet growth and health needs, and monitor the cow-calf group to prevent competition and ensure all calves nurse effectively.
- Selecting healthy cows with good udder conformation and temperament and assigning an appropriate number of calves per cow (e.g., 2 to 3 calves per cow) based on milk yield and calf demand.
- Monitoring individual calf health, growth, and nursing behaviour daily; supplementing with bottle feeding if any calf is not thriving (e.g., calf is not gaining weight, looks weak or dull, isn't nursing regularly, or shows signs of illness).
- Providing clean, dry housing with enough space for calves to access the cow without stress or crowding, and managing hygiene to reduce disease risk.

Weaning calves:

- Calves must be gradually weaned over at least a 5-day period, and they must be at least 8 weeks old before weaning is complete.
- Ideally weaning should be initiated when calves are older than 8 weeks of age or when individual calves are consuming at least 1.4 kg (3 lb) of starter daily for at least 3 consecutive days.
- Consult with a veterinarian or nutritionist to develop or refine a weaning strategy that supports calf health, nutritional needs, and long-term performance.

AC9: Do all cattle receive daily access to feed? (Demerits)

a. **In sufficient quantity that is adequate for maintaining body condition, health, vigour, promotes satiety, and is palatable?**
b. **In a manner that provides adequate linear feed bunk space?**

Code of Practice: Section 2.7 and 3.2

Issue: Cattle need to receive enough good quality feed to grow and thrive. Access to that feed relative to feedbunk space is a key factor to this.

Explanation: Good quality feed in sufficient amounts is important for cattle health and milk production. Cattle must be fed a ration that meets their nutritional, developmental and growth requirements and promotes satiety. This requirement (a, & b.) for lactating cows is assessed through the Body Condition Score component of the Cattle Assessment (AC14). An example of a lack of satiety would be animals bawling at the feedbunk because feed is not available and has not been provided in sufficient amounts. To ensure that cattle have access to a palatable ration, feed must have minimal spoilage, mould, and contaminants (e.g., feces). In this context, "palatable" refers to feed that is clean, fresh, and of a quality that encourages consistent intake by the cattle. In free stall and bedded-pack barns lactating cows should be provided with adequate linear feed bunk space. It is recommended at least 60 cm (24 in) of linear feed bunk space for lactating cows and 76 cm (30 in) for transition cows.

Cattle should be monitored for their growth progress and to identify those that are losing condition. Your Cattle Assessment Report will include body condition scores for a representative sample of the lactating herd, which can be used to evaluate your feeding practices. Examples of corrective actions that can be taken for thin cattle can be found under AC14. If your cattle do not look like they are thriving, you need to work with your veterinarian or nutritionist to investigate the reason and develop corrective actions.

2.3 Water

AC10: Do all cattle have access to a clean and palatable water source in sufficient amounts to meet their needs? (Demerits)

Code of Practice: Section 3.5 and 4.6

Issue: Cattle need access to plenty of good quality water in order for them to maintain their health and, for lactating cattle, their productivity.

Explanation: Good quality water must be provided to calves over 10 days of age (to encourage starter intake), heifers, bulls, dry cows, and lactating cows in quantities to meet their needs. In this context, "palatable" refers to water that is of a quality and cleanliness that encourages cattle to drink it willingly and in adequate amounts. Table 3 describes the water requirements of different classes of dairy cattle. This is dependent on the animals' stage of production, environment, and management practices. Drying cows off by restricting water is not acceptable. Providing water to unweaned calves in winter can be challenging, and, therefore, water can be offered twice a day to avoid freezing. However, calves in the process of being weaned or weaned calves need to be offered water at least twice a day in winter. Snow and ice are not suitable sources of water. Check water bowls regularly and clean them or change the water as needed and also ensure that water is accessible so that cattle are not limiting their water intake due to competition (e.g., dominate cattle keeping subordinate herd-mates away from the water trough or too many cattle competing for a small water bowl, or deep water troughs with low levels of water that cows can't reach).



Table 3: Water consumption required by different classes of dairy cattle

Dairy Cattle Class	Level of milk production (kg/day)	Water requirement range (L/day)	Average water consumption (L/day)
Calves (1 – 4 months)	N/A	4.9 – 13.2	9
Heifers (5 – 24 months)	N/A	14.4 – 36.3	25
Lactating cows	13.6	68 – 83	115
Lactating cows	22.7	87 – 102	115
Lactating cows	36.3	114 – 136	115
Lactating cows	45.5	132 – 155	115
Dry cows	N/A	34 – 49	41

Source: Ontario Ministry of Agriculture, Food and Rural Affairs. Water requirements of livestock. 2023.



3.0 TRACEABILITY



INDEX:

Premises identification

Animal identification

Tag activation

Animal movement

Tag retirement

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 3		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
LT1	Do you have a Premises Identification Number?	✓		3.1
LT2	Are your dairy cattle double-tagged with approved dairy tags (DairyTrace/Attestra)? * Calves must be tagged within 7 days of birth or before the animal leaves the farm of origin, whichever occurs first. * Any calves born on farm and destined for purposes other than dairy production may be identified with a single RFID ear tag (approved dairy tag) - except for provinces that require double-tagging.	✓		3.2
FS13	Do you identify all cattle to allow for the maintenance of treatment records (e.g. barn tags, neck chains, etc.)?	✓		3.2
LT4	Are you recording and reporting animal birth information to the national traceability database? * Birth information must be recorded within 7 days of the event or before the animal leaves the farm, whichever occurs first. * Birth information must be reported within 45 days of the event or before the animal leaves the farm, whichever occurs first.	✓		3.3
LT6	For animal move-in (reception of an animal at the farm, including import): Are you reporting the information to the national traceability database? * Information must be reported within 7 days of the event or before the animal leaves the farm, whichever occurs first.	✓		3.4
LT8	For tag retirement (on-farm animal disposal or export): Are you reporting the event information to the national traceability database? * Information must be reported within 7 days of the event.	✓		3.5
LT9	For animal move-out (Departure of an animal from the farm, excluding on-farm animal disposal or export): Are you reporting the information to the national traceability database? * Information must be reported within 7 days of the event.		✓	3.4

Introduction

The Livestock Traceability module requirements are the foundation of any traceability system. In fact, they are recommended and proven procedures that help to prepare for, manage and reduce the impact of an animal disease outbreak. They allow the tracking and tracing of animals in the event of a sanitary emergency and ensure better management of emergencies which helps maintain market access and limit losses after animal disease outbreak.

Two entities are responsible for the administration of the National Traceability system for dairy cattle in Canada on the behalf of the Canadian Food Inspection Agency (CFIA): Lactanet, responsible for the DairyTrace database (all provinces outside of Quebec) in partnership with Dairy Farmers of Canada, and Attestra, responsible for the SimpliTRACE database (only in Quebec) in partnership with the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ).

3.1 Premises Identification

Premises identification is one of the three basic elements of livestock traceability. It is needed to report animal movements to the national traceability database. The premises identification number may be required in other areas of your business, for example: tag purchases, for lab samples or for funding.

Livestock Traceability (LT) 1: Do you have a premises identification number?

Reference: Part XV of the Health of Animals Regulations and some provincial regulations (Prince Edward Island, Quebec, Ontario, Manitoba and Alberta), Livestock Traceability Quick Tips.

Issue: Premises identification centralizes information by province regarding the location of animals, and can be used in planning, and emergencies management. Knowing where livestock is located provides valuable information when responding to animal disease outbreaks and food safety issues. In case of a sanitary emergency, it allows rapid notification of livestock and poultry stakeholders. It also helps prepare for, manage and reduce the impact of an animal health or food safety issue (examples include an animal disease or a contamination by prohibited substance), track and trace animals in the event of an emergency (ex: a flood), and ensure better management of emergencies which helps maintain market access and limits losses after animal disease outbreak.

Explanation: Premises are any parcel of land on which animals, plants or food are grown, kept, assembled or disposed of. Premises are defined by a legal land description of the lot, or in its absence, by its geo-coordinates.

Premises identification applies to all owners of poultry or livestock even if they own one animal. Premises would include the following:

- Pastures and community pastures.
- Feedlots.
- Assembly yards.
- Abattoirs.
- Auction and livestock sale facilities.
- Racetracks and competition facilities.
- Hatcheries.
- Rendering plants.
- Exhibitions and fairgrounds.
- Veterinary facilities.
- Livestock and poultry research facilities.
- Insemination centres.
- Zoos and petting zoos.

Premises identification number (PID number) is a permanent unique identifier, based on national standards, that is assigned by provincial governments to "premises" within a province or territory. The premises identification number links livestock and poultry to land locations.

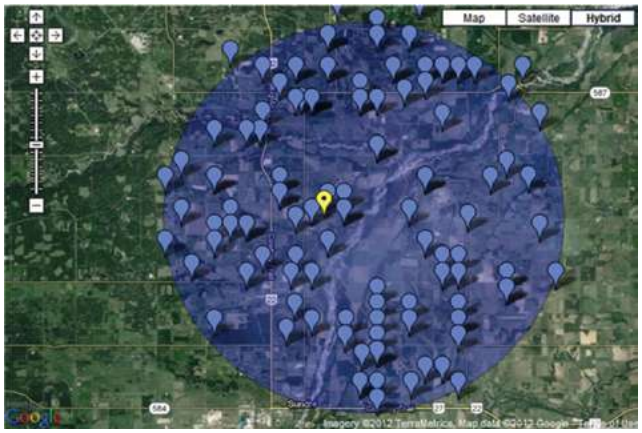
The premises identification number must meet the national standard format, which is as follows:

1. 2 letters for the province
2. 6 alpha-numeric characters
3. 1 check digit

Examples of premises identification number:

- ON 123456 1
- PE 993505 9
- SK B12345 5

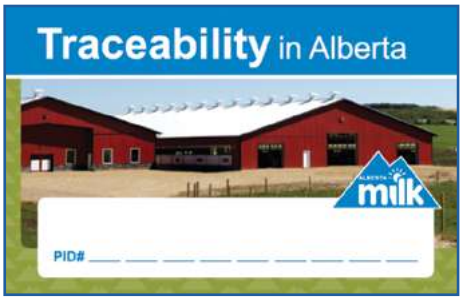
Figure 5: Example of premises from aerial view | Premises ID link livestock to land locations



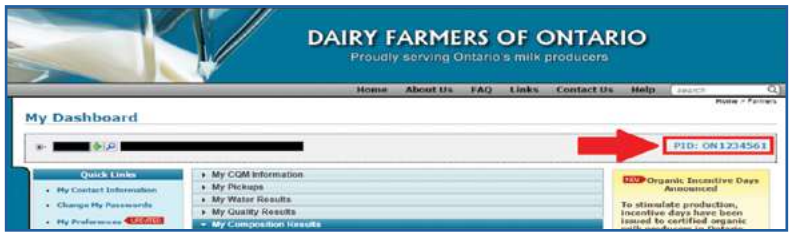


The premises identification number could be found in a provincial farmer account, a letter, a wallet card, a barn certificate, or a barn laminated sign.

Figure 6: Examples of where the premises identification number could be found



a) Wallet card



b) Provincial farmer account



c) Barn laminated sign



d) Barn certificate

The premises identification number is the only location identifier for animal movement reporting.

The identification of premises is the responsibility of the provincial government. Farmers must contact their provincial association or their provincial Department of Agriculture directly to obtain their premises identification number.

3.2 Animal Identification

Permanent identification is essential to maintain records of animal treatments and is the base of livestock traceability systems since it follows the animal all throughout its life, from the farm of origin to the abattoir. Assigning a unique permanent identification number to an animal (15-digit animal identification number) allows a farmer to quickly identify an animal, and to easily report its movement to the national traceability database.

LT2: Are your dairy cattle double-tagged with approved dairy tags (DairyTrace/Attestra)?

* **Calves must be tagged within 7 days of birth or before the animal leaves the farm of origin, whichever occurs first.**
* **Any calves born on farm and destined for purposes other than dairy production may be identified with a single RFID ear tag (approved dairy tag) - except for provinces that require double-tagging.**

Reference: DFC Principles, provincial regulation in Quebec, provincial regulation in Alberta and Holstein Canada By-law 11.4.3, Traceability Quick Tips, DFC factsheets

Issue: Since January 1, 2001, all cattle in Canada must be identified according to Part XV of the federal Health of the Animal Regulations (CFIA). The regulation specifies the following requirements for livestock identification:

- On the farm of origin, apply an approved tag before moving the animal/carcass.
- When the animal leaves the farm of origin, the animal/carcass must bear an approved tag at all times.

Although tagging of young calves at birth is not included in the regulation, it provides an efficient way to permanently identify the animal with a unique number. This unique identification may serve for national health purposes, animal tracking, on-farm management, milk quality programs, genetic improvement programs, animal health and biosecurity programs, all industry related services, evaluation and registration. In fact, several programs require that animals be identified with a unique identification number, as for animal registration at Holstein Canada whose By-law 11.4.3 requires that "animals to be registered in the herd book must be individually identified at birth by two ear tags/devices properly attached and uniquely numbered which are of a type and kind determined by the Board of Directors to be suitable and appropriate for identification", in other words, DairyTrace or Attestra's tags. The number on the approved tag set also becomes the animal's herd book registration number. Double-tagging even becomes an alternative to sketches and photos for breed registration.

Example of matching the registration number and the unique animal identification number for a Holstein cow:

- Registration number: HOCANF8963261
- Animal's unique identification number: 124 000 008 963 261

There are several benefits from double-tagging (RFID button and visual tag) with matching unique number:

- Enhance visual recognition of animal for herd management.
- Harmonize herd management ID systems for dairy in Canada.
- Ensure a back-up in case of tag loss and provide a unique number for the animal's life.

Explanation: Refer to the factsheets: For Better Retention – Ultraflex and Identification of Animals Imported from the USA.

Animal identification consists of assigning a unique number to an animal. This number (15 digits) is printed on sets of tags (electronic button tags (RFID) and visual panel tags). The set of tags is applied to the animal ear and will follow the animal all through its life.

The unique number will follow the ISO Code structure and will be read as follows:

- 3 first digits for the country (124 for Canada)
- 9 last digits for the unique ID number
  - 124 000 XXXXXXXXX (Canada)
  - 840 000 XXXXXXXXX (USA)

Figure 7: Example of approved Canadian and US RFID ear tags (electronic button tags)



Note: Since July 1, 2014, the Official US RFID ear tag (electronic button tag) with identification number beginning with "840" are considered equivalent to Canadian approved tags. Official US tags have a US shield logo and start with the number "840" which cannot be reproduced on tags printed in Canada (see Figure 7). If you observe an ear tag identification number that begins with any number other than "840" or "124", please contact DairyTrace or Attestra.

The following range of numbers is assigned to Canadian cattle (dairy and beef) 124,000,000,000,001 to 124,000,999,999,999, which means that all unique identification number assigned to a cattle should be included in this range.

DairyTrace distributes approved dairy cattle tag sets in Canada and all male and female dairy cattle, whether they are registered or non-registered, can be tagged with these tag sets. Dairy cattle must be tagged with approved dairy tag sets (DairyTrace/Attestra) at birth if they are to be registered in the herd book. The approved official tag set consists of 1) a visual panel tag and 2) an electronic button (RFID button or radio frequency identification) or button/panel tag (see Figure 8).

Figure 8: Approved dual (DairyTrace/Attestra) and single (DairyTrace) tags for cattle on dairy farms

<table>
<tr><th colspan="2">Approved dairy tags</th><th>Approved single tags
(for animals intended for purposes other than dairy production)</th></tr>
<tr><td colspan="2">Approved RFID button and panel combinations:</td><td>Approved single button RFID tags:</td></tr>
<tr><td>
DairyTrace</td><td>
or Attestra</td><td>
DairyTrace</td></tr>
<tr><td colspan="2">Both the RFID tag and the visual panel tag bear the same unique identification number (this combination is called a tag set).</td><td></td></tr>
</table>

A single tag (including front and back) must appear in each ear at all times (one ear with a visual panel tag and one ear with an electronic (RFID) button tag with or without the visual panel); a tag in only one ear does not satisfy dairy standards and Holstein Canada bylaws.

There should never be two RFID button tags on the same animal, either in the same ear or not, even if both tags bear the same identification number.

Approved single white button tags available from DairyTrace can be used on bovine animals born on a dairy farm outside of the province of Québec that are intended for purposes other than dairy production. As of September 1, 2023, dairy farms must use approved dairy tags (dual tags or single white button tags) on these animals and cull cows, not single yellow button tags. Using the single white button tags will keep these animals' information within the national dairy traceability database, and keep the tag revenues within the dairy industry, ensuring a financially sustainable system.

Canadian dairy farmers can order approved dairy tags by contacting DairyTrace: 1-866-558-7223 (info@DairyTrace.ca). Tags will be sent directly to you within 10 business days.

Tag order forms can be mailed to:

DairyTrace

PO Box 610

Brantford ON N3T 5R4

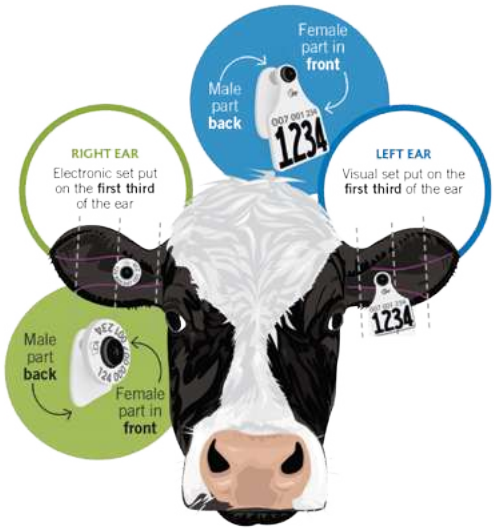
Fax: 1-519-756-3502

Note: In Quebec, the cattle identification system is called Attestra, and this system is equivalent to the DairyTrace program. MAPAQ requires animals born in Quebec to be tagged within 7 days of birth or before being transferred from the farm of origin, whichever comes first. Animals brought into Quebec must be tagged as soon as they arrive on the farm. Farmers may order their tags through Attestra by calling customer services at 1-866-270-4319 or visit their website: www.attestra.com

Tag Application

Tag positioning is the key for tag retention. Figure 9 illustrates the proper positioning of tags. Taking time and care with the initial placement of tags is critical to long-term tag retention, appearance, and program integrity. There are simple recommended instructions for optimal tag application in the cattle ears. The identifier should be properly positioned; the part with the black buttons (female part) must be in front of the ear, where they are protected by the curvature. The identifier should be placed between the two principal veins, in the first third of the ear, next to the head. The RFID button tag should be in the right ear, and the visual panel tag should be placed in the left ear. When re-identifying an animal, for maximum retention, it is better to make a new hole. The appropriate applicator recommended by the manufacturer should be used to apply the tags. Make sure it is the appropriate pin that is used in the applicator and that they are both in good condition. Remember that the **SILVER** pin must be used for Ultraflex identifiers. Green pins can continue to be used but they are no longer available for purchase.

Figure 9: Proper tag positioning (front and back of tags)





Tag losses/Tag traps

To prevent tag losses, a particular attention should be paid to cattle/calves housing, especially to tag traps. Ensuring a snag-free facility allows tags to remain in the animal ear. For tags, a snag might be something as seemingly trivial as a string/twine, a protruding nail, a chain, a cut, a hole, overlays in metal sheeting, a catch or a rub points (abrasive surface). Reducing or eliminating these traps will significantly improve tag retention in your facility. See Figures 10 and 11 for tag trap examples.

Figure 10: Examples of hazards for tag retention in pastures and paddocks



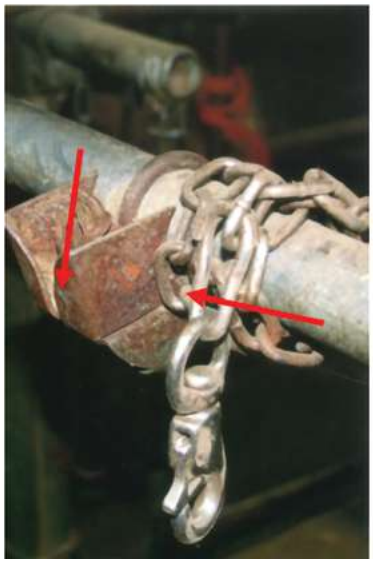
Figure 11: Other examples of hazards for tag retention











- Head rails
- Sharp edges
- Chains pipe opening
- Quick release
- Twine
- Areas needing repair
- Non – operating equipment
- Entertainment – nuisance factor
- Chewing / biting

Tag Replacement

If an animal loses or damages one or both identifiers, the electronic (RFID) button is unreadable or the visual panel tag is broken, **the tag or tag set should be replaced as soon as possible with the same unique number to ensure uninterrupted individual animal identification.** You must contact either DairyTrace or Attestra to order a tag replacement (tag reissued). The animals keep the same identification number, and animal's life history is maintained (See Table 3).

DairyTrace provides reissued tags with the same unique lifetime number free of charge when they are lost through normal wear and tear. You are responsible for promptly obtaining reissued tags; you must provide the animal's unique identification number and within-herd ID for identity verification, and the cause of loss, if known. All requests for tag reissues are monitored case by case according to the date, the animal and the client. The animal identity should always be preserved, parentage testing might be required. You could be subject to a national audit to validate herd book integrity. The free of charge reissued tag may be applied more than once for the same unique identification number. In fact, some animals, due to their behavior, are more likely to lose their tags than others.

Order a reissued tag only for the tag that has been lost and not the entire set. For example, if the animal lost its RFID button tag, then a reissued tag order should be placed only for the RFID button tag bearing the same number as the remaining tag in the animal ear (visual panel tag) and not both. This would avoid having a tag pair remain in the inventory. This remaining tag could be applied by mistake to another animal, and there would be two different animals bearing the same unique identification number. This would compromise the integrity of the traceability system, and would falsify the animal history.

A cross-reference is done when an animal identification number is replaced by a new identification number. This happens when an animal is re-identified (see Table 3). To cross-reference an animal identification number, both number and re-identifying date must be reported to the national traceability database, and breed association for registered animals. **This allows the animal history to remain active even if its unique identification number has changed.**

For example, if you need to replace a lost or damaged "840" tag, you will have to re-identify the animal since the "840" number can't be reprinted in a country other than USA. Then you will have to re-identify the animal with a "124" number, and cross-reference both numbers. **Any replacement of lost or unreadable (broken) tag whose number is known with another set of tags bearing a different number should always be cross-referenced. This should be done within seven 7 days of re-identifying** (see Table 4).

If an animal loses both tags and you can't figure out what the animal identification number was, then you should retag the animal with a new set of numbers, termed a "tag replacement". **In this case, the animal history is lost and restarted.** Tag activation should be reported to the national traceability database within seven (7) days.

Note: It is prohibited by federal regulations to remove, or cause the removal of approved DairyTrace, Attestra or CCIA tags from a cattle ear or to use an official tag designed for another species such as sheep or swine for cattle identification.



Table 4: Scenarios for lost or damaged animal tags and their impact on traceability

Tag replacement situation	Description	What to do?	Impacts
Tag reissue	• The animal has lost or damaged one of the two tags or was improperly tagged • One or both tags are broken, defective, pulled out, torn or cut out • The farmer knows the animal's unique identification number (because double-tagging and/or registration photo)	Contact DairyTrace or Attestra to order re-issued tags showing same unique identification number	• The animal's life history is maintained • The animal keeps the same identification number
Tag cross-reference	• The farmer knows the animal identification number, but is sending the dairy animal to beef production chain • The farmer knows the animal identification number but does not have the time to wait to re-identify the dairy animal • The dairy animal has lost its US tag and can't be replaced by the same identification number	1. Use a set from your inventory **Or** Contact DairyTrace or Attestra to place a tag order 2. Report both numbers to the national traceability database (cross-reference) **And** Contact dairy breed herd book for registered dairy animal	• The animal's life history is maintained • The animal doesn't have the same identification number • The tag replacement identification number won't appear on the Holstein website but will be recorded in the herdbook
Tag replacement	• The animal has lost or damaged both tags, both tags are broken, pulled out, torn or cut out so the unique number can't be read • The farmer doesn't know the animal identification number	1. Contact DairyTrace or Attestra to place a tag order **Or** Use a set from your inventory 2. Report tag activation to the national traceability database	• The animal's life history is lost • The animal doesn't have the same identification number

FS13: Do you identify all cattle to allow for the maintenance of treatment records (e.g. barn tags, neck chains, etc.)?

Reference: BMP 3

Issue: Since the dual-tagging requirement for Traceability is only validated for calves born on or after September 1, 2017, some farmers may not have their whole herd tagged with approved tags. In this case, or if farmers do not use the approved tags for herd management purposes, farmers must have a permanent, individual identification system so that treated animals can be identified.

Explanation: Because you may not use the approved tag numbers as your herd management numbers, you may need a supplementary, permanent system to identify resident cattle on your farm. The identification system must provide a unique identifier for each animal that can be easily recognized and understood by everyone treating or milking cattle. The identifier must be permanently applied to the animal and must not merely mark its stall.

Note: An identifier is required for all cattle that are treated with a product that has a milk or meat withdrawal – heifers and calves included.

Some examples of acceptable barn identification methods are:

- Barn ear tags.
- Neck chains.
- Transponders/computerized ID: as long as the cattle can be easily identified when needed and the transponders remain linked to each animal following treatment.
- Leg bands with numbers.

Some examples of unacceptable barn identification methods are:

- Ear tattoos: difficult to read for treatment purposes.
- Ear staples: difficult to read for treatment purposes.
- Pictures: not permanently attached to the animal.
- Stall cards: not permanently attached to the animal.

If you are using your own identification system, not DairyTrace or Attestra tags, to identify cattle on a daily basis, and to record treatment information, you must record the link between the animal's barn ID and DairyTrace or Attestra tag before the animal leaves the herd. This is important for traceback purposes. For example, if an animal is identified as having residues at the processing plant, you need to be able to determine which animal it was in order to assess what went wrong and implement effective corrective actions to prevent a re-occurrence.

3.3 Tag Activation

When the tag set (DairyTrace or Attestra approved tags) are placed in the animal's ears, they should be recorded on farm and must be reported to the national traceability database to be activated. The activation or age verification involves matching a unique identification number to one particular animal, which will become the 15-digit animal identification number and relate its personal information such as birth date. Once the tag is activated, the animal has an age associated to it, exists in the system and can be tracked for traceability, genetic, health, and biosecurity purposes.

LT4 : Are you recording and reporting animal birth information to the national traceability database?

- **Birth information must be recorded within 7 days of the event or before the animal leaves the farm, whichever occurs first**
- **Birth information must be reported within 45 days of the event or before the animal leaves the farm, whichever occurs first.**

Reference: Alberta and Quebec provincial regulations, Livestock Traceability Quick Tips, DairyTrace database: www.dairytrace.ca, SimpliTRACE database (Attestra): https://simplitrace.attestra.com/login

Issue: When tags are installed to the animal ear, they need to be reported into the national traceability database to be activated. Once the tag is activated, the animal exists in the system, the real birth date is recorded and reported with the farm of origin premises identification number; and then the animal can start to be tracked for traceability purposes.

In Alberta, information recorded must be kept for a minimum of 10 years for future reference and cattle (dairy and beef) need to be age-verified in the DairyTrace database before 10 months of age or before leaving the farm of origin, whichever occurs first.

For Quebec dairy farmers, tag activation must be reported to Attestra within 7 days after the animal is identified at birth.

Explanation: The animal information must be recorded within 7 days of birth to ensure the accuracy of the information registry and must be reported to the national traceability database within 45 days of birth or before it leaves the farm of origin, whichever occurs first. The following information is the minimum requirement for tag activation into the national traceability database.



- Animal identification number - 15 digits (last 9 digits must be recorded – the first 6 digits are standard for Canada and will be auto-filled by DairyTrace when reporting).
- Animal's date of birth.
- Premises identification number where the animal was born.

The information must be recorded in an on-farm paper manifest, your national Traceability database account (DairyTrace or SimpliTrace (Attestra)), herd management software, Excel document, provided template (Animal birth record from Farmer's Workbook), third party or other type of document. It must be kept on farm for a minimum of 5 years for further reference.

Farmers who do not maintain separate on farm birth records will still meet the requirement if all birth information for every animal is reported to the national traceability database. In this situation, reports generated directly from DairyTrace or SimpliTrace can serve as the on farm record.

The tag activation information must be reported to the national traceability database, which would be DairyTrace, or SimpliTRACE (Attestra) for Quebec farmers within 45 days of an animal's birth (7 days for Quebec farmers). Reports must be done directly to the database by the farmer, an employee, a manager or by a third party that has the authority to send data into the farmer account. A third party could be a milk recording service (such as DHI or Valacta), a herd management software designed to send specific traceability data to the national traceability database, a national breed association (for registered cattle) or a stakeholder that has been mandated to do so.

For dairy farmers who tag calves at birth with DairyTrace tags and submit applications for registry to Herdbook for registration, Holstein Canada will submit the data to DairyTrace. In other words, Holstein Canada will activate the tags on behalf of the farmer.

For direct reporting into DairyTrace, you may submit your information directly online through the web at www.dairytrace.ca or via phone (1-866-558-7223), fax (1-519-756-3502), e-mail (info@DairyTrace.ca) or mail at the following contact information: DairyTrace Customer Services, P.O. Box 610, Brantford, Ontario, N3T 5R4. For further information, consult the tutorials on the website or contact DairyTrace customer service; they will walk you through the process for either direct web access or web service.

Quebec farmers must report their tag activation information through Attestra's customer service or online access. They can either call the customer service at 1-866-270-4319 or fill in the tag activation declaration document, and then fax it to 1-866-473-4033 or mail it to Attestra, 555 Roland Therrien, suite 050, Longueuil, QC, Canada, J4H 4E8. The farmer may also use the direct online access, by using the free application SimpliTRACE Express or direct web access (https://simplitrace.attestra.com/login). Prior to using these web services for the first time, farmers must contact Attestra customer service to obtain their usernames and passwords.

3.4 Animal Movement

Animal movement is the last of the three pillars of livestock traceability. In case of a contagious disease outbreak, it is possible with this information in hand to identify exactly where the animal has been, which other animals it has been in contact with and where it is now. It is critical information for the planning and management of emergencies.

LT6: For animal move-in (reception of an animal at the farm, including import):

Are you reporting the information to the national traceability database?

*** Information must be reported within 7 days of the event or before the animal leaves the farm, whichever occurs first.**

Reference: Part XV of the Health of Animals Regulations, DFC Principles, and Alberta and Quebec provincial regulations, Livestock Traceability Quick Tips, DairyTrace, and SimpliTRACE database (Attestra).

Issue: According to Part XV of the federal Health of the Animal Regulation (CFIA), it is not currently required to report animal move-in. But knowing where livestock is located provides valuable information in responding to animal disease outbreaks and food safety issues. It allows governments to quickly identify where the animal has been and where it is now (animal traceback). In fact, traceback information helps to prevent or reduce disease spread and diminishes the "quarantine zone" since knowledge of animal location is more accurate.

Imports must be reported to have a complete picture of the situation.

Livestock traceability systems and efficient traceback systems depend mostly on the quality and accuracy of reported data reported in a timely way.

Explanation: Animal move-in refers to any activity when an animal is taken from where it is kept (location of departure) and brought to another location (location of arrival). Intra-farm movement (movement of an animal within a farm under the same management) must be reported if the animals are transported across a provincial or territorial border.

Importing animals from outside of Canada is also considered as animal move-in. Animal imports refer to any animal entering into a facility from outside of Canada. Their previous histories (birth date and movements outside of Canada) are not known, but all other movements from their entry into the facility to rendering will be reported.

Animal reception should be reported within 7 days to ensure the accuracy of the information registry. The following information is required for animal move-in reports.

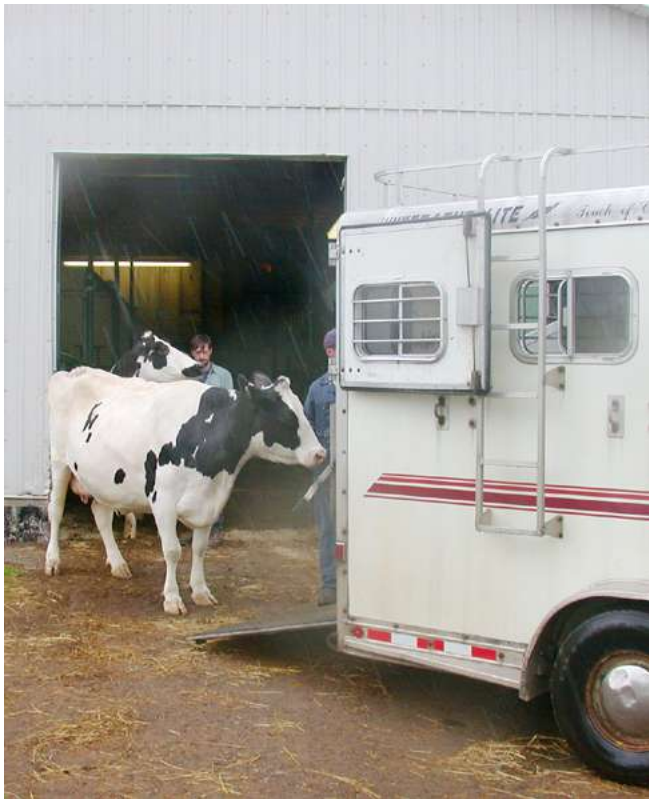
- Animal identification number – 15 digits.
- Date of animal's arrival.
- Premises identification number of the farm of arrival.
- Premises identification number of the farm of departure.
- Vehicle (single unit) or trailer (tandem unit) licence plate number.

For animal imports, the premises identification number of the farm of departure might not be known by the farmer who is receiving the animal. In those cases, the farmer may report the location of the site where the animal was kept before it was imported (e.g. address of the facility).

Information about move-in must be reported to the national traceability database which would be DairyTrace, or Attestra for Quebec farmers only. Reports might be done directly to the database by the farmer, an employee, a manager, or by a third party that has the authority to send data into the farmer's account. A third party could be a milk recording service, herd management software designed to send specific traceability data to the national traceability database, or a stakeholder that has been mandated to do so.

For direct reporting into DairyTrace, you may submit your information directly online through the web at www.dairytrace.ca or via phone (1-866-558-7223), fax (1-519-756-3502), e-mail (info@DairyTrace.ca) or mail at the following contact information: DairyTrace Customer Services, P.O. Box 610, Brantford, Ontario, N3T 5R4. For further information, consult the tutorials on the website or contact DairyTrace customer service; they will walk you through the process for either direct web access or web service.

Quebec farmers must report their animal move-in through Attestra's customer service or online access.



They can either call the customer service at 1-866-270-4319 or fill in the movement declaration document, then fax it to 1-866-473-4033 or mail it to Attestra, 555 Roland Therrien, Suite 050, Longueuil, QC, Canada, J4H 4E8. The farmer may also use the direct online access, by using the free application SimpliTrace or direct web access (Attestra). Before you use these web services for the first time, you must contact the Attestra customer service to obtain your password.

LT9: For animal move-out (Departure of an animal from the farm, excluding on-farm animal disposal or export): (Demerits)

Are you reporting the information to the national traceability database?

*** Information must be reported within 7 days of the event**

Reference: Part XV of the Health of Animals Regulations, DFC Principles, and Alberta and Quebec provincial regulations, Livestock Traceability Quick Tips, DairyTrace: www.dairytrace.ca, SimpliTRACE database (Attestra): https://simplitrace.attestra.com/login

Issue: According to Part XV of the federal Health of the Animal Regulation (CFIA), it is not currently required to report animal move-out. However, consistent reporting of animal departures from the farm, would strengthen Canada's traceability system.

Knowing where livestock is located provides valuable information in responding to animal disease outbreaks and food safety issues. It allows governments to quickly identify where the animal has been and where it is now (animal traceback). In fact, traceback information helps to prevent or reduce disease spread and diminishes the "quarantine zone" since knowledge of animal location is more accurate.

Move-out events also help maintain herd inventory accuracy by reconciling the number of animals on the farm with the national database.

Livestock traceability systems and efficient traceback systems depend mostly on the quality and accuracy of reported data reported in a timely way.

Explanation: Animal move-out refers to any activity when an animal is taken from where it is kept (location of departure) and brought to another location (location of arrival). Any animal moving out of your facilities is considered to be an animal move-out, even for a short journey (except for on-farm animal disposal or export, see requirement LT8). Intra-farm movement (movement of an animal within a farm under the same management) must be reported if the animals are transported across a provincial or territorial border.

Animal departure should be reported within 7 days to ensure the accuracy of the information registry. The following information is required for animal move-out reports.

- Animal identification number – 15 digits.
- Date of animal's departure.
- Premises identification number of the farm of departure.
- Premises identification number or address of the permanent or temporary destination (e.g. farm of arrival, fairs, vet clinics, auction, etc.).
- Vehicle (single unit) or trailer (tandem unit) licence plate number.

Information about move-out must be reported to the national traceability database which would be DairyTrace, or Attestra for Quebec farmers only. Reports might be done directly to the database by the farmer, an employee, a manager, or by a third party that has the authority to send data into the farmer's account. A third party could be a milk recording service, herd management software designed to send specific traceability data to the national traceability database, or a stakeholder that has been mandated to do so.

For direct reporting into DairyTrace, you may submit your information directly online through the web at www.dairytrace.ca or via phone (1-866-558-7223), fax (1-519-756-3502), e-mail (info@DairyTrace.ca) or mail at the following contact information: DairyTrace Customer Services, P.O. Box 610, Brantford, Ontario, N3T 5R4. For further information, consult the tutorials on the website or contact DairyTrace customer service; they will walk you through the process for either direct web access or web service.





Quebec farmers must report their animal move-out through Attestra's customer service or online access. They can either call the customer service at 1-866-270-4319 or fill in the movement declaration document, then fax it to 1-866-473-4033 or mail it to Attestra, 555 Roland Therrien, Suite 050, Longueuil, QC, Canada, J4H 4E8. The farmer may also use the direct online access, by using the free application FormClic or direct web access (Attestra Direct). Before you use these web services for the first time, you must contact the Attestra customer service to obtain your password.

3.5 Tag Retirement

Tag retirement is the way to confirm that the animal bearing the unique identification number is dead or exported. In other words, the animal is no longer active in the national traceability database. By recording and reporting tag retirement, it is possible to keep track of national herd numbers and identify when/where animals are being disposed of on the farms. Knowing that an identification number is retired saves valuable time that would have been wasted searching for that animal in an emergency response.

LT8: For tag retirement (on-farm animal disposal or export):

Are you reporting the event information to the national traceability database?

*** Information must be reported within 7 days of the event.**

Reference: Part XV of the Health of Animals Regulations and DFC Principles, Livestock Traceability Quick Tips, DairyTrace: www.dairytrace.ca, SimpliTRACE database (Attestra): https://simplitrace.attestra.com/login

Issue: According to Part XV of the Health of Animal Regulations, the animal's death (on-site disposal or a specific disposal site) must be reported within 30 days after the animal disposal. The amended regulations could modify the 30-day delay of reporting to 7 days, which meets the module requirement.

According to Part XV of the Health of Animal Regulations, the animal export information should be reported (animal identification number) within 30 days after the exportation. This requirement could be amended to 7 days after export and you will need to report the following information: animal identification number - 15 digits, premises identification number of departure site, location of destination, date of loading and vehicle licence plate number.

Explanation: Animal exports refer to any animal exiting Canada. Sending a dairy cow to a USA dairy show is considered to be an export event. If the animal returns to Canada it would be an import event. Animal export information is important to collect, since once an animal moves outside of Canada, no more data entries for this animal will be expected to be reported to the national traceability database.

On-farm disposal and animal export must be reported within 7 days of an animal's death or export to ensure the accuracy of the information registry. The following information is the minimum requirement for:

On-farm animal disposal data to be reported:

- Animal identification number – 15 digits.
- Animal's date of death.
- Premises identification number of the farm where the animal died.

Animal export data to be reported:

- Animal identification number – 15 digits
- Animal's date of departure.
- Premises identification number of the farm of departure.
- Location to where the animals were exported (examples: address, state, country).
- Vehicle (single unit) or trailer (tandem unit) licence plate number.

Tag retirement information must be reported to the national traceability database, which would be DairyTrace, or Attestra for Quebec farmers only. Reports may be reported directly to the database by the farmer, an employee, a manager, or by a third party that has the authority to send data into the farmer account. A third party could be a milk recording service, herd management software designed to send specific traceability data to the national traceability database, or a stakeholder that has been mandated to do so.

For direct reporting into DairyTrace, you may submit your information directly online through the web at www.dairytrace.ca or via phone (1-866-558-7223), fax (1-519-756-3502), e-mail (info@DairyTrace.ca) or mail at the following contact information: DairyTrace Customer Services, P.O. Box 610, Brantford, Ontario, N3T 5R4. For further information, consult the tutorials on the website or contact DairyTrace customer service; they will walk you through the process for either direct web access or web service.

Quebec farmers must report their tag retirement (export or on-farm disposal) information through Attestra's customer service or online access. They can either call the customer service at 1-866-270-4319 or fill in the *death* or *export declaration* document, then fax it to 1-866-473-4033 or mail it to Attestra, 555 Roland Therrien, Suite 050, Longueuil, QC, Canada, J4H 4E8. Farmers may also use the direct online access, by using the free application FormClic or direct web access (Attestra Direct). Before you use these web services for the first time, you must contact the Attestra customer service to obtain your password.

Note: According to Part XV of the Health of Animal Regulations, if dead stock is moved from a site to a disposal site or rendering facility, it becomes the responsibility of the destination site to report the information to the national traceability database (i.e. move-in). In those cases, the farmer is not obligated to report animal's death or disposal and must not remove tags.



4.0 BIOSECURITY AND ANIMAL HEALTH



INDEX:

Cattle health management

Cattle additions and movement

Service providers, visitors, vehicles and equipment

Additional information

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 4		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
FS14	Do you have a Cattle Health Declaration signed by your veterinarian annually and the most recent version kept on file? (Record 6)	✓		4.1
AC11	Have you established and implemented a Standard Operating Procedure for animal health practices (e.g., disbudding/dehorning, castration, supernumerary teat removal, hoof trimming, severe acute clinical mastitis treatment) that includes appropriate pain control where required? (SOP 9)	✓		4.1
AC12	Do you provide prompt medical care for cattle that are sick, injured, too thin (BCS ≤2), lame, experiencing dystocia, in pain or suffering?	✓		4.1
AC20	Have you established and implemented a Standard Operating Procedure for managing down cattle? (SOP 10)	✓		4.1
AC13	Have you established and implemented a Standard Operating Procedure for euthanasia? (SOP 11)	✓		4.1
AC14	Have you: a) Had a cattle assessment conducted by an independent assessor on your milking herd for Body Condition Score; hock, knee and neck scores; and mobility score? (Record 7) b) Documented and implemented an appropriate corrective action plan for results in the red zones to meet the program's timelines for continuous improvement? (Record 7b)	✓		4.1
AC15	Do you comply with the ban on tail docking unless medically necessary?	✓		4.1
BIO1	In the past two years, have you completed the Biosecurity Risk Assessment with your veterinarian to identify and address biosecurity risks on your farm? (Record 6b) As part of the biosecurity risk assessment, have you: a) Calculated your calf mortality for female calves aged 2 to 60 days. If greater than 10%, have you completed a corrective action plan (Record 6C)? b) Reviewed your annual herd health records with your veterinarian?	✓		4.1
BIO2	Do you record notable disease events for all animals and maintain that record for a minimum of 3 rolling years? (Record 10)		✓	4.1
BIO3	Have you established and implemented an SOP, in consultation with your veterinarian, for vaccinating against specific diseases of concern? (SOP 12)	✓		4.1
BIO4	Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases when bringing new cattle into your facilities from other herds? (SOP 13)	✓		4.2
BIO5	Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases by cattle returning to your facilities from other herds, cattle shows, etc.? (SOP 14)	✓		4.2
BIO6	Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases by family, employees, farm visitors and service providers? (SOP 15)	✓		4.3
BIO7	Do you have biosecurity signage posted on the main access point, which is visible from the main parking area?	✓		4.3

Introduction

Maintaining good animal health is essential to producing high-quality milk and meat, and to ensuring animal care and comfort. Animal health management helps to prevent problems from entering or spreading within the herd.

A Cattle Health Management Plan allows a farmer to assess risk and take the appropriate actions to maintain the health of the herd and prevent the introduction and spread of disease. To achieve this goal, a cattle health management plan needs to have both proactive and reactive components. Veterinarians play a key role in creating the plan with the farmer and in responding to specific problems on the farm.

4.1 Cattle Health Management

FS14: Do you have a Cattle Health Declaration signed by your veterinarian annually and the most recent version kept on file? (Record 6)

Reference: BMP 3

Issue: The National Dairy Code, Section 31, states that no farmer shall sell or offer for sale milk that is obtained from an animal that shows evidence or visible signs of disease transmissible to humans by milk or that adversely affects the quality or flavour of the milk. Some countries require an official control on dairy farms to demonstrate that Section 31 is being followed. The majority of milk in Canada is destined for the domestic market; however, some is exported. Because milk in Canada is pooled, all farms must meet the requirement, and the Cattle Health Declaration is designed to satisfy the requirement.

Explanation: To meet this requirement, dairy farmers must have a **Cattle Health Declaration** signed by a veterinarian **annually** and the most recent version kept on file. The Cattle Health Declaration is in the Workbook. If a farm owner is a veterinarian, they are not permitted to sign their own Cattle Health Declaration.

AC11: Have you established and implemented a Standard Operating Procedure for animal health practices (e.g., disbudding/dehorning, castration, supernumerary teat removal, hoof trimming, severe acute clinical mastitis treatment) that includes appropriate pain control where required? (SOP 9)

Code of Practice: Sections 4.3, 4.4, 4.5 and 4.7

Issue: All farm personnel responsible for performing animal health practices, such as disbudding/dehorning, castration, supernumerary teat removal hoof trimming and severe acute clinical mastitis treatment, must understand how to complete those processes effectively and efficiently while minimizing pain and distress to the animals. Branding (hot or cold) is not acceptable.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for animal health practices.

Your SOP must include appropriate pain control for disbudding/dehorning, castration, supernumerary teat removal, invasive hoof trimming and for severe acute clinical mastitis treatment, no matter which method you use for these procedures. The pain control products you use must be approved (i.e., products with a DIN). Furthermore, while sedatives can be used as part of a pain management protocol (e.g., sedatives can help make administering nerve blocks easier), sedatives are not pain relievers. Some sedatives do have an analgesic claim but those currently on the market are not intended to be used as a true analgesic. Therefore, sedatives do not qualify as an analgesic or pain reliever for the purposes of this SOP. Your SOP must contain enough information to ensure that staff can perform the procedures while minimizing animal discomfort.

Branding is not an acceptable practice. You must consider alternative methods of identification that may be effective on your farm. You should work with your veterinarian to ensure your procedures are the best fit for your farm. You can consider the following BMPs when you develop your own SOPs. **You must include the BMPs that are shaded grey, and if a procedure is performed exclusively by a veterinary professional, it does not need to be described in detail in the SOP, but it should still be clearly noted along with the name, role, and contact information of the professional responsible.**

- Personnel completing animal health practices must demonstrate skill and/or knowledge on the procedure that has been developed through training, experience, or mentorship, or a combination thereof.

Disbudding/dehorning:

- Disbud calves before 2 months of age. Calves over 2 months of age can be dehorned in exceptional circumstances.
- Dehorn in collaboration with your veterinarian or veterinary assistant during monthly herd health checks.

- Prepare your equipment. Method used is dependent on age of animal. Note that disbudding must be done before two months of age, but methods for dehorning after two months are listed below for exceptional circumstances:

  Example (farmer insert own methods and ages)

Age of Calf	*Method*
< 7 days	caustic paste
< 12 weeks	hot iron
2–4 months	Barnes type dehorner
> 4 months	performed by veterinarian

  Routine dehorning using high-tension rubber bands is not acceptable. High-tension rubber bands can only be used under special permission of a veterinarian for an individual animal, if the veterinarian has deemed it medically necessary for the individual animal.

Note: Your SOP does not need to state this; but, you must still meet this requirement.

- Properly and safely restrain the calf using halter/squeeze/manually/other. State the method used to restrain the calf in your SOP.
- Palpate the poll of the calf to confirm that horn buds are present.
- **Before** disbudding/dehorning, administer pain control [state what you use, which must include at minimum a local anesthetic and systemic analgesic] (e.g., a combination of sedatives, local anesthetics and analgesics). Medications must be administered by a veterinarian, trained veterinary technician or a trained operator.

  An example of an anesthetic is lidocaine. Examples of analgesics are: ketoprofen, meloxicam and flunixin.
- The pain control products you use must be approved (i.e., products with a DIN).

Note: Your SOP does not need to state this bullet; however, you still must do the practice.

- Wait an adequate period of time for pain control to take effect. Talk to your veterinarian to determine the appropriate time delay for the pain mitigation strategy you are using to be effective.
- Disbud or dehorn [choose method you use and describe the steps].

Caustic paste (calves must be less than 7 days of age):

- Expose the horn bud (about the size of a 5¢ coin) by pushing the hair back.
- Apply the caustic to the horn bud. Use a wooden applicator. Apply a thin layer.
- Re-position the hair over the paste and horn bud (e.g., cover the horn bud).
- Keep calves in individual pens to avoid accidental caustic burns to other animals.

Hot iron (Note that disbudding must take place before 2 months of age, except in exceptional circumstances. In exceptional circumstances where dehorning takes place after 2 months of age, hot iron dehorning must be done in calves less than 12 weeks of age.):

- Preheat dehorning iron to a red colour (iron must become hot enough to cauterize tissue: about 10 minutes).
- Wear gloves to protect your hands.
- Hold the calf's ear out of the way to keep it from getting burned.
- Place the hot end of the dehorner over one of the horns so that the iron is in direct contact with the skin at its base. Apply mild pressure. When the burning hair begins to smoke, slowly rotate the dehorner by twisting your wrist.
- Continue application for about 10-15 seconds. Caution: Do not leave dehorner in place for too long. Heat can be transferred through the thin bones of the skull and damage the calf's brain.
- Dehorning is complete (skin cauterized) when the surface of the skin surrounding the base of the horn looks like a copper-coloured ring.
- Re-heat dehorning iron to a red colour. Repeat for the other horn.
- The horn bud or button will slough off in 4-6 weeks.
- Monitor for next 10-14 days after dehorning. Observe for signs of infection and treat as needed.
- Seek immediate help for calves with severe pain or infection.

Barnes type dehorner (2 to 4 month calves; horns up to 4 inches. Note that disbudding must take place before 2 months of age, except in exceptional circumstances):

- Close the handles of dehorner together.
- Place the jaws of the dehorner over the horn bud. Adjust opening as needed in order completely remove ring of skin surrounding the horn base.
- Press the gouger gently against the head. Maintain the pressure and quickly spread the handles apart to bring the blades together to remove skin and the horn bud.
- Control bleeding by pulling the artery with forceps or using a hot iron to cauterize the artery.
- Clean and disinfect the jaws of the gouger between calves.

Castration:

- Calves should be castrated as early as possible. Medications must be administered by a veterinarian, trained veterinary technician or a trained operator.
- Verify identity and age of calf and select the method to use.
- Castrate in collaboration with your veterinarian or veterinary assistant during monthly herd health check.
- Properly and safely restrain the calf using halter/squeeze/manually/other. State the method used to restrain the calf in your SOP.
- **Before** castration, administer pain control [state what you use, which must include, at minimum, a local anesthetic and systemic analgesic]. An example of a local anesthetic is lidocaine. Examples of systemic analgesics are: ketoprofen, meloxicam and flunixin.
- The pain control products you use must be approved (i.e., products with a DIN). Note: Your SOP does not need to state this bullet; however, you still must do the practice.
- Perform castration technique [describe].
- Provide a clean, dry environment for calves after castration.
- Monitor the calves closely for two weeks after castration. With latex bands, the scrotum should drop off within seven weeks after castration. Look for swelling, signs of infection, tetanus and abnormal gait.
- Treat wounds as needed.

Supernumerary teat removal:

- Identify and remove supernumerary teats on heifers as early as possible.
- Properly and safely restrain the heifer using halter/squeeze/other for your safety as well as accuracy of teat removal. State the method used to restrain the calf in your SOP.
- Ensure the teat is complete free from others (e.g. not webbed). Note: a veterinarian should perform any webbed teat removals.
- Clamp (with haemostat) teat to be removed close to udder to reduce pain of removal as well as to ensure the udder tissue is not cut too deep.
- Remove teat [state what you use]. Conduct teat removals concurrently with dis-budding/de-horning.
- Removing teats with high-tension rubber bands is unacceptable Note: Your SOP does not need to state this bullet; however, you still must do the practice.
- Administer pain control (e.g. anesthetics and/or analgesics), as recommended by your veterinarian. [state what you use].
- Provide additional dry bedding to heifers for a minimum of 72 hours post teat removal to avoid infection.

Hoof trimming:

- Inspect feet and claws and trim as required to promote a normal gait and minimize lameness. Hooves should be inspected at least twice a year.
- Properly and safely restrain the animal using a squeeze/tilt table/other. Ensure restraint method used minimizes stress and risk of injury to both animal and personnel. State the method used to restrain the animal in your SOP.
- In the event of therapeutic hoof trimming (i.e., a corrective procedure to treat hoof problems by removing damaged tissue, relieving pressure on injured areas, and applying corrective devices to support healing). State the strategies used to relieve pain and pressure on the affected area (e.g., systemic analgesic and/or a hoof block).
- In the event of an invasive hoof trimming (i.e., a trim involving the laminae of the hoof and/or deeper tissues (presence of blood) below the sole, hoof wall, or heel), administer pain control. [state what you use].
- Treat infectious hoof conditions to control the infection. Discuss with a veterinarian or hoof health professional to accurately identify the type of lesion observed and determine the most appropriate protocol to use on the farm.

Ensure that personnel responsible for hoof trimming are trained and/or affiliated with a professional association.

- Avoid preventative hoof trimming in the first month post calving.
- Clean and disinfect hoof trimming tools between farms and after treating cattle with contagious hoof lesions.
- Monitor cattle following trimming and refine techniques if outcomes are suboptimal.

Severe Acute Mastitis treatment:

- Severe cases are those with abnormal milk, with or without udder changes, but with signs of systemic illness such as fever, elevated heart or respiratory rate, dehydration, or decreased rumination.
- When restraint is necessary the safest, least stressful restraint must be used.
- Administer a systemic analgesic [state what you use].
- Examples of systemic analgesics are: ketoprofen, meloxicam and flunixin.
- Monitor mastitis cases to identify risk factors for the lactating herd.

AC12: Do you provide prompt medical care for cattle that are sick, injured, too thin (BCS ≤2), lame, experiencing dystocia, in pain or suffering? (Major/Minor)

Code of Practice: Sections 1.10, 2.1 and 3.9

Issue: Sick or injured cattle must receive **prompt care** to restore them to health, or if they are beyond recovery, they need to be shipped if fit for transport or euthanized humanely, whichever option is appropriate, to avoid prolonged pain and suffering. Dairy cattle must be restrained safely in the least stressful manner so that farmers can handle them and conduct animal health procedures without the animal or the handler becoming injured. The equipment must also be designed to minimize stress and pain to the animal.

Explanation: Prompt and appropriate care must be provided for cattle that are:

- Sick.
- Injured.
- Too thin (BCS ≤2).
- Lame.
- Experiencing dystocia (i.e., hard calving).
- In pain, or suffering, which may mean euthanasia for those animals that are beyond recovery or not fit to transport.

To ensure appropriate care is being provided, cattle that are receiving care must be monitored at least twice a day.

To identify animals experiencing dystocia, cattle close to calving must be monitored, at least daily. The frequency by which cattle close to calving need to be monitored varies depending on the individual animal's needs, including risk factors for dystocia (e.g., twins). Cattle must also be moved to calve in a designated calving area.

Cattle should be moved into the sick pen when needed. Some sick cattle may not need to be moved (e.g., a cow with mastitis) and cattle housed in tie-stalls can remain in their stalls. Your designated area for sick and injured cattle (e.g., the hospital pen) should have good bedding and good footing (e.g., non-slip flooring) and provide cattle with adequate access to unlimited feed and water (refer to AC6). You should work together with your veterinarian to assess sick and injured cattle's needs and then provide the appropriate level of care or treatment within a reasonable time period in accordance with the animals' needs, and then evaluate if the animal is progressing as a result of treatment or segregation. If the animal hasn't improved after 24 hours of treatment, you should contact your veterinarian for guidance on the next steps. If euthanasia is required, make sure you and your staff follow your Standard Operating Procedure for euthanasia.

Those responsible for providing care must be competent and demonstrate related skills and/or knowledge through training, experience, mentorship, or a combination thereof. This is to ensure that the personnel are able to detect signs of illness, injury, and lameness and provide appropriate treatment related to the animal's condition.

Predetermined thresholds must be set for lameness and leg injuries, over which corrective actions must be taken; at a minimum, the thresholds determined in AC14 may be the predetermined threshold used. You must regularly observe cattle for signs of lameness or leg injuries and perform hoof trimming to promote a normal gait. Your cattle assessment can give you valuable insight into your lactating herd lameness and leg injury status.

You need to have equipment or a method of safely restraining or handling cattle. In particular, you should have a good method of restraining the head of the animal, so that you can provide adequate treatment, such as a physical exam, and have safe intravenous (IV) access. Some examples are: head gates on a feed alley or hospital pen, squeeze, or chute. You should check to make sure your system is well maintained (e.g., no sharp points or edges) and is safe for you and the cattle.

AC20: Have you established and implemented a Standard Operating Procedure for managing down cattle? (SOP 10)

Code of Practice: Sections 4.1, 4.1.1, and 5.3

Issue: Farmers manage their cattle to prevent injuries and illness, but accidents happen and cattle do get sick, which can result in down cattle (cattle that are unable or unwilling to stand). Down cattle are an emergency and need to be managed carefully to ensure adequate care and minimal discomfort.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for managing down cattle. Your SOP must contain enough information to ensure that staff can act and do act promptly and appropriately. You should work with your veterinarian to determine a solution that is adequate for the conditions on your farm, including the type of equipment required to move down animals. You can consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- If an animal becomes sick, injured or goes down, promptly diagnose the condition of the animal and the likelihood of recovery. An electric prod may be used, in consultation with a veterinarian, a maximum of **twice during a single assessment of the animal's ability to rise,** and only on the rear flank and upper rear leg, when necessary to determine her likelihood of recovery.

Farms that do not have prods have the option to state or not in their SOP that prods are not used on the farm. Consultation with the veterinarian is done when developing the SOP; however, the veterinarian does not need to be consulted at each down cow assessment. An animal must not be repeatedly encouraged to move once she has demonstrated she cannot get up or move. If treating, determine an appropriate duration of treatment/maximum allowable days of treatment without recovery. Call the veterinarian, if needed.

- Determine if the animal can be treated and/or cared for where she is lying or if she needs to be moved.
- If you have to move the animal but cannot do so humanely, euthanize her where she is, according to your euthanasia SOP.
- If the animal can be treated and/or cared for where she is lying, treat her there until she recovers and can get up. If she is beyond recovery, euthanize her humanely according to your euthanasia SOP. If the animal hasn't improved after 24 hours of treatment, you should contact your veterinarian for guidance on the next steps. Avoid moving animals in labour.
- If the animal is in an area where she must be moved (e.g., in the milking parlour or walk-way), follow the farm procedure below.
  - Farm personnel must be trained in cattle behaviour and quiet handling techniques so that they understand how to handle and move cattle quietly, and with low stress.
  - Never use electric prods on the face, anus or reproductive organs of dairy cattle, and never use electric prods on calves that you can move manually.
  - Down cattle may be lifted to help them stand, to make an initial assessment of their condition/ injury. If lifting a down animal, lower the animal immediately if it cannot support its weight immediately after lifting.
  - Move the animal as gently as possible, minimizing stress and trauma.
  - Describe any specialized equipment used on the farm to move cattle, and how to use it. Use specialized equipment according to manufacturer's instructions.
    Examples of cattle moving equipment are (see Table 2 for details):
    - Full body sling/skid steer/stoneboat/rubber mat/plywood sheet/bucket of tractor
    - Ropes/straps
  - Gently rock or roll an animal onto special equipment whenever possible.
  - Move the animal over the shortest distance possible.
  - Do not pull, push, drag or lift an animal by the neck or legs unless human or animal safety is at risk and there is no other option. Even then, only do so for a few feet with force being applied for a very brief period of time. Carefully protect the animal as much as possible, and then use your preferred method of moving the animal.
  - **Never use hip lifters or clamps to move or carry down cattle from one location to another.**
  - Lactating cows that require milking must be milked to prevent mammary engorgement where they are located, if safe to do so.
  - Stalls: cattle down in stalls often have their rear leg tucked underneath in an awkward position. Try to rock and move the animal's hindquarters so that her leg can be positioned properly. If that does not help, your only alternative may be with a halter on her head or a padded chain around her neck.
- Wherever the animal is located for recovery, ensure the following are provided:
  - Proper non-slip footing (e.g., sand applied around the animal) or, if in a stall, ensure the gutter is covered. (Refer to AC6)
  - Shelter from the elements (e.g., direct sun, rain, extreme cold or heat, moisture) and is protected from predators.
  - Frequent easy access to fresh food and water. (Refer to AC6)
  - Protection from other animals to prevent injury and support recovery, if possible.
- To support the animal's recovery:
  - Assess animal regularly to monitor progress.
  - Roll animal from side to side every two hours initially for the best chance of recovery.
  - Provide udder pressure relief by maintaining milking routine or milking as necessary.

Table 5: Methods for lifting and moving down cattle (in order of most recommended to least recommended)

Methods for lifting down cattle

Method	Pros	Cons	Important Considerations
Body slings	Numerous adjustable straps or a single wide strap to provide broader support to thoracic/ brisket and inguinal areas	Passing straps under cattle can be challenging and require multiple people	• Ideally slings should be used to lift down cattle to a standing position to enable the animal to bear weight on its limbs for up to a few hours before returning to sternal recumbency • Single (narrow) belly-band slings are ineffective for use in cattle due to compression of abdomen and compromised respiration • Full body slings can also be used as a method for moving down cattle
Float tanks	• Gently lifts down cattle to a standing position using heated water • Minimizes trauma compared to other devices available • Down cattle can remain in the filled tank for up to six to eight hours • Good diagnostic tool for prognosis	• Not widely available • Timeliness • Costly • Requires multiple people	• Need to carefully screen candidates to eliminate handling of down cattle with a poor prognosis (e.g., fracture, illness, etc.)
Hip clamps/ lifters	• May assist in diagnosis, treatment and management of down cattle • May reduce tissue pressure in compressed hind limbs, and improve circulation if used early	• Potentially dangerous to the animals as weight transferred to tuber coxae region • Pressure from lifters can easily damage muscle and nerves	• **Never use hip lifters to move animals** • Use hip lifters only to assist an animal that can stand and bear weight when lifted • Never leave lifted animal unattended or hanging • Use of well-padded lifters can be tolerated for 10 minutes twice daily

Methods for moving down cattle

Method	Pros	Cons	Other Considerations
Rescue glide, rubber mats, stone boats, plywood sheets	• Inexpensive • Easily created • Minimizes risk of injury when moving down cattle to a better location for recovery	• May not be readily available • Space requirement for manoeuvring	• Other alternatives exist to move cattle using similar principles – modified gates, Teflon sheets, etc.

Tractor, skid steer, loader bucket	• Available on most farms • Can move cattle longer distances	• Require extra caution and they can be dangerous to animals and people • Space required for manoeuvring • May lead to dragging cattle for accessibility	• Down cattle must be loaded into bucket carefully and restrained to minimize risk of trauma
To properly place an animal onto the chosen device, cattle should be rolled to one side and the device placed close to or under the legs of the animal. The animal should then be carefully rolled onto the device ensuring its entire body rests on the device.			

Source for recommended procedures for managing down cattle: *Ontario Association of Bovine Practitioners, Considerations for Developing a Down Cattle Protocol, 2019.*

AC13: Have you established and implemented a Standard Operating Procedure for euthanasia? (SOP 11)

Code of Practice: Section 7

Issue: All farm personnel responsible for animal health and euthanasia decisions must understand how to euthanize cattle effectively and efficiently to minimize stress to the animals.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for euthanasia. Your SOP must contain enough information to ensure that staff can act promptly and ensure that cattle are euthanized by qualified persons in a manner that is quick, and causes the least possible pain and distress. You must **use only acceptable methods of euthanasia**, which are listed in the SOP below, according to the age of the animal. You should work with your veterinarian to ensure your procedures are the best fit for your farm. You can consider the following BMPs when you develop your own SOP. **You must include the BMPs that are shaded grey** and if euthanasia is carried out exclusively by a veterinarian or other qualified professional (e.g deadstock service), the SOP does not need to include step-by-step details of the procedure and how the equipment is stored or maintained, but it must clearly identify who is responsible and include their role and contact information:

- Confirm identity of animal, diagnosis and decision to euthanize: Consult with herd manager, veterinarian and/or dairy specialist and/or refer to decision criteria and euthanasia plan developed in consultation with your herd veterinarian. (Insert applicable directions)
- Promptly euthanize cattle with a condition that compromises their welfare and at least one of the following applied [required in the SOP]:
  - they do not have a reasonable prospect of improvement,
  - they are not responding to treatment(s) within an appropriate timeframe, or treatment is not a humane option.
- Advise authorities of any suspected or confirmed cases of reportable disease.
- Euthanasia must only be performed by a veterinarian or designated, trained person (Insert names as applicable).

  Table 3 lists the only acceptable methods for on-farm euthanasia of cattle. Insert methods and ages used on farm:

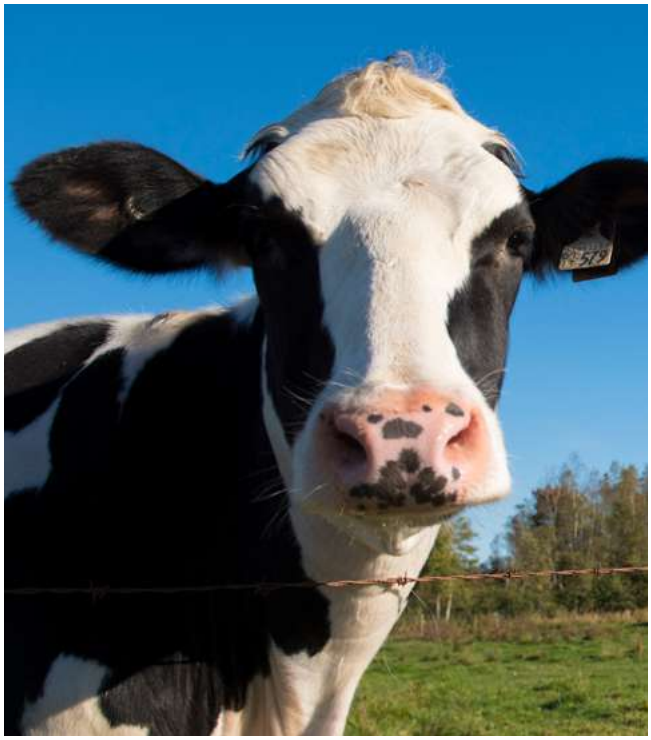


Table 6: Acceptable euthanasia methods for cattle

Method	Suitable for	Equipment and Procedure
Gunshot with a rifle or shotgun	Calves less than 181 kg (400 lb)	Applied to frontal landmark (see Appendix II). Examples of appropriate firearms: • Rifles: a .22 long rifle fired from a short distance (i.e., 0.60 – 0.90 m [2 – 3 ft]) • A .22 magnum or larger calibre • Shotguns: a .410 shotgun with a 7.6 cm (3 in) magnum load with bird shot or slug fired a short distance or a 12 or 20 gauge shotgun with slugs or bird shot no. 2, 4, or 6
	Cattle more than 181 kg (400 lb)	Applied to frontal landmark (see Appendix II). Examples of appropriate firearms: • Rifles: a .22 magnum or larger calibre centre fire rifle (.223, .270, 303, 30-30) is required • Shotguns: a 12 or 20 gauge shotgun with slugs or bird shot no. 2, 4, or 6. Note: A standard .22 calibre long rifle only produces 119–138 joules (116–135 ft-lb) of muzzle energy and is not sufficient for cattle at this weight.
Penetrating captive bolt and secondary step to cause death	All weights and ages	Applied to frontal landmark (see Appendix II). Penetrating captive bolt devices with velocities ranging from at least 55 – 58 m/s are most effective. If not unconscious, then a repeat application must be delivered immediately. Secondary steps to cause death that can ONLY be performed on an animal that is confirmed unconscious: • Bleeding out • Pithing (Note: position yourself behind the animal's back, away from the legs) • Rapid intravenous injection of a concentrated solution of potassium chloride or magnesium sulfate • A second shot (penetrating captive bolt or gunshot) is acceptable when the above secondary steps are not available.
Drugs approved for euthanasia	All weights and ages	Must be administered by a veterinarian. Safe disposal of carcass is required when barbiturates are used.

Source: National Farm Animal Care Council. Code of Practice for the Care and Handling of Dairy Cattle. 2023.

- Equipment used for euthanasia must be stored and maintained according to the manufacturer's instructions [State how the equipment is stored]. If the equipment is not present on the farm (e.g., the veterinarian or neighbour only euthanize cattle on the farm) you are not responsible for storage or maintenance, but those details must be included in the SOP (e.g., equipment for euthanasia is stored and maintained by the veterinarian).
- Perform euthanasia [describe how]. (not necessary in SOP if done by the vet or qualified professional).
- Confirm unconsciousness [describe how] (not necessary if done by the vet or qualified professional) by touching the animal's eye (cornea) and noting if the animal blinks. Any eye movement is an indication of sustained or recovering consciousness. Additional signs that an animal is unconscious include a lack of rhythmic breathing (it may be slow and erratic), a relaxed jaw (i.e., no resistance to opening the animal's jaw), and a lack of vocalization. If the animal is conscious, then any acceptable euthanasia method must be used immediately.
- Confirm death [describe how] (not necessary in SOP if done by the vet or qualified professional). immediately by checking the animal for breathing, heartbeat and consciousness. A lack of heartbeat and respiration for more than 5 minutes should be used to confirm death.
- Do not move or leave the animal prior to confirmation of death.
- Dispose of carcass in accordance with local regulations within 48 hours.



AC14: Have you:

a. Had a cattle assessment conducted by an independent assessor on your milking herd for Body Condition Score; hock, knee and neck scores; and mobility score? (Record 7)

b. Documented and implemented an appropriate corrective action plan for results in the red zones to meet the program's timelines for continuous improvement? (Record 7b)

Code of Practice: Sections 2.1, 1.4, 3.5, and 4.9

Issue: The best way to evaluate general welfare of dairy cattle is to conduct animal-based assessments, and then strive towards continuous improvement, if needed.

Explanation: Farmers assess their herds daily for signs of disease or injuries, as part of their regular routine. The animal-based assessment is simply a tool to formalize that assessment and provide a benchmark from which farmers can measure improvements.

Body Condition Scores (BCS) of the cattle in your herd can indicate whether or not their nutritional needs are being met. Poor BCS may result from poor access to feed (not enough or too much competition at the feed bunk), poor quality of feed, disease, lameness or other factors.

Hock and knee scores are indicators of stall design (e.g., stalls too short) or maintenance (e.g., lack of bedding). Neck scores are indicators of feed bunk design (e.g., neck injuries may be indicators that neck rails need to be raised or moved horizontally further away from the curb).

Mobility scores are indicators of hoof health (e.g., poor hoof trimming program), barn design or stall design. Lameness can lead to other animal welfare concerns, such as low body condition score, as well as poor production performance, such as reduced reproduction and early culling.

General health, reproductive performance, and productivity may be impacted by poor animal-based measures results as well.

As a result, you must monitor, through a cattle assessment, BCS, hock, knee, neck and mobility scores in your herd and take corrective actions, if any scores are in the Red or Dark Red zones, to strive for continuous improvement.

The requirements for the cattle assessments are:

- **Sample size:** you need to have a random sample of your cattle evaluated for BCS, hock, knee, neck and mobility scores. Sample sizes are set according to herd sizes, and your herd's past cattle assessment results. If your herd's results are low, the sample size will increase for the next cattle assessment. Refer to the Sample Size Calculator in Appendix II.
- **Frequency:** you must have an assessment done on a sample of your lactating cattle every second year, completed within 24 months before your registration anniversary date (e.g., the due date for your proAction validation or self-declaration). If your herd's results are low, the frequency will increase to every 12 months.
- **Independent assessment:** you must have a qualified independent assessor conduct the assessment. To be eligible, the independent assessor must meet qualification criteria set by DFC and the provincial association, and must have completed DFC training in cattle assessments. Your provincial association will have a list of qualified assessors in your province.
- **See Appendix II for a description of the procedures and targets and see the Workbook for the sample records.**

The Animal Care module is based on the concept of continuous improvement. Farmers must strive to improve their cattle assessment scores by the next assessment, if their results fall in the Yellow, Red or Dark Red zones.

If one or more of your results fall in the Yellow zone, you should consider corrective actions that could help your herd move into the Green zone. You should work with your veterinarian or nutritionist or dairy specialist to help you determine what you can do to improve.

If one or more of your results fall in the Red or Dark Red zones, you must document a corrective action plan (Record 7b or a document containing the information required in Record 7b) in consultation with your veterinarian or nutritionist or dairy specialist to outline your plan to improve and move out of those zones, and then you must implement the plan. For example, you may need to simply add more bedding to improve hock scores or you may need to adjust your stall design significantly, in the long term.

Guidance for Developing a Corrective Action Plan with a Dairy Professional

1. **Select a competent dairy professional** with a proven track record to develop your corrective action plan with you. The dairy professional's expertise should be specific in the area you need to improve in. Strive to develop and implement your corrective action plan as soon as possible after your cattle assessment (recommendation is within 30 days).
2. **Identify the root cause:** the first step is to identify the root cause of the problem.
3. **Determine corrective actions:** the next step is improving the current issue with your cattle, and evaluating how to correct the root cause to prevent the problem from re-occurring.

   Some identified problems may be easy to correct (e.g., raise a neck rail), but others may require a long-term plan (e.g., increase lunging space or increasing stall length).

   Together with your dairy professional, decide on the best course of action to help your cattle recover. Some possible ideas for corrective actions may be:

   - Injured cattle may need to be treated or housed separately so that they can heal. Alternatively, they may simply need more bedding or they may need the neck rail or side rail raised or moved. Perhaps they need the stalls modified.
   - Lame cattle may need their hooves trimmed, treatment or time in a sick pen to recover.
   - Cattle may need to be treated or moved to a sick pen, or, if they are beyond recovery, shipped if fit for transport or euthanized humanely, whichever option is appropriate.
   - Thin cattle may be sick or unable to compete for food at the feed bunk. They may need to be housed separately or moved to a smaller group to enable better access to feed.
   - Refer to the factsheets on the proAction website for more information: www.dairyfarmers.ca/proAction/resources/animal-care.

   You should also consider what actions you can take to prevent the same issue from re-occurring with other cattle. Some possible ideas may be:

   - Reduce stocking density or increase access to the feed bunk.
   - Increase the amount of bedding.
   - Re-evaluate stall design for cow comfort parameters.
   - Re-evaluate your hoof-trimming program to look for opportunities to improve it as a tool to prevent lameness. Some BMPs to help prevent lameness include a regular hoof-trimming program, and inspection of cattle's feet at regular intervals or at particular times of their lactation cycle to minimize the incidence of lameness and hoof disease. You should also ensure that the person trimming hooves on your farm is competent. If you are trimming hooves yourself, you should consider reviewing your technique with a professional.
   - Refer to the factsheets on the proAction website for more information: www.dairyfarmers.ca/proAction/resources/animal-care.

4. **Implement your corrective action plan,** and you should set a timeframe for when you expect to see improvement and outline how you will evaluate if your correction actions are having a positive effect. An additional option: you could schedule a follow-up meeting with your dairy professional to verify if the implementation of the corrective action plan has been effective, and adjust the plan, if needed.

Dark Red zone results:

If one or more of your results fall in the Dark Red zone, your next cattle assessment will be due in 12 months (instead of 24 months) from your registration anniversary date and the sample size will increase. The increased frequency will ensure timely follow-up, and the increased sample size will improve the accuracy of the cattle assessment results, which will help you evaluate how effective your corrective actions have been in resolving the root cause of the problem(s). Farms will remain on the 12-month frequency until they improve out of the Dark Red zone.

After three consecutive Dark Red zone results for the same measure, a major nonconformance will be assigned in the validation report and will not be closed until the farm shows a cattle assessment with results in the red, yellow or green zones. As a result, the validation will not be approved and the farm will not achieve/maintain registration.

AC15: Do you comply with the ban on tail docking unless medically necessary?

Code of Practice: Section 4.2.4

Issue: Research has demonstrated that tail docking does not have a significant impact on cattle cleanliness, somatic cell counts or disease transfer to people. Concerns with tail docking include chronic pain, infections, and loss of ability for fly control.

Explanation: Permanent tail alteration (aside from clipping) as a routine management practice and in the absence of a medical condition is traditionally referred to as tail docking and is illegal in Canada. Amputation of the tail is permitted only for medical reasons.

You are responsible to ensure that the cattle in your herd have un-docked or full tails (e.g., ensure custom heifer-raising operators do not dock tails of your animals, purchase cattle with full tails, etc.). Any animals that have amputated tail must have a record (Record 10 if done on your farm or Record 17 if purchase with an amputated tail) explaining that it was medically necessary (this applied to purchase cattle).

Medically necessary tail amputation may only occur if the tail is broken or injured and is at risk of infection or further complications. Without a medical reason, removal of any part of the tail is not acceptable, even if it is just above the switch. If you must amputate an animal's tail for medical reasons, surgery is the preferred method and pain control is required.

An alternative to docking is trimming the switch. A tail with a trimmed switch will have hair all around the end of the tail (i.e., no bare or scarred skin).

Cattle sourced from outside of Canada must also have intact tails. Any purchased animals who were born Sept 1, 2017 and after should have intact tails.

Biosecurity (BIO) 1: In the past two years, have you completed the Biosecurity Risk Assessment with your veterinarian to identify and address biosecurity risks on your farm? (Record 6b) As part of the biosecurity risk assessment, have you:

a. **Calculated your calf mortality for female calves aged 2 to 60 days. If greater than 10%, have you completed a corrective action plan (Record 6C)?**
b. **Reviewed your annual herd health records with your veterinarian?**

National Standard: Section 4.1.1 and Appendix 2 of the Producer Planning Guide

Issue: A farm's biosecurity risk and the steps taken to address that risk should be evaluated frequently enough to ensure that current steps are effective and reflect the farm's current goals and priorities.

Explanation: The Biosecurity Risk Assessment is to be completed by you in conjunction with your herd veterinarian and must be presented to your validator at the time of validation. This is to be completed once every 2 years. To be considered completed, all the questions must be answered, and at least one recommendation must be added to the last page. If a farm owner is a veterinarian, they may not sign their own Risk Assessment as the veterinarian.

The Biosecurity Risk Assessment Questionnaire is designed to identify biosecurity risks and facilitate a focused discussion with your herd veterinarian on how to reduce, eliminate, or manage them. There may be risks you choose to accept, and others that can be mitigated by altering your farm's practices.

In completing the Biosecurity Risk Assessment Questionnaire, the farmer and veterinarian will review the farm's health records and calculate the calf mortality for the last 12 months in female calves from 2 to 60 days of age. The review and calculation should be completed first before answering the questionnaire's questions. The farmer and veterinarian can use the gathered information to complete the questionnaire and make informed recommendations. If the calf mortality rate exceeds 10%, a corrective action plan (Record 6C) must be established and implemented in consultation with a veterinarian or other qualified advisor.

BIO2: Do you record notable disease events for all animals and maintain that record for a minimum of 3 rolling years? (Record 10) (Demerits)

National Standard: Section 4.1.2

Issue: Records of disease events can be used to improve the effectiveness of biosecurity and to enhance food safety.

Explanation: Cattle health records are to be maintained on your farm for a minimum of 3 rolling years, that record, at minimum the disease events, Cattle ID and the date of occurrence. Disease events, regardless of whether treatment is given, must be recorded for at least abortion, lameness, mastitis, diarrhea, pneumonia, and death. Farmers will be required to start keeping records for a minimum of 3 rolling years as of April 1, 2027, but will not be expected to have 3 years of records available for validation until April 1, 2029.

Health records should be reviewed with a veterinarian as part of ongoing herd health and disease prevention planning. Other information that could be included on the cattle health record are: observations from ongoing monitoring, test(s) completed including laboratory

reports and analysis, diagnosis, treatment methodology and outcomes (e.g., success, failure, repeat treatments) of the intervention.

The benefits of regularly reviewing your health records with your veterinarian include, but are not limited to:

- Gaining a complete picture of your herd's performance,
- Having the information to make informed management decisions (e.g., vaccinations), and
- Monitoring the effectiveness and impact of on-farm practices (e.g., colostrum management).

BIO3: Have you established and implemented an SOP, in consultation with your veterinarian, for vaccinating against specific disease of concern? (SOP 12)

National Standard: 4.1.2 and 4.2.4

Issue: Vaccinations are an important part of your farms' cattle health management plan. Having your herd vaccinated will avoid compromising your herd when introducing new cattle or returning cattle to your herd. In a closed herd, vaccinations will control the spread of diseases within the herd. Vaccination protocols help ensure that everyone responsible for vaccinating cattle will know which vaccines to administer and when.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for vaccinating cattle on your farm. Your SOP must contain enough information to ensure that any staff responsible for vaccinating cattle are able to do so correctly.

You may, after assessing the potential risks, decide not to vaccinate your herd. This should be noted in your SOP.

You should work with your veterinarian to ensure your procedures are the best fit for your farm. You should consider the following Best Management Practices when you develop your own SOP for your farm, but **you must include the Best Management Practices that are shaded grey.**

- Consult with your veterinarian to establish a vaccination program based on your herd's Cattle Health Management Plan.
  - Document product names, group of animals and any other information that is required for your vaccination program. Names of equivalent products, if used on farm, must be included in the SOP, as vaccine availability fluctuates.
- Determine the specific vaccines that must be administered, and the time at which vaccines and boosters must be administered, to each new animal.
- As needed, vaccinate new additions while they are in isolation.
- Vaccinate your home herd, if required, according to your herd veterinarian's and the vaccine manufacturer's recommendation before introducing the new cattle into your herd.
- Record vaccinations according to program requirements (Record 10).

4.2 Cattle Additions And Movement

Cattle should be purchased and moved in a manner that minimizes the risk of introduction and spread of infectious diseases.

BIO4: Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases when bringing new cattle into your facilities from other herds? (SOP 13)

National Standard: 4.2

Issue: The introduction of cattle to the home herd may be undertaken to add genetics, accommodate high cull rates, expand herd numbers, or provide adequate numbers of replacements. It is potentially the highest-risk activity on a dairy farm. The cattle brought onto a farm may not show signs of clinical disease, but can be a source of new pathogens that can be spread to other cattle in the herd.

All farm personnel must understand the process for properly introducing a new animal into your facility in a manner that limits the potential for pathogens to be introduced to your herd.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for adding new animals into your facilities. To minimize biosecurity risks to the home herd, your SOP must contain enough information to ensure that any staff responsible for accepting and introducing new cattle are able to obtain appropriate documentation, and handle, assess, and appropriately house prior to introduction into the home herd.

You should work with your veterinarian to ensure your procedures are the best fit for your farm. You should consider the following Best Management Practices when you develop your own SOP for your farm, but **you must include the Best Management Practices that are shaded grey.**

Sourcing and planning for new cattle:

- Limit the introduction of new cattle.
- Limit the number of sources of new cattle (e.g., to prevent the introduction of infectious disease there is a lower risk to buy five heifers from one farm than to buy one heifer from each of five different farms).

- Speak with the herd veterinarian about what testing should be done prior to sourcing new cattle.
- Make it a priority to obtain new cattle from sources with known health status for both the herd and individual cattle(s).
- Request information on **all** cattle (e.g., vaccinations, treatments, foot trimming) prior to purchase and movement.
- Ensure new animals are transported in a farm-owned vehicle/trailer OR a transporter is hired that will use a clean vehicle/trailer.

House incoming cattle appropriately:

- Designate an area for incoming cattle that is appropriate for the herd situation.
- Adhere to a monitoring period for all incoming cattle for a duration of time sufficient to allow signs for current infections to appear (a minimum of 14 days) and for appropriate tests to be conducted.
- Have anyone handling these cattle wash their hands, change their clothing and clean or change their footwear before working with other animals on the farm.
- Ensure management adjustments are made to minimize the risk of introducing disease (e.g., housing separately or changing the order of milking).

Observe and examine new purchases frequently for disease detection:

- Observe and examine new addition frequently (at least daily).
- Identify and train staff who will monitor the cattle according to the monitoring protocol established for the farm.
- Respond to any abnormalities.

Testing, vaccinations and assessments upon arrival:

- Perform the actions that must be taken for new cattle prior to introduction into the home herd (such as confirmation of pregnancy or reproductive status, hoof trimming, vaccination, testing, etc.).
- Determine the specific samples, as directed by the herd veterinarian (milk, blood, feces, etc.) that must be taken, and at what time they must be taken, from new animals.

BIO5: Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases by cattle returning to your facilities from other herds, cattle shows, etc.? (SOP 14)

National Standard: 4.2

Issue: Any cattle that are brought back onto a farm may be infected and may or may not show signs of clinical disease. They can be a source of new pathogens that can then be transmitted to other cattle in the herd.

All farm personnel must understand the process for properly accepting an animal returning to your facility in a manner that limits the potential for pathogens to be introduced into your herd.

Explanation: You need to establish a documented Standard Operating Procedure (SOP) for returning animals to your facilities. To minimize biosecurity risks to the home herd, your SOP must contain enough information to ensure that any staff responsible for accepting and introducing new cattle are able to obtain appropriate documentation, and handle, assess, and appropriately house prior to introduction into the home herd.

You should work with your veterinarian to ensure your procedures are the best fit for your farm. You should consider the following Best Management Practices when you develop your own SOP for your farm, but **you must include the Best Management Practices that are shaded grey.**

House returning cattle appropriately.

- Designate an area that is appropriate for the herd situation, for incoming and returning cattle.
- Adhere to isolation monitoring period for all incoming cattle for a duration of time sufficient to allow signs for current infections to appear (a minimum of 14 days) and for appropriate tests to be conducted.
- Have anyone handling these cattle wash their hands, change their clothing and clean or change their footwear before working with other animals on the farm.
    - Ensure management adjustments are made to minimize the risk of introducing disease (e.g., housing separately or changing the order of milking).



Observe and examine returning cattle frequently for disease detection:

- Observe and examine new additions frequently (at least daily).
- Identify and train staff who will monitor the cattle according to the monitoring protocol established for the farm.
- Respond to any abnormalities.

Testing, vaccinations and actions upon arrival:

- Perform the actions that should be taken for returning cattle prior to reintroduction into the home herd (i.e., confirmation of pregnancy or reproductive status, hoof trimming, vaccination, testing, etc).
- Determine the specific samples, as directed by the herd veterinarian (e.g., milk, blood, feces) that should be taken, and at what time they must be taken, from returning cattle.

Reduce the risk when reintroducing cattle while off farm by incorporating biosecurity measures:

- Protect your cattle from contact with other cattle or animals during transport and in housing at fairs, shows, displays, sales, etc.
- Protect your cattle from contact with manure, bedding and other products from other farms.
- Use your own equipment (including milking, handling, grooming and clipping).
- Use your own watering equipment and don't allow drinking from a common trough.
- Transport cattle in clean, farm-specific vehicles.
- Use, if possible, the same area/pen/stall for the duration of the event.

4.3 Service Providers, Visitors, Vehicles and Equipment

Service providers, visitors, and employees need to be aware of and follow your farm biosecurity measures to prevent the spread of infectious diseases.

BIO6: Have you established and implemented an SOP, in consultation with your veterinarian, to prevent the introduction of infectious diseases by family, employees, farm visitors and service providers? (SOP 15)

National Standard: 4.4

Issue: Controlling traffic and visitors is an essential part of biosecurity. Pathogens can be introduced and spread by contaminated footwear, clothing and hands, as well as on vehicles, farm machinery and other equipment. The risks of people, vehicles and equipment transmitting



pathogens to cattle can be managed if those involved understand and adhere to the biosecurity measures in place on your farm.

Explanation: Establish a documented Standard Operating Procedure (SOP) for the movement of people, such as staff and service providers, on your farm. Your SOP must contain enough information to ensure that staff understand the biosecurity measures that are taken on your farm to prevent the spread of infectious diseases.

Work with your veterinarian to ensure your procedures are the best fit for your farm. Consider the following Best Management Practices when you develop your own SOP for your farm, but **you must include the Best Management Practices that are shaded grey.**

Establish visitor control measures based on risk. This may depend on the country of origin or potential on-farm duties or level of exposure.

- List biosecurity measures for visitors and service providers to follow, depending on the level of risk that each visitor could pose:
  - Conduct a risk assessment of all visitors before you allow them into your operation.
  - Require all visitors and service providers to put on clean clothing and overshoes, clean boots

(washed and disinfected) or disposable boots prior to entering the production area (either provide clothing and footwear for visitors or require new clothing and clean disinfected overshoes prior to coming to your farm).
    - Require and/or provide (single-use) sleeves and disposable gloves.
    - Have a designated area for the disposal of disposable coveralls, boots and gloves.
- Plan ahead for all visits by requiring visitors to make appointments. Inform all visitors of biosecurity requirements.
- Keep a record of all visitors and deliveries.
- Designate a specific parking area for visitors and employees.

Ensure that all farm workers (including yourself and family members) use farm-dedicated clothing and footwear.

- Require all farm workers to report to work in clean clothing and overshoes.
- Determine your farm's protocol for farm clothing and footwear for farm workers.
- Require all coveralls to be cleaned on a routine basis.
- Routinely clean and disinfect footwear when both entering and leaving the farm and when moving among production areas (e.g., between cows and calves) or into traffic areas (e.g., hallways, offices, milk houses).

Provide the necessary facilities for farm workers, visitors and service providers to change into clean clothing and footwear and wash hands.

- Have a designated area for individuals to change and store their clothing and boots that is located close to the entrance of your facilities but before the production unit.
- Provide and maintain a washing station (hands, boots) that can be used prior to entering the production unit.
- Provide and properly maintain footwear washing facilities, chemical solutions and brushes at the entry to and between different production areas.

BIO7: Do you have biosecurity signage posted on the main access point, which is visible from the main parking area?

National Standard: 4.4.1

Issue: Dairy farms are relatively open environments, and thus require active control of all types of visitors, using a risk-based approach to farm entry and to facility access.

Explanation: Post biosecurity signage that is clearly visible at the main access point. It is recommended to post biosecurity signage at all access points (e.g., calf barn) and on fencing in locations where animals and the public may interact (e.g., pasture along a road). No trespassing or farm name signs must be accompanied with biosecurity messages to qualify for this requirement.

Before their arrival, visitors are expected to contact you or another responsible individual on your farm to confirm their visit and to be informed of the practices to follow during their visit. You should consider keeping a record of all visitors who come and go, including consultants, sales people, delivery people, haulers, maintenance workers, and veterinarians.



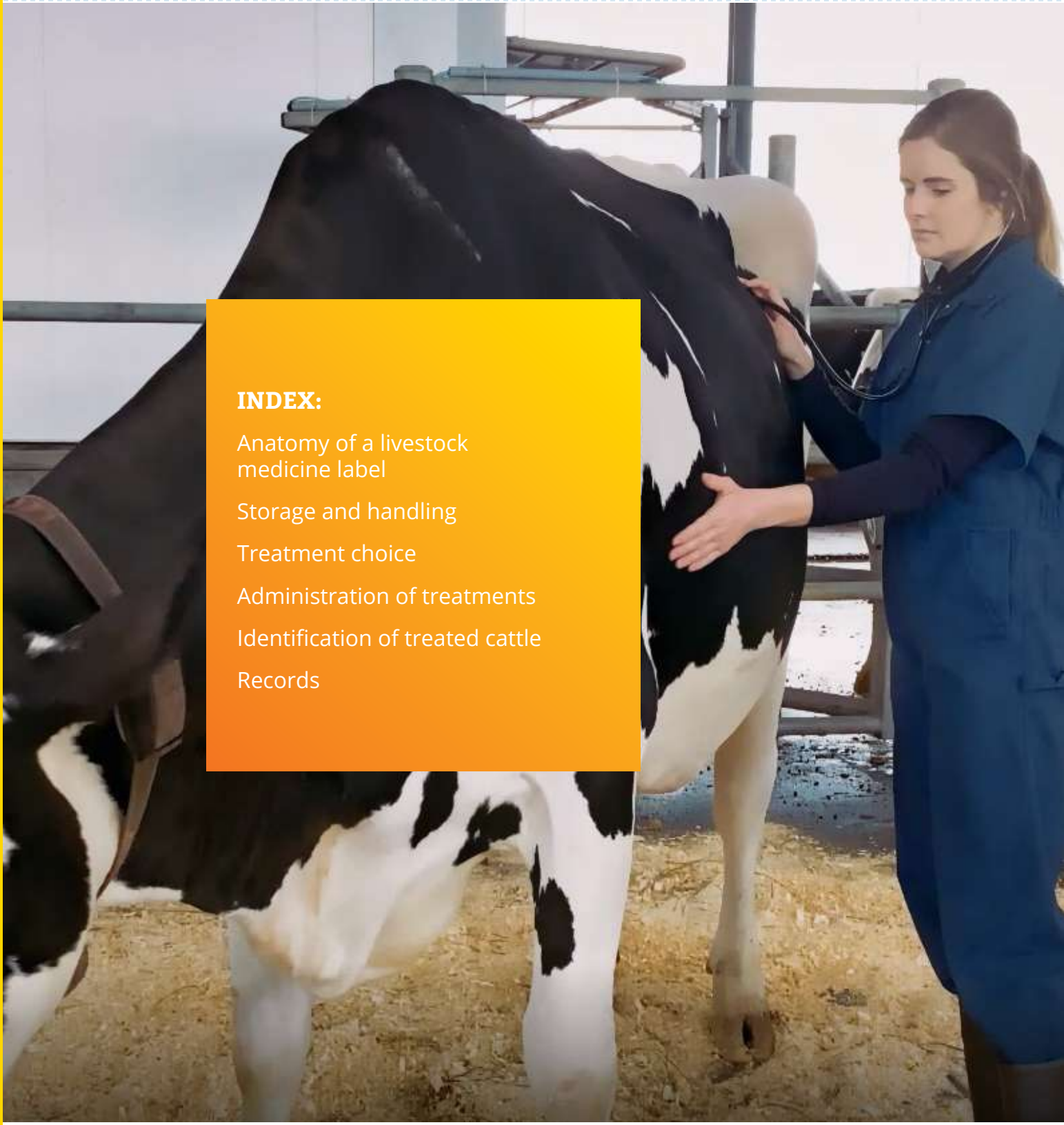
4.4 Additional Information

Proper Disposal of Dead Stock

- Proper disposal of dead stock can help decrease the herd's exposure to infectious disease. Remove the carcasses of dead animals within 48 hours (ideally 24 hours) of death by professional dead stock removal services or renderers.
- When the carcasses of dead animals leave the farm of origin the carcasses must bear an approved tag at all times.
- Check with local authorities about permissible alternative methods of dead stock disposal (e.g., composting, burial, etc.).



5.0 MEDICINES AND CHEMICALS USED ON LIVESTOCK



INDEX:

Anatomy of a livestock medicine label

Storage and handling

Treatment choice

Administration of treatments

Identification of treated cattle

Records

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 5		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
FS15	Do you maintain a list of all medicines and chemicals that you use on livestock? (Record 9)	✓		5.2.1
FS16	Do you store and handle livestock medicines and chemicals: a) (Including syringes and needles) in a clean and sanitary manner, in a dedicated place, according to label directions? b) In a manner that will not contaminate: milk? meat? feeds? c) For non-lactating and lactating dairy cattle, and products not intended for dairy cattle in separate areas or cupboards?	✓		5.2.1
FS17	Do you use **only** livestock medicines (including medicated foot- baths): • Approved in Canada for use in dairy cattle? • According to the label? • According to written veterinary directions, which must be available for every treatment administered not according to the label and for every veterinary drug used that is not approved for use in Canada? (Record 8)	✓		5.3.1
FS18	Do you check for and record the identity of any animal and treatment site whose treatment resulted in an irretrievable broken needle? (Record 11)	✓		5.4.1
FS19	Do you mark all treated cattle in the milking herd that have milk withdrawals (e.g., leg bands)? Specify type: _____	✓		5.5
FS20	Do you maintain a permanent written record of all medicines and chemicals used on livestock that have a milk or meat withdrawal? (Record 10)	✓		5.6.1
FS21	Have you established and implemented a Standard Operating Procedure for treating cattle? (SOP 5)	✓		5.6.2

Introduction

Access to a range of livestock medicines, vaccines and treatments helps Canadian dairy farmers maintain the health and productivity of dairy cattle. Access carries with it a responsibility to ensure the products are stored and used so that the health and safety of treated animals, the farmer and milk and meat are assured. Work with your herd veterinarian to evaluate your current livestock medicines usage.

Cattle health products commonly used on dairy farms are:

- **Biological products:** (biologics) medicines obtained from animal or plant tissue. The biologics most commonly used on dairy farms are vaccines and immunoglobulin (antibody) preparations.
- **Pharmaceuticals:** medicines obtained by creating, mixing or compounding chemicals. Pharmaceuticals commonly used on dairy farms include antimicrobials, corticosteroids, mastitis treatments, hormones, disinfectants and parasiticides.



- **Antimicrobials** are both natural and synthetic substances, like antibiotics and disinfectants, which can kill or inhibit the growth of microorganisms.
  (Definition adapted from the Veterinary Drugs Directorate's fact sheet "*For your Information: Antimicrobial Resistance,*" 2003.)
- **Veterinary Health Products (VHPs):** alternatives to traditional medicines, these preparations are sourced from naturally occurring substances, usually plant based, and include homeopathic remedies.
- **Medical devices:** instruments or compounds applied to cattle or placed in the udder that have a mechanical function but contain no active ingredients.

Drugs are identified by both their brand and generic names. The brand name is the distinctive name given to products by the manufacturer. The generic name refers to the active ingredient of the livestock medicine.

Drugs are regulated separately from feeds. The CFIA is responsible for regulating feed for animals through the Feeds Act and maintaining the Canadian Feed Ingredients Table (CFIT). The CFIT provides farmers with a list of all single-ingredient feeds approved for use in livestock feed in Canada and which are excluded. The CFIT is incorporated into the Feeds Regulations: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2024-132/index.html.

5.1 Anatomy of a Livestock Medicine Label

Reading the label and following its instructions are essential steps in the proper use of livestock medicines. All drugs legally marketed for sale in Canada must be labelled according to federal regulations. Sometimes there is not enough room on the label to legibly record all the information needed to use the product correctly, so the manufacturer will include additional information on a package insert. Figure 12 is an example of the information often on a drug package.

5.1.1 Label or Insert Information

The label or insert information will contain the following information (most numbers are illustrated in Figure 12):

1. **Product or brand name** of the livestock medicine.
2. **Drug classification** (indicates if the drug is prescription or over-the-counter)
   - Written on the label immediately adjacent to the product name.
   - Prescription drugs are marked with the symbol **Pr.**
   - Over-the-counter drugs have no designation.
3. **Active ingredient,** which is the:
   - Generic name of the drug.
   - Portion of the product that performs the action claimed in the indications section of the label.
4. **Formulation,** which describes the:
   - Contents of the container such as liquid or powder.
   - Intended method of use of the product (e.g., a feed additive, injectable drug or intramammary drug).
5. **Drug identification number** (DIN)
   - Designates that the drug has been approved by the government.
   - Is the universal number used to identify the drug at any poison control centre.
6. **Net contents,** which is the volume if the drug is a fluid or weight if the drug is non-liquid.
7. **'Veterinary use only,'** indicates the drug is for use in animals, not humans.

8. **'Warning,'** which is a statement of:
   - Any risk to **human health** from the use of the product in animals.
   - **Withdrawal time** is stated in this section – the withdrawal time is only accurate when the product is used according to the instructions in the dosage and administration portion of the label.
   - Restrictions on use.
9. **Name and address of the manufacturer or distributor** of the product.

To ensure effective and safe use of the product, it must be used properly. The label or insert information may provide:

10. **Storage recommendations** for the product - livestock medicines stored other than according to label directions may lose effectiveness and in some cases may cause adverse reactions.
11. **Precautions,** which are statements related to storage, handling and disposal of the drug.
12. **Indications** for use, which list the species, class of livestock that can be treated with the product, and condition that the medicine is intended to treat.
13. **Directions for use,** including the:
    - Dosage information, which indicates how much, how often and how long to treat with the product.
    - Route of administration of the product.

    It is important to follow these directions for use because effectiveness and withdrawal time were determined for that use only.
14. **Cautions and contraindications,** which are warnings of adverse effects the product could cause in treated animals.
15. **Expiry date** - the date beyond which the product should not be used.
16. **Package insert** - is a statement on the label advising the user to read the insert for complete information. This means there was not enough space on the product label to include all information important to the proper use of the product.
17. **Lot or serial number** of the product - knowing the lot number is important, as it is often the only way of tracing the product if an adverse drug reaction occurs.

Figure 12: Polyflex® package label (provided by Boehringer Ingelheim (Canada) Ltd.)

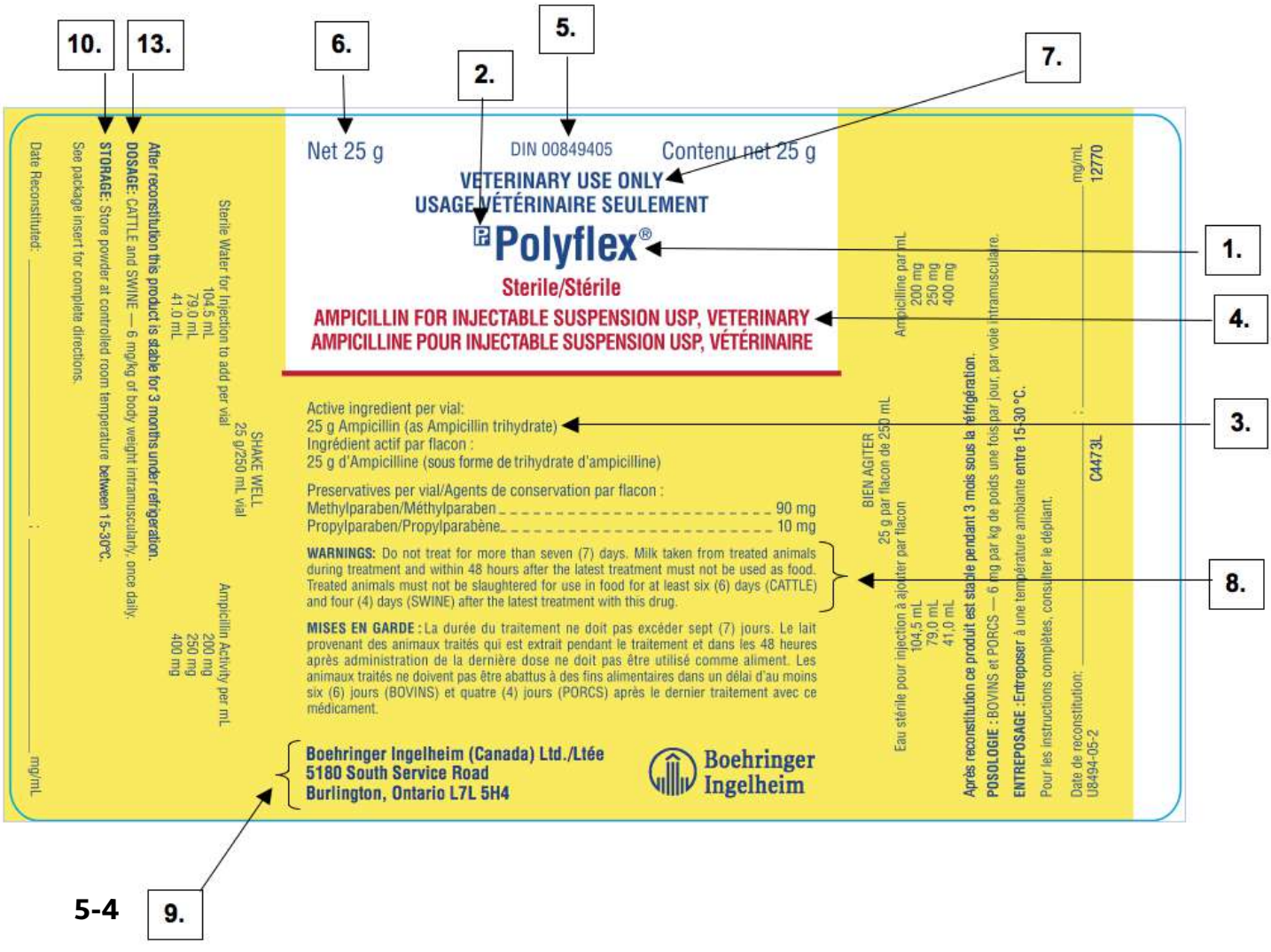
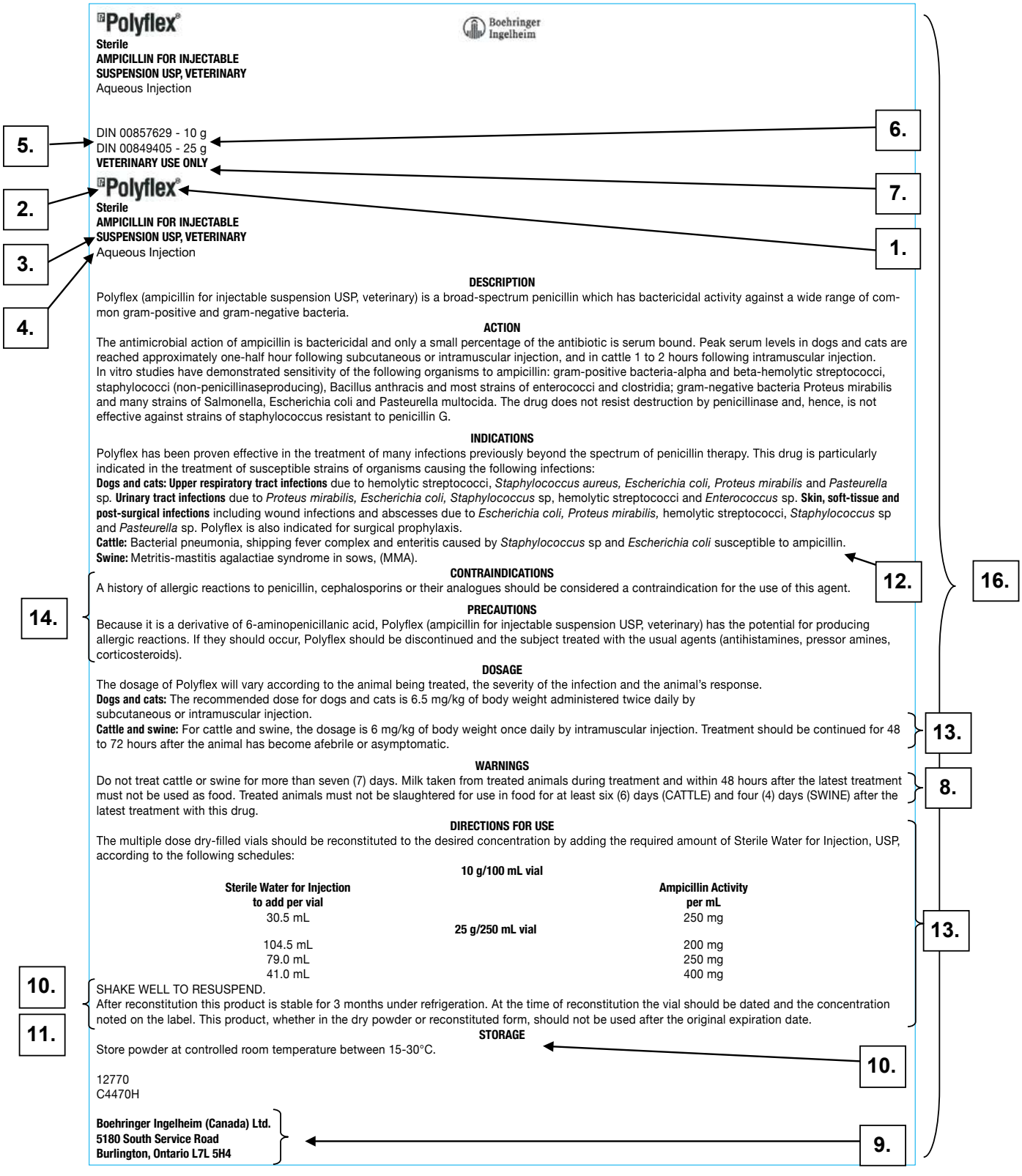


Figure 13: Polyflex® package insert (provided by Boehringer Ingelheim (Canada) Ltd.)



Polyflex®

Boehringer Ingelheim

Sterile
AMPICILLIN FOR INJECTABLE
SUSPENSION USP, VETERINARY
Aqueous Injection

DIN 00857629 - 10 g
DIN 00849405 - 25 g
VETERINARY USE ONLY

Polyflex®
Sterile
AMPICILLIN FOR INJECTABLE
SUSPENSION USP, VETERINARY
Aqueous Injection

DESCRIPTION

Polyflex (ampicillin for injectable suspension USP, veterinary) is a broad-spectrum penicillin which has bactericidal activity against a wide range of common gram-positive and gram-negative bacteria.

ACTION

The antimicrobial action of ampicillin is bactericidal and only a small percentage of the antibiotic is serum bound. Peak serum levels in dogs and cats are reached approximately one-half hour following subcutaneous or intramuscular injection, and in cattle 1 to 2 hours following intramuscular injection. In vitro studies have demonstrated sensitivity of the following organisms to ampicillin: gram-positive bacteria-alpha and beta-hemolytic streptococci, staphylococci (non-penicillinaseproducing), Bacillus anthracis and most strains of enterococci and clostridia; gram-negative bacteria Proteus mirabilis and many strains of Salmonella, Escherichia coli and Pasteurella multocida. The drug does not resist destruction by penicillinase and, hence, is not effective against strains of staphylococcus resistant to penicillin G.

INDICATIONS

Polyflex has been proven effective in the treatment of many infections previously beyond the spectrum of penicillin therapy. This drug is particularly indicated in the treatment of susceptible strains of organisms causing the following infections:
Dogs and cats: Upper respiratory tract infections due to hemolytic streptococci, *Staphylococcus aureus, Escherichia coli, Proteus mirabilis* and *Pasteurella* sp. **Urinary tract infections** due to *Proteus mirabilis, Escherichia coli, Staphylococcus* sp, hemolytic streptococci and *Enterococcus* sp. **Skin, soft-tissue and post-surgical infections** including wound infections and abscesses due to *Escherichia coli, Proteus mirabilis,* hemolytic streptococci, *Staphylococcus* sp and *Pasteurella* sp. Polyflex is also indicated for surgical prophylaxis.
Cattle: Bacterial pneumonia, shipping fever complex and enteritis caused by *Staphylococcus* sp and *Escherichia coli* susceptible to ampicillin.
Swine: Metritis-mastitis agalactiae syndrome in sows, (MMA).

CONTRAINDICATIONS

A history of allergic reactions to penicillin, cephalosporins or their analogues should be considered a contraindication for the use of this agent.

PRECAUTIONS

Because it is a derivative of 6-aminopenicillanic acid, Polyflex (ampicillin for injectable suspension USP, veterinary) has the potential for producing allergic reactions. If they should occur, Polyflex should be discontinued and the subject treated with the usual agents (antihistamines, pressor amines, corticosteroids).

DOSAGE

The dosage of Polyflex will vary according to the animal being treated, the severity of the infection and the animal's response.
Dogs and cats: The recommended dose for dogs and cats is 6.5 mg/kg of body weight administered twice daily by subcutaneous or intramuscular injection.
Cattle and swine: For cattle and swine, the dosage is 6 mg/kg of body weight once daily by intramuscular injection. Treatment should be continued for 48 to 72 hours after the animal has become afebrile or asymptomatic.

WARNINGS

Do not treat cattle or swine for more than seven (7) days. Milk taken from treated animals during treatment and within 48 hours after the latest treatment must not be used as food. Treated animals must not be slaughtered for use in food for at least six (6) days (CATTLE) and four (4) days (SWINE) after the latest treatment with this drug.

DIRECTIONS FOR USE

The multiple dose dry-filled vials should be reconstituted to the desired concentration by adding the required amount of Sterile Water for Injection, USP, according to the following schedules:

10 g/100 mL vial

Sterile Water for Injection to add per vial	Ampicillin Activity per mL
30.5 mL	250 mg

25 g/250 mL vial

104.5 mL	200 mg
79.0 mL	250 mg
41.0 mL	400 mg

SHAKE WELL TO RESUSPEND.
After reconstitution this product is stable for 3 months under refrigeration. At the time of reconstitution the vial should be dated and the concentration noted on the label. This product, whether in the dry powder or reconstituted form, should not be used after the original expiration date.

STORAGE

Store powder at controlled room temperature between 15-30°C.

12770
C4470H

Boehringer Ingelheim (Canada) Ltd.
5180 South Service Road
Burlington, Ontario L7L 5H4

5.1.2 Dosage Calculations

Everyone treating animals must know how to follow labels and calculate dosages.

Example 1:
Calculate the total amount of Polyflex® that should be given to a cow weighing 600 kg (1320 lb) that is diagnosed with respiratory disease. The dosing rate for Polyflex® is 6 mg/kg but the actual amount that you need to inject depends on how much sterile water was added to the bottle when it was first mixed. Refer to the Polyflex® Package Insert shown in Figure 13 to calculate how Polyflex® should be administered.

a) The total dose to be given to a 600 kg cow is: _____
b) How should it be administered: _____
c) How often should this dose be repeated: _____
d) How long before the milk can go in the bulk tank: _____
e) How long before the treated animal can be shipped for meat: _____
f) How should Polyflex® be stored? _____

Solutions:

a) The correct dosage depends on how much sterile water was added to the bottle. The actual dose is 6 mg/kg. For example, a 600 kg cow given Polyflex® at a 6 mg/1 kg dose would need 3600 mg of Polyflex® (600 kg x 6 mg/1 kg = 3600 mg). If 104 ml of sterile water was added to the Polyflex® bottle, then there is 200 mg of Ampicillin per ml. 18 ml will need to be administered (3600 mg ÷ 200 mg/ml = 18 ml). If 41 ml of sterile water had been used to mix the drug, then there is 400 mg of Ampicillin per ml and the dose is 9 ml (3600 mg ÷ 400 mg/ml = 9 ml).
b) Injected into the muscle. Do not inject more than 10 ml per site.
c) Treatment can be given every 24 hours until 48 or 72 hours after the signs of disease have resolved but for no more than 7 days of treatment.
d) Milk should be withdrawn for 48 hours after the last treatment if used according to the label directions and dosage.
e) The cow should not be shipped to slaughter for 6 days if she was treated according to the label direction and dosage.
f) After it has been mixed, the vialed drug is stable for 3 months when stored in a refrigerator.

5.2 Storage And Handling

Livestock medicines will maintain their potency, safety and shelf life only if they are stored properly. This is equally true for storage before and after purchase, and during transportation. Consider this when purchasing livestock medicines that have specific storage requirements.

Livestock medicines can be sensitive to temperature, light and humidity. The label and insert must include directions on storage conditions. These conditions are necessary to maintain the product's safety and effectiveness. The expiry date will only apply if products are stored according to the instructions stated on the label. If products are not stored properly, they should not be used and should be discarded.

There may be special storage instructions for opened or partially used products. Products that are combined or mixed before use will only maintain their safety or potency for a limited time and only if stored under appropriate conditions. Refrigeration after opening may be indicated for all injectable products. Read and follow labels for proper storage and disposal instructions.

Medicines must also be stored in areas that eliminate the risk of contamination of milk, meat or feed. For example, medicines should not be left or stored where cattle can access them and accidentally ingest or absorb products.

5.2.1 Storing and Handling Livestock Medicines

FS15: Do you maintain a list of all medicines and chemicals that you use on livestock? (Record 9)

Reference: BMP 4

Issue: Farmers and personnel should be aware of which medicines and chemicals they have in stock and how those products are to be used and stored.

Explanation: Create a list or catalogue of all medicines and chemicals used on livestock including product name and storage location. All products that are to be used on or in cattle on the farm should be listed, including all medicines, chemicals (e.g., pesticides), specially prepared products (e.g., prescription salves, udder balms or sprays), all medicated feeds fed to cattle, and teat dips or sprays. The list is not intended to be a rolling inventory; therefore, you do not have to record every bottle if you have more than one bottle of one type of medicine. The purpose of the list is to ensure that everyone using or handling livestock medicines and chemicals is aware of the contents of the label. See the Workbook for a sample record (Record 9).

FS16: Do you store and handle livestock medicines and chemicals (including syringes and needles):

a. In a clean and sanitary manner, in a dedicated place, according to label directions?
b. In a manner that will not contaminate: milk? meat? feeds?
c. For non-lactating and lactating dairy cattle, and products not intended for dairy cattle in separate areas or cupboards?

Reference: BMP 4

Issue: Medicines have to be stored properly to ensure they are effective and to avoid contamination. Improperly stored medicines could accidentally contaminate milk or meat. Dry treatments have significantly longer milk withdrawal periods than lactating mastitis treatments. Accidentally treating a lactating animal with a dry treatment will result in milk residues. The medication packaging usually looks very similar, so it can be easy to grab one instead of the other. Products not intended for dairy cattle may result in milk and meat residues. Therefore, dry treatments and products not intended for dairy cattle must be stored separately to reduce the risk of accidentally treating lactating cattle with them.

Explanation:

- Store livestock medicines in a clean and sanitary manner, according to label directions and, to reduce the risk that milk and meat will become contaminated, in an appropriate facility such as:
  - Operating refrigerator (2°C to 7°C) reserved for storage of livestock medicines or in a sealed container in a refrigerator. Farmers should regularly check the temperature in refrigerators to ensure that they are operating in the correct range.
  - Cupboard or container that is clean, dust-free, dry, cool but frost-free and protected from light - should also be protected from children, animals and insects.

  Livestock medicine labels must be intact and readable. Medicines must be in their original containers. Any drugs dispensed for treatment not in the original container must be properly identified with the treatment usage, including expiration date, withdrawals and storage directions, and packaged in a manner that maintains the integrity of the product. You can store medicines and chemicals used on livestock in a manner outside of label directions ONLY if the farmer has written veterinary directions from a veterinarian stating the different storage conditions (e.g., Record 8: Veterinary Directions for Extra-Label Drug Use).
- Store syringes and needles in a clean and sanitary manner and away from livestock access.
- Store livestock medicines away from feeding areas, milk and milking equipment.

  All veterinary drugs stored in the milk house or parlour must be kept in a closed, cleanable storage unit or refrigerator, where appropriate, in a manner that prevents contamination of milk. Furthermore, pesticides or toxic chemicals must not be stored in the milk house unless they are directly related to its operation.

  Medicines may be stored temporarily in the parlour if they are intended to be used during the next milking and the farmer can identify which animal is going to be treated.
- Have separate storage areas or facilities for livestock medicines and chemicals intended for use in non-lactating and lactating dairy cattle and products not intended for dairy cattle (e.g., for other animals such as chickens and dogs). If all of these types of products are stored in the same cupboard, they should be at least in separate sections or shelves and distinctly identified. As a result, a farmer may have three storage areas for medicines: 1) lactating cattle; 2) dry cattle and young stock; and 3) beef cattle, sheep and other species of animals.
- Pesticides labelled for cattle can be stored in the same area as livestock medicines, but they must be separated from and stored below livestock medicines to reduce the risk of contaminating livestock medicines should the pesticides leak or spill.
- Pesticides, cleaners and other substances that are not for use on or in cattle must not be stored with livestock medicines and chemicals. They must be stored separately (e.g., another cupboard or different shelves).
- Expired products must be disposed of properly or stored separately from non-expired drugs to ensure that expired products are not inadvertently used to treat an animal.
- Check the expiry date on all livestock medicines before purchase.
- Purchase enough products for use in a timely manner only.
- Use product with the closest expiry date first.
- Dispose products properly to ensure cattle cannot access containers. Some products may have special disposal requirements.

Many chemicals used in pre-milking preparation and post-milking sanitation also have special storage requirements to maintain their potency and safety. These conditions are stated on the Precaution(s) section of the label or insert.

- Transport livestock medicines under the same conditions required for storage.
- Keep an up-to-date file of product packages and inserts to allow re-checking of label instructions.
- Consider accessing *The Compendium of Veterinary Products* on-line which contains label and insert information for many veterinary drugs and biologics registered for use in Canada. Alternatively, Health Canada's Drug Product Database is an on-line database that contains product and company information on all drug products marketed in Canada.

5.2.2 Storing and Handling Multiple-Dose Vials of Livestock Medicines

Even if there are no special instructions, it is essential to prevent a product from becoming contaminated during use. Whenever multi-dose vials are used, take precautions to reduce the chances of the vial becoming contaminated during use.

- Do not store the bottle with a needle in the rubber stopper.
- Use new sterile needles to fill syringes from the vial.
- Store bottles where the top will not become contaminated.
- Swab the top of the bottle with alcohol before use, except when mixing or withdrawing from bottles of modified live vaccines.
- Finish the bottle within a reasonable time after opening it. Some livestock medicines that are prepared for use by adding a solution such as sterile water to a dry powder must be used up within a time that is specified on the label.
- If recommended on the label, refrigerate the bottle after opening.
- Dispose of products properly.

5.3 Treatment Choice

Choosing the correct drug, injection site, and dosage to treat a particular disease is important for effective drug usage and health management. Proper and prudent use of drugs will ensure that farmers treat animals correctly, and do not contribute to antimicrobial resistance. Treatment decisions should be made in conjunction with a veterinarian.

Farmers should choose products approved in Canada for use in dairy cattle, unless used following written veterinary directions. Unapproved drugs and extra-label treatments can present great potential food safety risks, as they have not been evaluated for food safety, quality or efficacy by Health Canada's Veterinary Drugs Directorate or the Canadian Food Inspection Agency.

The Veterinary Drugs Directorate approves drugs for use in food-producing animals, the Canadian Food Inspection Agency approves feeds, feed additives and veterinary biologics (e.g., vaccines), and the Pest Management Regulatory Agency registers pesticides. Approved products have a registration number appearing on their labels.

- Drugs: Drug Identification Number (DIN)
- Feeds and Feed Additives: Feed Registration Number
- Veterinary Biologics: Canadian Veterinary Biologics Establishment License number (Can. Vet. Bio. Est. Lic. No). Vaccines will only have this number if they were manufactured in Canada, and many of the vaccines approved for use in Canada are manufactured from outside of Canada. These vaccines will not have a label identifier; however, all vaccines that you can purchase in Canada should be licensed in Canada. Vaccines that are approved in Canada must have a bilingual label and have a Canadian pharmaceutical distributor or agent stated on the label.
- Pesticides: Pest Control Products Number (PCP) or Registration Number.
- Veterinary medical devices do not require a DIN.

Food and Drugs Regulations:

In November 2017, Health Canada implemented new restrictions on importation of veterinary drugs. Under these rules, no person can import a drug for use in food-producing animals or animals intended to be consumed as food unless authorized by Health Canada.

The only drugs that farmers can legally import for personal use on their own cattle are drugs on List B: List of Certain Veterinary Drugs Which May Be Imported But Not Sold.

Farmers can find List B on Health Canada's website. Only products designed as Over-The-Counter in Canada and that meet a list of other criteria are eligible for List B. Health Canada has also published on its website the process to request to add a drug to List B.

5.3.1 General Use of Livestock Medicines and Chemicals

FS17: Do you use only livestock medicines (including medicated foot-baths):

- **Approved in Canada for use in dairy cattle?**
- **According to the label?**
- **According to written veterinary directions, which must be available for every treatment administered not according to the label and for every veterinary drug used that is not approved for use in Canada? (Record 8)**

Reference: BMP 4

Issue: Livestock medicines and chemicals used extra-label in any manner can affect the withdrawal time stated on the label for milk and meat.

Explanation: BMPs for correctly choosing treatments follow:

- **Read and follow label directions** to determine proper dosage and ensure livestock medicines are administered properly. Some products must be administered in one particular site or by one particular method.

Note: Farmers should read the product label to be aware if the product has an additional expiry date that applies after the product has been opened or mixed. Some products have a statement such as: contents should be used within 42 days after the first dose is removed. This statement is often found in the storage section of the label.

- **For drug usage:**
  - **Use products approved in Canada for use in dairy cattle,** or obtain written Veterinary Directions to use any other products (e.g., veterinary drugs approved for use in beef cattle or in other species).
  - Use products listed in **Section 5** of the Permitted Substances Lists for Livestock Production (CAN/CGSB-32.311-2020) according to the specifications indicated (e.g., hydrogen peroxide: only food grade quality, can be used for external use as a disinfectant and it can be added to livestock drinking water as a disinfectant). Any product on the Permitted Substances Lists used in a manner that is not described on the Permitted Substances Lists needs written Veterinary Directions.
  - Use Veterinary Health Products notified via Health Canada's Notification Program (i.e., VHPs with a Notification Number) according to the specifications indicated on the label. Any notified VHP used in a manner that is not described on the label needs written Veterinary Directions.

Note: If a product is indicated for cattle, it should be applicable to dairy cattle; however, read the label carefully to see if the product cannot be used on *lactating* dairy cattle. If a product is only indicated for *beef cattle*, a farmer should consider a different product or obtain written Veterinary Directions to ensure it is safe to use on *dairy cattle*.

- **Obtain and have available written Veterinary Directions for all treatments given extra-label and for all veterinary drugs used that are not approved for use in Canada.** The Veterinary Directions must contain the required fields outlined in Record 8 in the Workbook. A veterinarian may be able to write blanket directions for commonly used extra-label drug usages. See the next section for more details.

Note: In Canada, all prescription drugs must be accompanied by written veterinary directions. In Quebec, all medications purchased for dairy animals must be accompanied by a written veterinary prescription.

- **Monitor and use only registered (i.e., approved) pesticide treatments, only according to label instructions due to federal regulations, for control of internal and external parasites.**
  - Check that pesticides for parasites and biting flies are registered for the type of animal being treated.
  - Follow all label directions.
  - Ensure that oilers and other delivery equipment are working properly.

5.3.2 Extra-Label Use of Livestock Medicines and Chemicals

Extra-label drug use is any use of a product in any manner that is different from the instructions given on the label or package insert. Extra-label drug use poses two kinds of risk. The first is to the health and safety of the animal being treated; the second, in the case of food-producing animals, is to the food supply.

The withdrawal times stated on the label only apply when the product is used exactly as stated on the label.

Only products approved by federal or provincial regulations for administration to dairy cattle as set out on the product label may be administered to dairy cattle.

When products are used extra-label, withdrawal times must be adjusted. The new withdrawal time is an estimate of the amount of time it will take for drug residues to clear the animal's body.

Here are some examples of extra-label drug use:

- Using a dose different from the dose on the label, such as giving 3 ml/kg if the label says to use 1 ml/kg.
- Using a larger volume per site than label.
- Using a different frequency (e.g., twice per day, if once daily is recommended on the label).
- Using for a longer or shorter time than recommended.
- Administering by a different route (e.g., giving a product under the skin (subcutaneous) when the label states the drug should only be administered in the muscle (intramuscular)).
- Administering to a different species or class of livestock (e.g., using products intended for swine to treat cattle or using products intended for feedlot cattle to treat lactating dairy cattle).
- Using the product to treat a disease not listed in the indications section of the label.
- Using an unapproved VHP without written Veterinary Directions.
- Farmers must obtain written Veterinary Directions for the on-label use of any two antimicrobial treatments administered at the same time by any route. Even if each drug is administered according to its label, if the two drugs have the same active ingredient, their use in combination increases the effective dose to the animal and the withdrawal time for each individual drug may not be long enough. However, many drugs can be given in combination with very low risk of impacting the withdrawals. As a result, proAction has narrowed the requirements to two antimicrobials administered at the same time:

There are several drugs that can never be used to treat food-producing animals, even under a veterinarian's supervision. Drugs currently in this group include chloramphenicol, clenbuterol, diethylstilbesterol (DES) and nitrofurans.

Examples of two antimicrobials given at the same time that would require written veterinary directions:

- Intramammary antimicrobial treatment plus an intramuscular antimicrobial treatment.
- Intrauterine antimicrobial treatment plus any other antimicrobial treatment (IM, IMM, IV, SQ).
- An intravenous antimicrobial treatment plus an intramuscular antimicrobial treatment.

Examples of two treatments given at the same time that would NOT require written Veterinary Directions:

- Antimicrobial treatment plus a vaccine.
- Antimicrobial treatment plus a reproductive hormone.
- Antimicrobial treatment plus an anti-inflammatory.
- Antimicrobial treatment plus a de-wormer.

Note: The Food Safety module is concerned with both milk withdrawals and meat withdrawals associated with drugs used in combination.

Further note: Another potential risk to the safety of food produced on dairy farms is from administering a second antimicrobial treatment before the completion of the withdrawal time of the first antimicrobial treatment. Talk to your veterinarian to ensure that you are applying sufficient withdrawal times for both milk and meat if you do this.

Under federal regulations, farmers are **legally obliged** to follow the exact instructions included on the product label and insert. Farmers can use drugs in an **extra-label manner only under the direct supervision of a veterinarian.** This condition applies to both over-the-counter and prescription drugs, even if the drug to be used was not purchased from a veterinarian, e.g., a livestock medicines outlet.

Licensed veterinarians are permitted to dispense livestock medicines and recommend extra-label usage, but they can do so only under certain conditions. Veterinarians are bound by their professional and legal obligations, which restrict the situations where they can provide written directions for use. When prescribing extra-label use of a drug, the veterinarian assumes responsibility for any damages and adverse reactions that might occur as a result of the extra-label use. **In many provinces, the veterinarian is required to provide written directions on the use of the livestock medicine that he or she recommends, including appropriate withdrawal times; however, a veterinarian will only recommend an extra-label treatment if they think it is an appropriate option.**

Note: In Canada, all prescription drugs must be accompanied by written veterinary directions. In Quebec, all medications purchased for dairy animals must be accompanied by a written veterinary prescription.

Ultimately, farmers have the responsibility and legal obligation to ensure that they are shipping safe milk and meat. As a result, farmers must seek Veterinary Directions for use for any extra label drug usage. If a veterinarian refuses to write directions for use (e.g., due to residue or efficacy concerns), the farmer must find a different treatment option.

5.4 Administration Of Treatments

5.4.1 Administering Injections

FS18: Do you check for and record the identity of any animal and treatment site whose treatment resulted in an irretrievable broken needle? (Record 11)

Reference: BMP 4

Issue: Some needles cannot be detected at the processing plant (e.g., aluminum needles are not picked up by metal detectors); therefore, farmers must communicate any broken needles to the next buyer to avoid consumers finding needles in steaks.

Explanation:

- Record the identity of any animals carrying broken needles and record the site of injection. Have a veterinarian find and remove the needles, or, if this is not possible, inform the packing plant or next buyer of contaminated animals. This will reduce the risk of contaminated meat becoming human food.
- **When given the choice on the label, give livestock medicines under the skin (subcutaneously)** rather than in the muscle. If intramuscular injection is necessary, using proper injection techniques will reduce the possibility of damaging the muscle, and increase the chances treatment will be successful.
- **Use the side of the neck (preferred site) for injections** into muscle. Using this site greatly reduces the chances of damaging the more valuable rump cuts of meat. The same site can be used for giving injections to both calves and adult cattle.
- **Properly identify the injection site,** by identifying the neck bones that run roughly along a line between the base of the ear and the point of the shoulder. If you stay above this line and the width of your hand below the crest of the neck, you can safely inject into the large neck muscles. Start two to three inches ahead of the shoulder blade. If you move one hand's-width closer to the head, you can give another injection on the same side. You can use both sides of the neck.
- **Use clean, sharp needles** when giving injections into muscle to prevent bruising and tearing of muscle fibres at the injection site and to reduce the risk of needle breakage in muscle tissue.
  - Ideally use a new single use needle for each injection.
  - If needles are reused, do not use a needle more than 10 times.
  - Change needles if they get dull or dirty.
  - Never use a needle that has been bent.
- Use needles that can be easily detected at the processing plant.
- **Ensure needle is the correct size.** Using properly sized needles will reduce the pain and muscle damage caused by using large needles and will reduce the risk that a needle will break off during the injection because the needle was too small.

  Specifically for:
  - Subcutaneous injections, use 1 inch (2.5 cm) needles.
  - Injections into muscle, use 1-1.5 inch (2.5 – 4 cm) needles.
- **Restrain animal.** This will reduce the risk of injury both to the animal and to the person giving the injection, and will reduce the risk of breaking the needle.
- **Inject into proper site.** This will prevent damage to primal cuts and restrict damage to less valuable muscles.
  - For **intramuscular** injections, use the muscle on the side of the neck rather than the hip.
  - For **subcutaneous** injections, it is important to reduce the risk of inadvertently giving an injection in the muscle rather than under the skin. Use an area where it is easy to create a tent of skin. Specifically:
    - Use the skin over the side of the neck or over the chest behind the shoulder.
    - Create a tent by lifting a fold of skin
    - Slide the needle in the base or 'door' of the tent, being careful to not poke the needle out the other side and accidentally jab your hand.
- **Limit volume injected at each site.** Many livestock medicines specify that there is a maximum volume of that drug that should be injected at one site. Injecting more than the maximum volume at one site is extra-label use and could very well require a longer milk or meat withdrawal. The maximum volume is most likely to be exceeded when adult cattle are treated. Follow the label directions for volume per site.

Generally, even if there is no maximum required, do not give more than 10-15 ml of any livestock medicine in one place. Examples of some drugs commonly used in dairy cattle that have a maximum injection volume are:

- Eficur® and Cevaxel® RTU: 10 ml per site
- Excenel® RTU EZ and Depocillin®: 15 ml per site

- Dispose of needles in a safe manner, such as a sharps disposal container.

5.4.2 Administering Intramammary Infusions (based on procedures recommended by the National Mastitis Council)

When treating animals with intramammary infusions, there is a risk that microbes could be carried past the normal teat defenses and into the udder. Using proper hygiene and proper infusion procedures will reduce the risk of contaminating the udder. Some livestock medicines that are administered into the udder have specific instructions on how to administer them printed on the label or package insert. Follow those instructions when administering those products. The following is a general description for administering intramammary preparations:

- Ensure teats are cleaned and dried.
- Use only products approved for intramammary infusion to treat the udder.



- Prepare the udder for milking as usual and completely milk it out.
- Dip teats in an approved pre-dip and ensure at least 30 seconds contact time before wiping teats with an individual towel.
- Clean and disinfect teat end by scrubbing with a swab or cotton ball soaked with 70% alcohol. Use a new swab or cotton ball for each teat. If you are treating all teats, scrub the teat ends on the far side of the udder first, and then scrub teats on the near side.
- Treat teats on the near side first, and then treat those on the far side.
- Use a mastitis treatment with a short infusion cannula or insert only the tip (3 mm) of a long cannula. Be careful the cannula does not touch anything until it is inserted into the teat end.
- Slowly infuse antimicrobial preparation into the quarter.
- Dip teats after treatment.

5.4.3 Feeding Medicated Feed

Farmers that feed medicated feed must establish a SOP for feeding medicated feed. The same BMPs that apply to livestock treatments, such as antimicrobials, apply to medicated feeds. Medicated feeds must also be included on the List of Medicines and Chemicals Used for Livestock (Record 9).

Note: Farms that manufacture (prepare or mix) medicated feed (i.e., feed that includes a drug with a DIN) must comply with the applicable requirements of the Feeds Regulations, 2024. Feeds manufactured on farm with drugs that do not have a withdrawal period, such as TMR with ionophores (e.g., Rumensin, Monensin, Coban, etc.), must also comply with the Regulations. This includes developing a Preventive Control Plan (PCP) that identifies hazards, assesses risks, and implements control measures to address those risks (see Appendix 3 for a template).

Farms that sell or export feed will encounter additional requirements under the Feeds Regulations. Those that manufacture animal food (i.e., feed containing an animal product or by-product, such as whey) will also be subject to the Health of Animals Regulations Part XIV (e.g., keep records for 10 years after the day the feed was made).

See Chapter 2 for more information on feeding medicated feed.

5.5 Identification of Treated Cattle

FS19: : Do you mark all treated cattle in the milking herd that have milk withdrawals (e.g., leg bands)? Specify type: _____

Reference: BMP 4

Issue: Treated cattle must be marked in some fashion to avoid accidentally shipping treated milk before the withdrawal time has been observed.

Explanation: Even when a treated animal's identification is recorded, it is essential in a valid HACCP-based on-farm food safety program to also **mark animals** in the milking herd that have been treated with animal health products that have a milk withdrawal. Proper marking ensures that milking personnel know which animals have been treated and when milk from each animal is safe to be placed in the bulk tank. This further reduces the chance of shipping an animal or its milk before the appropriate withdrawal period; thereby, reducing the risk that contaminated milk could become human food.

Dry cows must be marked if they have been treated with a product that has a milk withdrawal and there is a risk that the dry cows can accidentally be mixed with or enter the milking herd. For example, if there is only a gate separating lactating and dry groups and the gate could accidentally be left open, treated dry cows must be marked. It is also unacceptable to have dry cows housed on the milking line in a tie-stall barn without any indication that they are treated.

Some methods for marking treated animals are:

- Leg bands.
- Coloured tape (e.g., surveyor's tape, hockey tape, duct tape) around legs or tail.
- Paint or stock crayon markings on the animal's flank, rump, legs or udder.
- In tie-stall barns, a marker placed on the milk or vacuum line in stalls occupied by treated animals plus the individual animals must be marked as being treated.
- In free-stall barns, creating a separate treated group (no risk of mixing with non-treated animals) and milking treated animals last or with separate equipment.
- Treated animals are not required to be physically identified as treated when a computerized milking system is used as long as:
  - The treated animal's identification and withdrawal dates are recorded in the system, and,
  - The system has an electronic process for identifying the treated animal in the milking stall where it is being milked, and,
  - Based on the withdrawal times for the treated animal, the milking system prevents treated milk from entering the milk supply (barring manual override).
- After treating, immediately transporting treated dry cows to another facility.
- Keeping groups of treated animals together after treatment and clearly marking the pen (no risk of mixing with non-treated animals) – keep a record of each individual animal's identification.
- Placing a message or bulletin board where it is easily visible at milking or in the barn when moving cattle, and ensuring individual animals are marked. Use it to display information about treated animals, their identity and when it is appropriate to return their milk to the bulk tank. Also, record the date on the board so people know the information is current.

5.6 Records

As a user of livestock medicine, you are responsible for assuring that food produced on the farm is wholesome and safe. Any time a food-producing animal is treated with a livestock medicine, there is a risk that drug residues could enter the food supply.

5.6.1 Treatment Records

FS20: Do you maintain a permanent written record of all medicines and chemicals used on livestock that have a milk or meat withdrawal? (Record 10)

Reference: BMP 4

Issue: A written record provides a check point to ensure that milk and meat are not shipped until the withdrawal times have been observed.

Explanation: Dairy farmers must be especially vigilant because they produce both beef and milk on their farms. You must identify treated animals and maintain permanent written records of all veterinary drug use, particularly those that have a milk or meat withdrawal.

- Record the treatment and the appropriate withdrawal and "safe to ship" date for both milk and meat. See Workbook for example record. Permanent treatment records can take many different forms. Computers are excellent tools, as long as staff have access to the information when they need to decide if milk or animals can be shipped. Paper records can also take many forms (e.g., tables or journals).

Note: Health Canada sets a milk withdrawal time for a particular drug using scientific data and a statistical procedure, which estimates the time it takes for residues in milk to reduce to a safe level. This calculation is based on three assumptions:

- That you treat an animal immediately after milking;
- That you follow a 12-hour milking interval; and,
- That you treat the animal according to the label directions.

Note: Vaccines may have milk or meat withdrawals. If a vaccine has a withdrawal, applications must be recorded on the Animal Health and Treatment Record (Record 10). Vaccines must also be on the list of medicines and chemicals used on livestock (Record 9).

Milk withdrawals are based on the concept of discarding all of the milk that the animal produces during the withdrawal time; hence, milk withdrawals are always in 12-hour intervals. If you deviate from either one of the first two items, you may need to discard the animal's milk for an extra milking to ensure that the milk is safe to ship. If you treat an animal extra-label, you must consult your veterinarian and obtain written Veterinary Directions detailing the length of the withdrawal times. Furthermore, if you use a computer program that auto-calculates milk withdrawal times, you may need to double-check that it is calculating the time properly, particularly if you do not meet the three assumptions.

Whichever method of recording you choose, you must have permanent records that contain the following information (see Records 10 and 11):

- Animals' identification.
- Treatment administered (product, dosage, mode of treatment).
- Date(s) of treatment(s).
- Withdrawal times for milk and meat - the label withdrawal only applies if all other label instructions are followed.
- Date when animal and milk is suitable for marketing.
- Broken needles – animal identification and location of irretrievable broken needle in the animal (Record 11).
- Valid expiry date at time of treatment – an expired product can become unstable and result in higher concentrations of antimicrobial being injected into an animal.
- Signature or initials of the person treating.

When veterinarians administer an extra-label treatment to an animal on the farm, the following options are acceptable:

- Leave written instructions detailing the treatment administered (e.g., animal, dosage, withdrawal times, and "safe to ship" date for both milk and meat).
- Initial the record in the farmer's treatment record.
- Have the farmer record the treatments administered by the veterinarian and indicate that the veterinarian treated the animal.

Ultimately, the farmer is responsible to ensure that all treatments administered to dairy cattle are recorded.

- Record treatments for **all cattle** on the farm (e.g., bull calves and heifer calves, heifers, dry cattle, bulls, etc.). Pesticides applied to an animal are considered treatments as well.

Rule of Thumb:

If a product has on the label or on the written veterinary directions:

- A milk or meat withdrawal, **farmers must record the details of the treatment.** See Record 10 in the Workbook for a sample.
- No milk or meat withdrawal, **farmers do not need to record the details of the treatment.**

Note: If you manufacture a medicated feed without a withdrawal period (e.g., Rumensin, Monensin, Coban, etc.), to comply with the Feeds Regulations, 2024, medicated feed without a withdrawal period must also be permanently recorded in Record 10.

If you treat a group of animals, separate treatment entries are not required for each animal, but each treated animal must be accounted for, for example, a range of animal identification numbers is adequate. It is also possible to record treatments of groups, as long as a farmer can determine which animals were in which group at the specific time of treatment. A herd inventory may be necessary in this case.

An animal's common or barn name is not an adequate form of identification. Any eventual milker (e.g., relief milker) has to be able to identify each animal. If names are used, some system of permanent identification (e.g., list of names cross-referenced with ear-tag numbers) has to be available. Stall cards are not adequate either. Permanent identification, such as cow number, must be crossed-referenced on the stall card.

Sample Options for Recording Repetitive and Multiple Livestock Treatments

Purpose: to **simplify** record keeping for cows that receive the same treatment at every milking, and where groups of cows all receive the same treatment as often occurs with breeding synchronization programs. Both these situations often result in the use of animal health products that have a withdrawal for meat even if they do not have a withdrawal for milk. There is a need to ensure the safety of both milk and meat from these treated cows. If farmers follow the procedures outlined below, they can simplify their records while minimizing the risk by observing any withdrawal periods before milking or shipping treated cattle.

Most animal health products that are routinely administered in a repetitive manner to dairy cows (e.g., oxytocin, prostaglandin, GnRH) are available in products with no milk withdrawal.

1. **Repetitive treatments to the same animal with one drug** (e.g., treatments that are administered at every milking for duration of lactation):

   a) The animal's identification along with the details of the treatment must be recorded, but in place of an individual record for each treatment, the start date is recorded. After the final treatment, the end date is recorded. Some **example formats** are:

   i. Use a separate page of the Animal Health and Treatment Record only for cows that receive these repetitive treatments;

   OR,

   ii. Establish separate "abnormal or treated milk" or "shipping animals" SOPs for each animal that is undergoing repetitive treatments. Each SOP must include the details of the treatment and would itself become the treatment record; therefore, even if the animal is sold, the farmer must keep the SOP for one rolling year or transfer the information to the Animal Health and Treatment Record;

   OR,

   iii. Record the identification of animals receiving repetitive treatments (with the treatment details) at the top of each page of the treatment records or month on the calendar (e.g., DHI calendar).

   AND,

   b) If a farmer has a separate system for recording repetitive treatments,

   i. The SOP for Milking Cattle with Treated Milk must identify where the farmer records repetitive treatments;

   AND,

   ii. The SOP for Shipping Cattle must identify where the repetitive treatment record is. This enables employees to find the record and check it before shipping an animal.

2. **Repeated treatments of different animals with multiple different drugs** (e.g., breeding synchronization programs that involve a series of injections with different drugs administered to many cows over a period of time):

   a) Design a method to record multiple treatments that ensures treated milk and meat are not shipped (Note: all the same information required in section 5.6.1 are required in this record). This may be similar to the records described in section 1a) above, where the treated cows' identification and details of treatment are recorded on one page with multiple entries for the dates of treatment;

   AND,

   b) Ensure the SOP for Milking Cattle with Treated Milk identifies where the farmer records multiple treatments.

   AND,

   c) Ensure the SOP for Shipping Cattle identifies where the multiple treatment record is; thereby, enabling employees to find the record and check it before shipping an animal.



5.6.2 Standard Operating Procedures

FS21: Have you established and implemented a Standard Operating Procedure for treating cattle? (SOP 5)

Reference: BMP 4

Issue: Prevent residues from entering the human food supply.

Explanation: To ensure that all personnel on a farm understand and follow the same procedures when treating an animal, a general SOP must be documented (e.g.. written, video) for treating cattle. The SOP must contain enough information to ensure that someone treating animals would not cause a milk or meat hazard. The procedure must include the various mandatory BMPs outlined in this chapter related to the use of livestock medicines and other chemicals.

You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- Read and follow label directions to determine proper dosage and ensure livestock medicines are administered properly.
- Use products approved in Canada for use in dairy cattle, unless written Veterinary Directions indicate otherwise. This includes only using registered pesticides.
- Obtain written Veterinary Directions for all treatments given extra-label.

Note: In Canada, all prescription drugs must be accompanied by written veterinary direction. In Quebec, all medications purchased for dairy animals must be accompanied by a written veterinary prescription.

- Mark treated animals.
- Record the identity of any animals carrying broken needles and record the site.
- Record the treatment and the appropriate withdrawal dates for both milk and meat.
- Record treatments for all cattle on the farm (e.g., calves, heifers, dry cattle, bulls, etc.). Pesticides applied to an animal are considered treatments as well.
- Ensure teats are cleaned and dried when administering intramammary infusions.

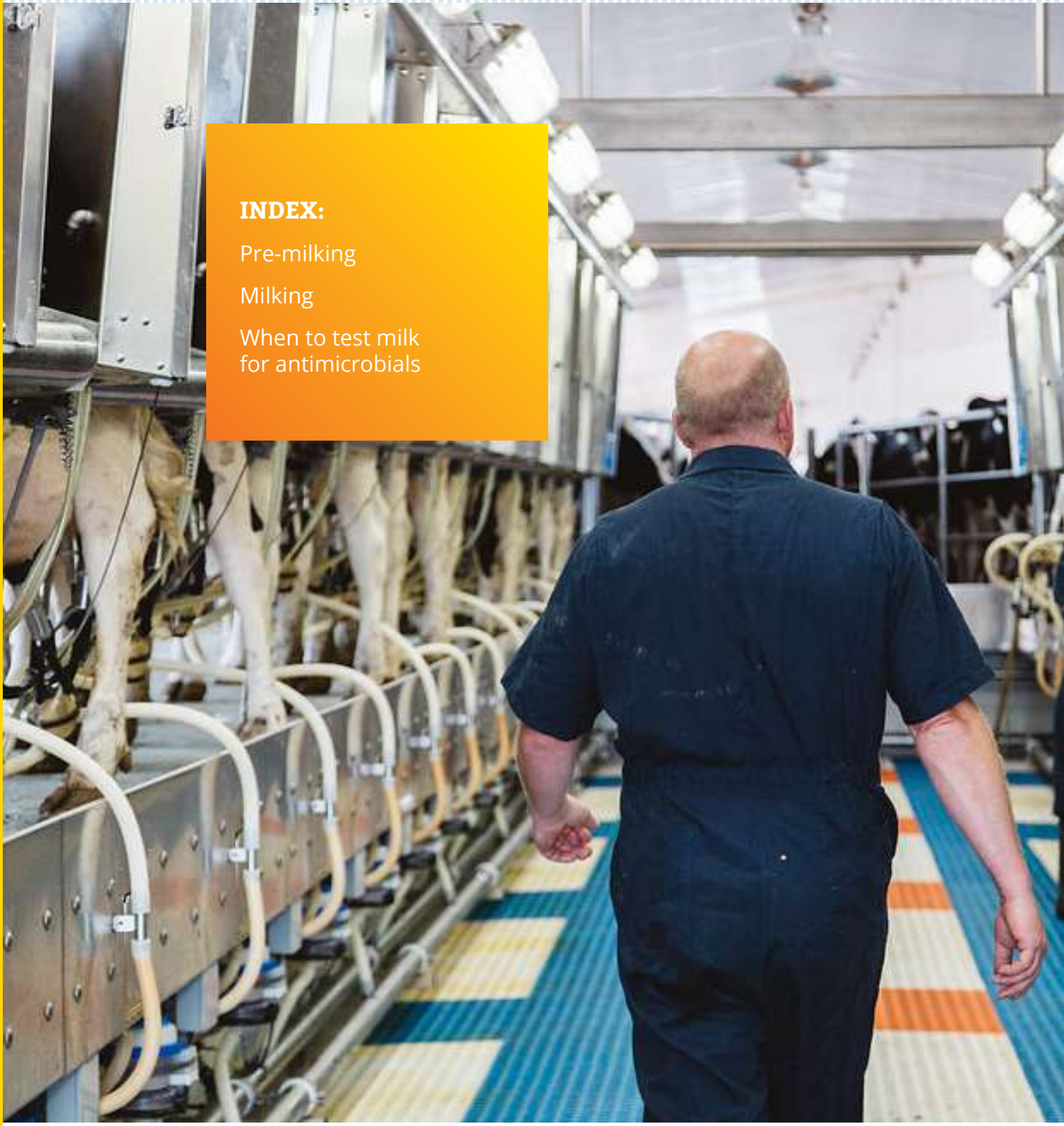
5.6.3 Corrective Actions

To prepare for an emergency situation, you must have a written corrective action plan on how to communicate and address the situation where an animal has been administered medication or other chemicals incorrectly. The Workbook contains a sample form (Record 16). See Chapter 11 for more information.

You also must record whenever a problem occurs regarding treating animals and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample form (Record 17). See Chapter 11 for more information.



6.0 MILKING MANAGEMENT



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Milking

When to test milk for antimicrobials

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 6		Validation Info		Chapter Section #
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Milking Management				
FS22	Have you established and implemented a Standard Operating Procedure for pre-milking? (SOP 1)		✓	6.1
FS23	Have you established and implemented a Standard Operating Procedure for milking? (SOP 2)		✓	6.2.1
FS24	Do you ensure that all teats are thoroughly cleaned, sanitized and dried (e.g., manure and teat dips removed) before milking, using approved products?		✓	6.2.1
FS25	Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping abnormal milk? (SOP 3)		✓	6.2.2
Milking Treated Animals				
FS26	Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping milk from treated cattle? (SOP 3)	✓		6.2.3
FS27	Do you test milk from new animals for inhibitors before shipping their milk, not ship the milk unless the results are negative and record the results? (Record 10) Or do you have a letter of guarantee from the previous owner? (Record 11b)	✓		6.2.3

Introduction

Producing safe milk is possible on a continuous basis if every person involved with milking works consistently. BMPs are the foundation of a food safety program. Establishing standard operating procedures (SOPs) is the first step in applying BMPs in a consistent manner. Consistency with a repetitive task, such as milking, is necessary not only to produce safe milk, but also to produce it efficiently.

SOPs help you and your staff to:

- Know which animals produce milk that cannot go into the bulk tank - to prevent contamination of milk in the bulk tank.
- Apply the same milking routine to each milking - essential to obtain good milking performance.

SOPs need to be posted or readily accessible and regularly updated. Employees need to be trained and SOPs need to be evaluated on a regular basis to ensure consistency. Samples of some standard SOP forms can be found in the Workbook.

6.1 Pre-Milking

FS22: Have you established and implemented a Standard Operating Procedure for pre-milking? (SOP 1) (Demerits)

Reference: BMP 5

Issue: To avoid inconsistent milking procedures that may result in food safety risks, everyone on the farm must know and be able to reference the procedures to follow. Some provincial regulations require that such procedures be established and implemented.

Explanation: To ensure cattle are milked with clean and properly functioning equipment, a documented (e.g., written, video) pre-milking SOP is an important part of proAction. The SOP must contain enough information to ensure that a relief milker can set up the system to start milking in a manner that ensures the safety of the milk (e.g., cattle are milked with clean and properly functioning equipment). You can use the blank SOP template in the Workbook to describe step-by-step the various actions that are taken on your farm during pre-milking.

You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey.** Your SOP should be posted in a visible location in the milk room or kept in a location easily accessible by all employees:



- **Check the permanent and temporary records of treatment** and ensure that all treated, lactating animals (and dry animals if they are housed with lactating animals) are located and have treated animal identification.
- **Check for animals whose milk is unfit for human consumption** (e.g., colostrum, clinical mastitis, etc.).
- **Check milk contact surfaces for cleanliness.**
- **If a bulk tank is washed manually, ensure that it is clean.** The same cleaning principles apply to both manually and automatically washed systems. Farmers who manually wash bulk tanks should follow these recommended four steps:

  Step 1: Rinse the bulk tank and the bulk tank valve to remove residual milk (e.g., with hose), as soon as possible after milk is picked-up. Milk should not be allowed to dry on any parts of the bulk tank.

  Step 2: Warm the bulk tank before the hot wash, by rinsing it with warm water. Steps 1 and 2 can be accomplished by adding a "Y" hose to your hot and cold taps and turning them both on, so that the warm first rinse also warms up the bulk tank.

  Step 3: Wash the bulk tank and bulk tank valve with hot water (e.g., 71°C (160°F) or according to the Record 14: Cleaning and Sanitizing Chart, see FS29 for more information) and soap. Put the hot water and soap in a clean 1-2 gallon plastic bucket, set the bucket inside the bulk tank, and brush wash the bulk tank from the bucket. The water will remain hot throughout the whole wash and your soap concentration will be high. Never add soap and water directly to the tank. Rinse the soap and water out of the bulk tank. A clean plastic bucket will not scratch your bulk tank's polished finish.

Ensure that all staff wear clean clothing for each milking. Clothing soiled by manure or bedding can carry bacteria such as *E. coli*.

Practice good personal hygiene by washing hands.

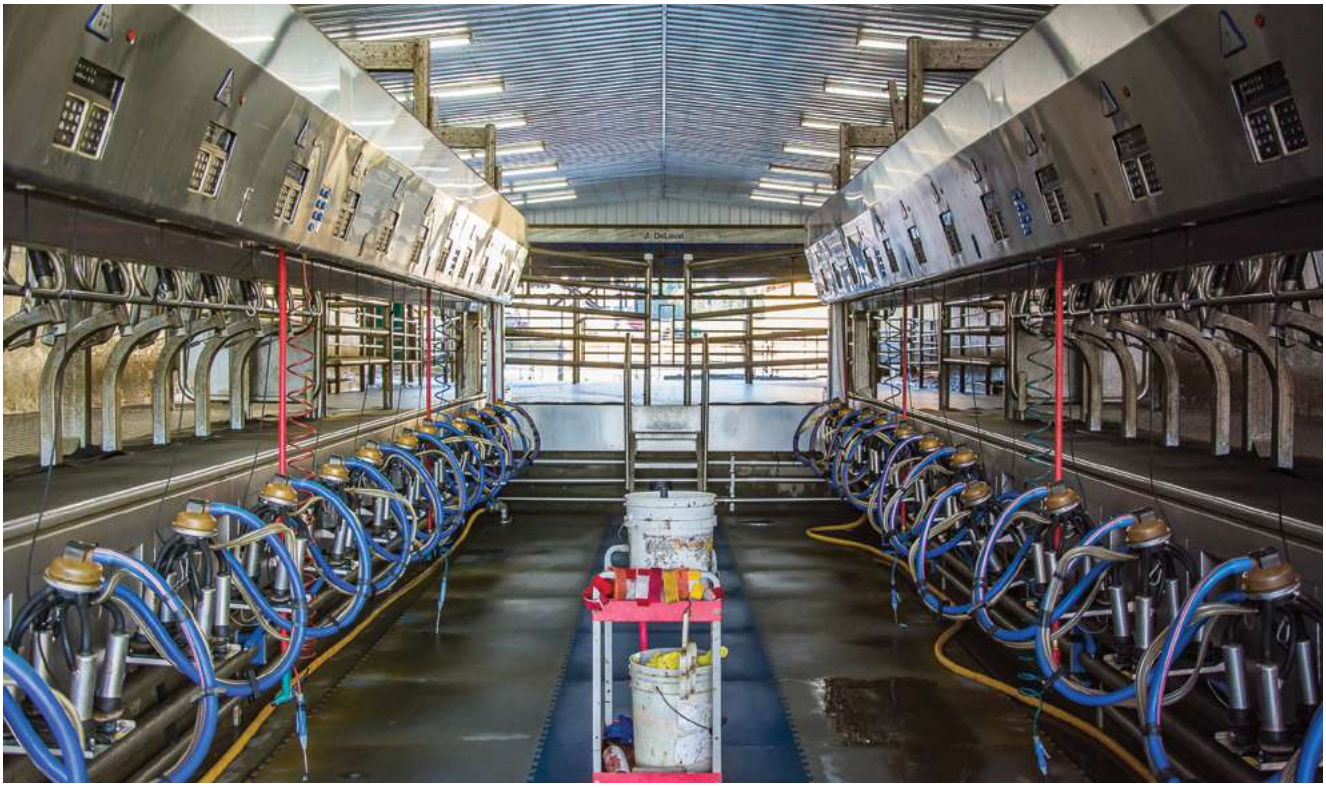
Step 4: Add warm or cold water and acid to your bucket and lightly brush the bulk tank. Let it drain. Do not rinse.

Note: If the bulk tank was washed several hours before the first milking, it is recommended to sanitize the tank about 20 minutes before the first milking. Add warm or cold water and sanitizer to your clean wash bucket and lightly brush the bulk tank milk contact surfaces.

- **Sanitize the surfaces regularly** to minimize bacteria level on equipment surfaces.
- **Wash your hands** to reduce bacteria level on hands.
- **Check the milk temperature or inspect the empty bulk tank,** specifically the interior, paddle, dipstick and outlet valve for cleanliness once a week using a strong flashlight. Record what you see.
- **Check that the bulk tank is completely drained.** This will ensure water is not being added accidentally to the milk and affecting the freezing point, and ensure cleaning/sanitizing chemicals are not being added to the milk. If the milk contact surface is unclean, refer to the proAction website for troubleshooting guides.
- **Close the bulk tank outlet valve and put on end cap.** Avoid contact with the rim or inside of the valve and cap with your fingers, as this will contaminate the inside milk contact surfaces.
- **Check the milking units for cleanliness and the teat cup liners for proper alignment.** This will ensure raw milk is not being contaminated with residual bacteria, and that liners are working properly. If any of the milk contact surfaces are unclean, refer to the proAction website for troubleshooting guides.
- **Check that the receiver jar, pipeline, weigh jars, milk hoses and other potential areas where water could collect are fully drained.** This will ensure water is not being added accidentally to the milk and affecting the freezing point, and that cleaning or sanitizing chemicals are not being added to milk.
- **Install a milk filter.** To maintain the effectiveness of keeping out bacteria and debris, the milk filter should be replaced before or after each cleaning as determined by milking equipment manufacturer's recommendations.
- **Move the milk delivery line (transfer pipe) from the wash sink over to the bulk tank.** With the safety switch in place, this allows milking equipment to be operational and stops milk from accidentally going down the drain.
- **Put the wash diverter valve into the 'milking' position.** This will allow milk from both sides of the milkline to flow by gravity to the receiver jar.
- **Verify teat dip container(s) is/are clean and ready for use.** This will ensure an adequate amount of dip available for milking, and reduce the spread of contagious diseases to cows.
- **Follow label directions when preparing the udder wash solution.** The proper concentration is necessary to kill bacteria.
- **Set udder wash water temperature.** Follow the product recommended temperature range to insure effective use of the product.
- **Check supply of single-service towels.** Restock if necessary. You should not run out of towels, or reusable cloth towels, during milking, and you should never reuse disposable towels. Contagious diseases can be spread this way.
- **Prepare the treated animal milking units,** if there are treated lactating animals or animals with milk unfit for human consumption.
- **Switch on the vacuum pump and check vacuum level on the vacuum gauge.** Establish the normal vacuum range SOP for equipment set-up.
- **If the tank is empty, turn on cooler when milk reaches agitator.** This will ensure proper milk cooling without freezing. It will also slow bacteria growth and help prevent 'malty'-flavoured milk.

Note: Farmers can include this required element in the SOP for milking instead of the SOP for pre-milking.

- **Wear disposable gloves.** This can help reduce spread of contagious bacteria from animal to animal such as *Staphylococcus aureus*. Wearing disposable gloves can also help reduce spread of bacteria from the hands of the operator to raw milk.
- **Close the doors when you leave the milk room.** This keeps odours out to prevent 'barny' or feed flavours in milk. This also prevents contamination from dust or dirt in the air, and keeps unwanted insects, rodents and other animals out. Self-closing doors are required under most provincial regulations.
- **Check the milk room after a few animals are milked.** This will serve as a double-check to ensure everything is in order (e.g., pipe in the bulk tank, cooler is turned on and cap is on the end valve).



6.2 Milking

6.2.1 General Milking

FS23: Have you established and implemented a Standard Operating Procedure for milking? (SOP 2) (Demerits)

FS24: Do you ensure that all teats are thoroughly cleaned, sanitized and dried (e.g., manure and teat dips removed) before milking, using approved products? (Demerits)

Reference: BMP 5

Code of Practice: Section 2.9

Issue: To avoid inconsistent milking procedures that may result in food safety risks, everyone on the farm must know and be able to reference the procedures to follow. Some provincial regulations require that such procedures be established and implemented.

Milking equipment needs to be properly maintained in order to function effectively. Teats must be cleaned, sanitized and dried to minimize the contamination of milk with bacteria that may be present on the teat. Teats soiled with manure and dirt can be laden with bacteria, and water dripping down from the dirty part of the udder onto the teats can also introduce bacteria into the milk during milking. Dry wiping is not acceptable. Teat sanitizing products must be approved with a DIN to ensure that the product is appropriate for the animal and food safety. Most provincial regulations require that teat sanitizers must be approved under the Food and Drugs Act (i.e., it has a DIN).

Explanation: Consistency in the day-to-day implementation of your milking procedures is an important part of your BMPs for milking. Creating your own documented (e.g., written, video) milking SOP will help ensure this occurs. The SOP must contain enough information to ensure that a relief milker can milk in a manner that ensures the safety of the milk.

Proper milking procedures will ensure high- quality, safe milk by:

- Reducing the hazards that could contaminate milk
- Reducing the incidence of inhibitors in raw milk
- Improving udder health and reducing Somatic Cell Counts.

You will also realize the benefits of reduced milking time and increased milk production.

You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- Create a teat sanitation procedure that:
  - Ensures cleaned, sanitized and dried teats (this decreases the bacterial load on teat ends; thereby, minimizing the contamination of milk with bacteria). Teats soiled with manure and dirt are laden with bacteria, and water dripping down from the dirty part of the udder onto the teats can also introduce bacteria to milk during milking.
  - Uses an approved teat sanitizing product according to the label directions.

Note: Your SOP does not need to state this bullet; however, you still must do the practice.

  - Ensures that milking equipment is properly maintained. Milking equipment requires regular maintenance. The maintenance needed will vary from farm to farm and must be specified.

Even teats that appear clean to the naked eye contain bacteria that can affect the safety and quality of milk; therefore, the practice of "dry-wiping" is unacceptable.

Farmers can use teat dips, sprays, wipes or udder washes to sanitize teats, as long as farmers use approved products according to the label instructions. Farmers can tell if a teat sanitizing product is approved by looking for a DIN number. Teat dips or sprays can often be used full strength, while udder washes may need to be diluted. Farmers must pay close attention to the label instructions to ensure they are using the products correctly. Teat products that are listed in Section 5 of the Permitted Substance Lists or have Veterinary Health Product Notification Numbers do NOT qualify as teat sanitizers. Caution: a post-dip may not be approved for use as a pre-dip.

  - Uses single service towels (paper or cloth) to prevent spread of micro-organisms from animal to animal.
  - Wipes teats for 15 to 20 seconds for proper stimulation.
  - Avoids or limits water on the teats.
  - Ensures the teats, not the udder, are wiped.
- **Identify cattle** that require special identification (e.g., fresh, dry, abnormal milk).
- **Detect clinical mastitis** (red, hard, swollen or hot quarters).
- **Clean very dirty teats** before forestripping.
- **Forestrip before cleaning teats** (or immediately after pre-dipping) allows for better:
  - Mastitis detection, especially with a black bottom strip cup. (Do not forget to discard abnormal milk).
  - Teat stimulation.
- Ensure the maximum benefit of naturally produced oxytocin and to obtain a rapid and complete milk out, units are attached 45 to 90 seconds after the beginning of teat stimulation, always using the same lag-time.



A Note on Iodine: Iodine is an important element in dairy cattle and human health, and it has minimum and maximum recommended dietary levels to ensure that deficiencies and over consumption do not occur in both cattle and humans. Dairy farms may introduce iodine into milk in a number of ways including feed and feed supplements and iodine-based pre- and post-milking teat sanitizers. See Chapter 2 for more information on iodine in feeds.

Iodine levels in milk can be controlled while maintaining an excellent udder health program including teat sanitation. Both pre- and post-milking disinfection are integral parts of mastitis prevention and the production of milk low in Somatic Cell Count (SCC) and bacteria count.

To gain the greatest mastitis prevention benefit from your teat disinfectant, teat **dipping** rather than **spraying** is preferred. Because iodine is absorbed through the skin of the udderand the use of a teat dipper provides a more targeted, low volume application, spraying is associated with higher milk iodine levels. Dipping also reduces costs because less product is used to get effective teat coverage.

Because of contact time and higher iodine content, iodine based post-milking disinfectants have a stronger association with milk iodine. If iodine levels are of concern on the farm, and if the dietary iodine is under control and spraying is not the method used to apply post-milking disinfectant, approved non-iodine based alternatives should be considered.

Pre-milking sanitation can also be a source of milk iodine through the use of an iodine-based pre-dip or udder wash. Always use an approved product and remove thoroughly with individual cloth or paper towel. For pre-dips, apply using a dipper (rather than spray device) to minimize excess. Use only products clearly labeled as pre-dips, or those licensed for both pre and post, because they typically have lower iodine than products licensed for post-dipping only.

Consult your veterinarian or dairy supply representative if you plan to change teat sanitization practices.

- **Minimize air admission into the teat cups** during attachment and removal.
- **Adjust units to reduce the incidence of liner slips** and favour an equal and complete milk out.
- **Avoid machine stripping.**
- Shut-off vacuum with or without automation, as soon as there is minimal milk flow, and remove the unit smoothly.
- **Spray or, preferably, dip teats with a disinfectant** immediately after unit removal, making sure the whole teat is covered.

6.2.2 Milking Animals with Abnormal Milk

FS25: Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping abnormal milk? (SOP 3) (Demerits)

Reference: BMP 5

Issue: Prevent abnormal milk from entering the human food supply. Some provincial regulations require that such procedures be established and implemented.

Explanation: Milk that is unfit for human consumption must be diverted from the bulk tank. To prevent abnormal milk from entering the bulk tank, establish your documented (e.g., written, video) SOP to describe how these animals must be milked. The SOP must contain enough information to ensure that a relief milker can identify and milk animals with abnormal milk and keep the milk out of the bulk tank. You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- Discard the milk from those quarters that have abnormal milk (e.g., mastitic milk, bloody milk).
- Discard the first 3 days in milk (colostrum).
- Discard milk from all quarters from a treated animal. Antimicrobials can be released into the milk regardless of the site of entry. For example, treatment into one quarter will result in residues in the other non-treated quarters.
- **Check both permanent and temporary treatment records** to determine which animals' milk is unfit for consumption. Use a blackboard or white board that is visible in the parlour or barn and is close to where milking takes place to remind the operator of a treated animal.
- **Mark animals with abnormal milk.** Use a distinctly different colour of leg band to distinguish special animals. For cattle that have milk unfit for human consumption, mark red crosses on the animals' rumps as an additional precaution.

  See Chapter 5 for more examples of marking treated cattle.
- **Segregate animals with abnormal milk.** The risk of shipping abnormal milk is reduced if animals with abnormal milk are kept separately from the herd. If these animals are milked last into the milkline, make sure the milk delivery line or transfer line is taken off the bulk tank before milking them.
- **Establish a routine** for handling abnormal milk from animals that cannot be segregated.
- **Clean, check and maintain an extra milking unit used for milking animals with abnormal milk.** Maintain these units in the same manner as the other units.
- If the animal has **not** been treated, **use a quarter milker to discard the milk from a single infected quarter.** This allows you to improve milk quality without having to discard too much milk.
- Clearly identify animals infected with contagious bacteria (e.g., *Strep. agalactiae* and *Staph. aureus*) and milk them separately to prevent the spread of contagious diseases to other animals. If possible, designate one milking unit for milking infected animals or milk them last.
- After milking an animal with contagious bacteria, disinfect the unit by:
  - Automatic back-flushing.
  - Manually disinfecting each unit. The recommended method for manual disinfecting is:
    - First, rinse both the exterior and interior of the unit.
    - Next, dip the claw in a sanitising solution containing 25-50 ppm of iodine – ensure solution stays in contact with interior of claw for 30 seconds.
    - Finally, rinse the claw and let it drain.
- Whenever possible, milk cattle with a doubtful status, such as purchased replacement and high SCC cows, after the healthy animals and before the infected ones. This will reduce the risk of spreading a contagious infection.
- Whenever possible, milk early lactation cattle before late lactation cattle, as they are less at risk of being infected by a contagious micro-organism.

6.2.3 Milking Treated Animals

Milking is a Critical Control Point on a dairy farm because it is the last step in the process of producing milk where you can prevent treated milk from entering the bulk tank. When milking, you must ensure that milk from treated animals that have not met appropriate withdrawal times is not shipped for human consumption.

Critical Control Point: Milking treated animals

Hazard: Chemical: pharmaceuticals (e.g., antimicrobial residues)

Critical Limit: Negative by a recognized test by the provincial regulatory authority.

Control Measures: Follow milking treated animals Standard Operating Procedures when milking. Test new animals' milk for inhibitors and ensure a negative result before shipping milk.

FS26: Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping milk from treated cattle? (SOP 3)

FS27: Do you test milk from new animals for inhibitors before shipping their milk, not ship the milk unless the results are negative and record the results? (Record 10) Or do you have a letter of guarantee from the previous owner? (Record 11b)

Reference: CCP 1

Issue: Prevent residues from entering the human food supply. Withdrawal times must be followed to ensure residues are not found in milk. Cattle that calve early may not have completed the milk withdrawal for dry treatments.

New lactating animals, dry cows or springing heifers may have been treated previous to arriving on a farm and the seller may not have known or may have neglected to pass on treatment information; therefore, these new animals are considered a residue risk. Some provincial regulations require that such procedures be established and implemented.

Explanation:

Standard Operating Procedures:

To prevent treated milk from entering the bulk tank, establish a documented (e.g., written, video) SOP for milking treated animals to describe how these animals must be milked. The SOP must contain enough information to ensure that a relief milker can identify and milk treated animals and keep the milk out of the bulk tank. You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey:**

- **Check the treatment records** to ensure a treated animal has met the appropriate withdrawal times for milk before shipping her milk. Treatments include medicines, pesticides and medicated feeds. Use a blackboard or whiteboard that is visible in the parlour or barn and is close to where milking takes place to remind the operator of a treated animal.
- When an animal calves, check treatment records to make sure the withdrawal times for any dry cow treatments have been met before shipping her milk.
- If new animals are purchased [e.g., springing heifers (less than 60 days before calving), lactating cattle, or dry cows], you must either:
  - Test their milk and ensure that it passes the official provincial regulatory test before shipping the milk. Record the test results (Record 10). New lactating animals, dry cows or springing heifers may have been treated previous to arriving on a farmer's farm and the seller may not have known or may have neglected to pass on the treatment information; therefore, these new animals are considered an antimicrobial residue risk. A discussion on antimicrobial test kits can be found at the end of this chapter.

    OR,

  - Obtain a letter of guarantee from the previous owner. If the previous owner writes a letter guaranteeing that the animal is free from chemical residues or outlining the treatment(s) administered to the animal, then you do not have to test the animal's milk. In order for the letter to be valid, the previous owner must have owned the animal for at least the last two months. The letter of guarantee does not have to be a formal letter. It could be a note or memo (e.g., at bottom of bill of sale) that includes:
    - The animal's identification
    - Date
    - Declaration of no pending withdrawals or details of treatments
    - Declaration of owning the animal for at least the last two months or a letter of guarantee from the previous owner or negative antimicrobial test results
    - Signature

See Record 11b in the Workbook for a sample letter of guarantee/shipping record.

- Ensure residual treated milk remaining in equipment after milking a treated animal is not shipped.

Some ways to achieve this are:

- Clean, check and maintain extra milking unit used for fresh or treated animals. Maintain these units in the same manner as the other units.
- Milk treated animals last and remove the swing pipe from the bulk tank before starting to milk them.
- If treated animals are milked between untreated animals, they should be milked into a bucket or a trap pail, using a separate claw. Quickly rinsing the four teat cups, claw, tubes, weight jar and meter after the treated animal may not be enough; make sure these components are washed thoroughly, preferably with hot water. Some drugs can be sticky and can cause positive inhibitor tests if farmers only rinse the equipment. Using an extra milking unit reduces the risk of error. If the trap pail is connected to the milkline, make sure it cannot spill into it. It is safer to use a vacuum source other than the milkline for the trap bucket.

- **Ensure milkers know the farm's system for marking treated animals.** As required in the SOP for treating an animal, treated animals must be marked. See Chapter 5 for more information.



Note: Your SOP does not need to state this bullet; however, you still must do the practice

- Establish a routine for handling milk from treated animals that cannot be segregated.
- House dry cattle separately from the milking herd.
- House treated animals separately from the milking herd.

Corrective Action:

To prepare for an emergency situation, you must have a written corrective action plan on how to communicate and address the situation where treated milk has accidentally been put in the bulk tank. The Workbook contains a sample form (Record 16). See Chapter 11 for more information

You also must record whenever a problem occurs regarding shipping milk and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample record (Record 17). See Chapter 11 for more information.

Records:

- Animal Health and Treatment Record required in BMP 4. A sample record is in the Workbook (Record 10).

6.3 When to Test Milk for Antimicrobials

The cost of discarding milk from one animal that contains residues is much lower than the cost of discarding an entire bulk tank, a transport tanker or a processor's silo because of contamination caused by that one animal.

Following the label treatment instructions and withdrawal times reduces the risk of milk becoming contaminated with antimicrobial residues. There are several instances where there may be doubt whether milk from treated animals is residue-free.

Milk should be checked for antimicrobial residues when:

- Any cattle are purchased [e.g., lactating or dry animals or springing heifers (less than 60 days before calving)]. A letter of guarantee from the previous owner may be used instead of testing (see section 6.2.3).
- Very ill animals (e.g., animals with clinical mastitis) have been treated. They may not be able to eliminate antimicrobials at the same rate as healthy cattle, so their milk may need to be tested even when normal withdrawal times have been observed.

Bulk tanks should be checked for antimicrobial residues before pick-up when animals in the barn have been treated recently and when there is a risk that contaminated milk may have reached the bulk tank. To be certain, test each bulk tank before each pick-up as a routine practice.

6.3.1 Understanding the Limitations of Antimicrobial Test Kits

Anyone who uses kits to test milk for antimicrobials should be familiar with how the tests are performed and some of the limitations to test kit performance. **A negative test on the farm does not ensure a negative test at the plant.** Some of the factors that influence the test result are the following:

- **Sample of milk tested** - Antimicrobial test kits were developed to screen for antimicrobials in milk that was pooled together from several animals, such as bulk tank milk. These tests are not usually as accurate when used to test milk from individual animals. As a result, the readings from the test kit should be used as a **guide only.**

- **Antimicrobial identification and detection** - Most test kits currently on the market:
  - Do not identify the specific antimicrobial in the sample that caused the positive result. They only indicate that an antimicrobial is present.
  - Do not detect all antimicrobials equally well. They are designed to detect lower concentrations of some antimicrobials. Certain antimicrobials are not detected at all by some of the most popular screening test kits used on farms. This can cause a problem if you are trying to detect an antimicrobial using a test kit that was not designed to measure it. You must ensure that the kit can detect the specific antimicrobial that was used to treat the animal.
  - Only give a positive or negative result. They do not show how much of the antimicrobial is present in a positive milk sample. For example, the positive level for the kit may not be the same positive level for the official test. It is important to know that the kit can detect antimicrobials at least as well as the official test does.

6.3.2 Getting Accurate Results for Antimicrobial Test Kits

The following are the BMPs you can apply to ensure your test kits give an accurate result:

- Use a kit designed to detect the antimicrobial that was used to treat the animal.
- Ensure the kit expiry date has not been exceeded.
- Ensure the kit is stored properly.
- **Read and follow the instructions** exactly as stated in the test kit. It is good practice to test a known negative milk sample.
- Test milk collected only after the recommended withdrawal time has been observed.
- Test only milk that is visually normal.
- Re-test milk that gives a positive test result, using a different test where possible.
- Consult with your veterinarian, milk inspector or personnel at the laboratory that performs official testing when interpreting test results.



7.0 COOLING AND STORAGE OF MILK



INDEX:

Cooling and storage of milk

Cooling system evaluation and maintenance

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 7		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
FS28	Is the bulk tank temperature recorded and checked after every milking for each bulk tank? (Record 12)	✓		7.1

Introduction

Methods of milk storage have changed dramatically over the history of the dairy industry. Modern technology has enabled farmers to store milk temporarily on their farms before shipping it to the processing plants. However, to be effective, the system must work and milk must be cooled quickly and stored at a temperature greater than 0°C and less than or equal to 4°C to reduce bacterial growth. Monitoring the bulk tank temperature can ensure that milk is stored safely and that the cooling equipment is functioning properly.

7.1 Cooling and Storage of Milk

Under the HACCP-based system, cooling is one of the Critical Control Points (CCPs) in milk production (CCP 2). Bacteria multiply rapidly when milk is stored over 4°C (40°F) or cooled too slowly. Excessive bacteria counts and the presence of disease organisms in milk are risks to human health. A farmer can control the multiplication of bacteria effectively if milk is cooled and stored properly.

Critical Control Point: Cooling and storing milk

Hazard: Biological: pathogenic bacteria



Critical Limit: Bulk tank temperature.

The 1st milking must be cooled to 10°C or less within one hour and to a temperature greater than 0°C and less than or equal to 4°C within two hours after milking and maintained at that temperature. When subsequent milkings enter the tank, blend temperature shall not rise above 10°C for longer than 15 consecutive minutes and milk shall be cooled to a temperature greater than 0°C and less than or equal to 4°C within one hour after milking and maintained within that temperature range.

Control Measures: Check the temperature of the milk after each milking in each bulk tank. Farmers must have an accurate, operating bulk tank thermometer or recording thermometer. Farmers must be able to demonstrate how they know that thermometers are accurate and operating (e.g., annually calibrate thermometers).

Thermometer Calibration: Thermometers can be simply calibrated by filling a glass with ice and then filling it up with cold water. Immerse the thermometer in the ice water and reposition it to read 0°C.

Proper cooling is critical for the maintenance of milk safety. Recommended cooling guidelines can be seen in Table 7.

Milk cooling systems include a cooling tank that absorbs heat from the milk. The heat is transported by a refrigerant to a refrigeration unit, where it is dissipated.

Some systems also have plate coolers, which work to reduce the temperature of the milk before the milk reaches the refrigeration units. Plate coolers help cool milk faster.

Table 7: Cooling efficiency guidelines

STAGE	TEMPERATURE RANGE
PRE-COOLING	• 33°C (92°F) to 15°C to 21°C (60°F to 70°F)
1ST MILKING	• 10°C (50°F) within 1 hour • Greater than 0°C and less than or equal to 4°C (34°F to 40°F) within 2 hours — ½ hour preferred
2ND and SUBSEQUENT MILKINGS	• Blend temperature should never go above 10°C (50°F) for longer than 15 consecutive minutes • Greater than 0°C and less than or equal to 4°C (34°F to 40°F) within 1 hour — ½ hour preferred
IDEAL STORAGE	• 2°C to 3°C (36°F to 38°F)
AT PICK-UP	• Greater than 0°C and less than or equal to 4°C (34°F to 40°F)

FS28: Is the bulk tank temperature recorded and checked after every milking for each bulk tank? (Record 12)

Reference: CCP 2

Issue: Provincial regulations require that milk is cooled within sufficient time to restrict bacterial growth. Without records to confirm appropriate cooling, issues may be missed and progress into a food safety risk. TTRs are not mandatory under proAction but could be required under provincial regulations. If you opt to have the TTR record temperatures without confirming and initialing them yourself, then the TTR must have "smart" alarms to ensure the system is working correctly.



Explanation:

Measuring Options:

> **Note:** These parameters do not apply to automatic milking systems (AMS). See Chapter 12 for AMS parameters.

1. **Tank Thermometer:** You have an accurate, operating bulk tank thermometer (accurate within ±1°C) and use the bulk tank thermometer's read-out to measure the temperature of the milk after each milking in each bulk tank. You then permanently record the temperature for each bulk tank and initial the record. Since the temperature may be taken directly after milking, the milk may not be greater than 0ºC and less than or equal to 4ºC; however, you must determine what temperature is normal for your system at the time the temperature is regularly taken. Furthermore, you must make sure that this "normal" temperature is indicative of a validly working system. The temperature must be taken at the same time during the post-milking procedure every day.

   OR

2. **Basic Time Temperature Recorder:** You use a Time Temperature Recorder to measure the temperature of the milk after each milking in each bulk tank. If the recorder does not have any alarms or has basic alarms (alarm system has 'nuisance' alarms, e.g., cooling alarm goes off when tank is empty or washing), you must open the face plate of the recorder and initial the chart (or similar method) to prove that you have checked the temperature. If the recorder is of a digital design, then you must manually record the temperature and initial the record or log on the system and insert a note proving that you checked the temperature after each milking. This is necessary because nuisance alarms have the potential to make you immune to the alarm signals and you may ignore an alarm situation.

   OR

3. **Time Temperature Recorder with "Smart" Alarms:** If your time temperature recorder (TTR) has "smart" alarms, you must have the alarms able to perform the following features and set to the following parameters if you want to eliminate recording any information manually. A summary of the alarm parameters is listed below, but refer to the TTR specifications for the complete list.

   Cooling alarm must be programmed to:
   - Not alarm when tank is empty or washing or just filling with the 1st milking.
   - Alarm for 1st milking if the temperature is not greater than 0ºC and less than or equal to 4ºC within 2 hours from the end of milking (½ hour is preferred). If equipment is capable of detecting fractions of a degree, alarms may be set to a lower limit above 0ºC to avoid nuisance alarms.
   - Be a ble to set blend temperatures.
   - Alarm for 2nd and subsequent milkings if blend temperature ever goes above 10ºC for longer than 15 consecutive minutes and if temperature is not greater than 0ºC and less than or equal to 4ºC within 1 hour from the end of milking.
   - Alarm if milk temperature in between milkings (and after the permitted delay after milking) is not greater than 0ºC and less than or equal to 4ºC.

Corrective Action:
To prepare for an emergency situation, you must have a written corrective action plan on how to communicate and address the situation where milk has not been cooled properly within the acceptable cooling period. The Workbook contains a sample form (Record 16). See Chapter 11 for more information.

You also must record whenever a problem occurs regarding cooling and storage of milk and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample form (Record 17). See Chapter 11 for more information.

Records:
- Bulk Tank Temperature log. A sample record is in the Workbook (Record 12), complete with a section to identify the normal temperature ranges for your bulk tank after milking. Automatic bulk tank recording thermometer charts and computer encrypted temperature data are also acceptable records. Manual and/or electronic records must be easily accessible to staff.

The requirement to check the bulk tank temperature (of each bulk tank) after each milking must appear in the Post-milking Cleaning SOP, which is described in Chapter 8 under FS31.

7.2 Cooling System Evaluation and Maintenance

The cooling system will cool your milk rapidly at every milking if you have it tested and maintained annually. The main points to include in your check are:
- Refrigerant pressure.
- Thermometer accuracy.
- Thermostat settings.
- Condensing unit cleanliness.

It is recommended that you have your cooling system evaluated once a year by an industry professional.

8.0 FACILITY AND EQUIPMENT SANITATION



INDEX:

Equipment sanitation

Milk house

Milking equipment evaluation and maintenance

Water

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 8		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
Equipment Sanitation				
FS29	Do you use approved cleaning products according to the accessible milk house cleaning and sanitizing chart? (Record 14)	✓		8.1.1
FS30	Do you regularly inspect and record the cleanliness of milking equipment for each washing system, including checking and recording the temperature of the hot water from the tap or wash water, at least monthly? (Record 13)	✓		8.1.2
FS31	Have you established and implemented a Standard Operating Procedure for post-milking system cleaning? (SOP 4)	✓		8.1.4
FS32	Do you have each wash system evaluated annually by an industry professional and have the deficiencies been corrected? (Record 14b)	✓		8.1.5
Milk House				
FS33	Is the milk house used exclusively for cooling and storing milk and for cleaning, sanitizing and storing materials and equipment used in the production and handling of milk?	✓		8.2
FS34	Are cleaning chemicals stored in a location and manner that will not contaminate milk?	✓		8.2
FS35	Are the milk house and external surfaces of the milking and milk storage equipment kept clean?	✓		8.2
FS36	Do you have a functioning safety switch or fail-safe system in place to avoid accidental entry of wash water into the tank?	✓		8.2
FS38	Do all lights near the bulk tank opening have a protective covering or do the bulbs have a protective safety coating?	✓		8.2
Use of Water for Cleaning Milk Contact Surfaces				
FS39	Do you: • Annually test the water used for milking equipment sanitation for the microbiological parameters determined by the provincial authority? • Ensure the water meets the microbiological parameters? • Keep or record the water test results? (Record 15)	✓		8.4.2

Introduction

Sanitation is a basic Best Management Practice for any HACCP-based system. Equipment cleanliness is very important to keep bacteria counts as low as possible in raw milk. General sanitation of the milking environment is also important to help avoid the accidental introduction of bacteria through the processes of milking and milk storage. Poor equipment cleaning is another cause of high bacteria counts and potential chemical residues through the cleaning chemicals.

While many dairy farmers have highly automated systems today, farmers still have to ensure that the equipment is functioning properly and is well maintained.

8.1 Equipment Sanitation

8.1.1 Cleaning the Milking Equipment According to the Cleaning and Sanitizing Chart

FS29: Do you use approved cleaning products according to the accessible milk house cleaning and sanitizing chart? (Record 14)

Reference: BMP 6

Issue: Cleaning chemicals must be used properly to ensure adequate cleaning of the milking equipment. Products not approved for cleaning or approved products used improperly can pose a food safety hazard.

Explanation: A qualified technician or industry professional must establish an equipment washing procedure for your farm (refer to Record 14: Cleaning and Sanitizing Chart in the Workbook). This procedure must be posted in the milk house or located in an easily accessible place in the milk house. If system changes occur after the chart is filled out (e.g., new chemicals, new equipment), the chart must be updated immediately. The chart must include the name of the company, signature of the technician or industry professional who completed the report and the date it was completed.

For each wash cycle, the Cleaning and Sanitizing Chart should specify the:

- Product name and volume of product. Products used on milk contact surfaces need to be approved for use in food establishments or recommended by the manufacturer to clean dairy equipment. The label must state one or the other to be considered approved.
- Volume of water.
- Wash water temperature (according to the label directions of the products used or equipment dealer recommendation).
- Water analysis (e.g., pH).

Table 8 outlines the recommended standard for milking equipment sanitation; however, each farm may be slightly different depending on what temperatures the products being used require.



Table 8: Recommended milking equipment sanitation

CYCLE	PURPOSE	TEMP. RANGE	BEST MANAGEMENT PRACTICES
1st **Pre-rinse milkline**	• Removes 90 to 95% of milk solids • Warms up milkline	• Lukewarm water, 35°C to 60°C (95°F to 140°F) at the start of the cycle and minimum 35°C (95°F) at the completion of the cycle	☐ Do not re-circulate water; otherwise, a milk film may be re-deposited on system. ☐ Ensure water is not too hot; otherwise, protein will be baked onto milk contact surfaces. ☐ Reduce the amount of milk in waste disposal systems (some farmers save pre-rinse water and milk, and feed it to calves).
2nd **Washing the milkline with chlorinated alkaline detergent**	• Removes fat and protein through addition of chlorinated alkaline detergent	• Minimum start temperature of 71°C (160°F) • Warmer than 43°C (110°F) at end of cycle so that fat cannot redeposit on milk contact surfaces	☐ Use amount of detergent according to the volume of water used and water quality (e.g., hardness, iron content). ☐ Follow manufacturer's recommendations as written on milk house cleaning chart. ☐ The solution circulating during wash cycle should have a pH between 11.0 and 12.0, total alkalinity of 400 to 800 ppm, active alkalinity of 225 to 350 ppm and chlorine content between 80 and 120 ppm. ☐ Ensure wash cycle lasts 5 to 10 minutes. ☐ Ensure a minimum of 20 slugs/wash.
3th **Rinsing the milkline with acid rinse**	• Neutralises detergent residues • Prevents build-up of mineral deposits • Lower pH inhibits bacterial growth between milkings • Reduces damage to rubber parts from high alkalinity and chlorine of wash cycle	• Check manufacturer's recommendation and post on cleaning chart	☐ Ensure acid rinse pH is less than 3.5. ☐ Add acid to acid rinse cycle after each milking. ☐ Never mix an acid detergent with a chlorine-based product – mixing could produce an extremely toxic lethal gas. ☐ Ensure acid rinse cycle lasts between 3 to 4 minutes.
4th **Rinsing the milkline with a sanitizer**	• Disinfects system prior to milking	• Check manufacturer's recommendation (generally 43°C (110°F))	☐ Use a solution containing 100 to 200 ppm chlorine. ☐ Run cycle just prior to milking (approximately 20 to 30 minutes before) for 3 to 4 minutes.

8.1.2 Regular Inspection of the Cleaning System

FS30: Do you regularly inspect and record the cleanliness of milking equipment for each washing system, including checking and recording the temperature of the hot water from the tap or wash water, at least monthly? (Record 13)

Reference: BMP 6

Issue: Contamination of milk with pathogenic bacteria or physical materials (e.g., dirt, sawdust). Milking equipment sanitation records are needed to prove that the equipment is being cleaned appropriately and that any issues are identified and corrected (corrective actions are documented in Record 17).

Explanation: Most milking systems and bulk tanks are cleaned automatically. Clean-In-Place (CIP) automatic systems may fail and such failures may affect milk quality and safety. Prevention is the key to avoiding system failures; therefore, a regular check (minimum acceptable

frequency is monthly, weekly is recommended) of each AMS or washing system (e.g., two robots washed by a single wash sink, each CIP system, and each bulk tank) is an important part proAction.

> **Note:** If you have two AMS or CIP systems washed by one wash sink at the same time, it is recommended that you complete Record 13 with elements from each component of the wash system (e.g., check elements from each AMS unit and each CIP system).

Manually cleaned equipment also needs to be checked to ensure adequate cleaning. A record of equipment checks must be maintained and a sample form is provided in the Workbook (Record 13).

Check your automatic cleaning system or your manual cleaning process for:

- **Signs of poor cleaning** including:
  - Common problem areas (e.g., receiver jar, milk claws, milk hoses, etc.). Note that you can check only common problem areas but a validator may ask to see other areas to determine the effectiveness of the check.
  - Condensation in the receiver or the bulk tank.
  - Traces of fat, protein or milk stone on the milk contact surfaces or on the electrodes (drying the bulk tank milk contact surfaces may help you detect deficiencies in surface cleaning).
- **Adequate temperature of the hot water from the tap or wash water.** Water temperatures must compare with the detergent manufacturer requirements or equipment dealer's recommendation. Again, temperature requirements must be specified on the cleaning and sanitizing chart completed by the dealer, according to the chemicals' label directions or the equipment dealer's recommendation. The purpose of adequate water temperature is to ensure that the hot water tank is working and that the proper temperature is maintained throughout the cleaning of the equipment.

> **Note:** If you use a product that does not require a warm or hot wash, and you are following the manufacturer's recommendations for the product, you do not need to check the hot water for the system using this product. For example, if you use a cold-water wash detergent for your pipeline, you do not need to check the hot water for the pipeline. However, if you use a reduced temperature detergent or hot water detergent for the bulk tank, you must still check the temperature of the hot water for the bulk tank.

The temperature can be taken for either the hot water from the tap or the wash water; however, the location must be established at the outset of the program and remain consistent.

The hot water or wash water temperature can be taken manually or with a time temperature recorder (TTR). Manual and/or electronic records must be easily accessible to staff.

The requirements for either method are as follows:

1. **Manually:** You have an accurate, operating thermometer (accurate within ±1°C) and measure the temperature of the water. The temperature must be permanently recorded and the record initialed.
   - **Hot water temperature:**
     - Minimum of a monthly check (weekly preferred).
     - Temperature must be taken from the hot water tap that is used to wash the system.
     - The temperature must conform to the specifications on the cleaning and sanitizing chart as filled out by the equipment dealer.

   OR

   - **Wash water:**
     - Temperature can be taken at the beginning or end of the cycle.
     - Minimum of a monthly check (weekly preferred).
     - Whether start or end temperature taken, the temperature must conform to the specifications on the cleaning and sanitizing chart as filled out by the equipment dealer.

   OR

2. **Time Temperature Recorder:** If your TTR does not have an alarm nor has basic alarms, you must manually record the temperature and initial the record, or have a computerized record on the system proving that the temperature was checked. If the time temperature recorder has "smart" alarms, the alarms must be set according to the TTR Specifications if you want to eliminate recording any information manually. A summary of the alarm parameters is listed below, but refer to the TTR Specifications for the complete list.

Summary of wash water temperature alarm parameters:

- At least one rolling year of alarm log easily accessible and available.
- The ability to set the alarm monitoring for the pipeline and bulk tank wash water temperatures to match the temperatures specified in the farm's Record 14: Cleaning and Sanitizing Chart(s). For example, the TTR must be able to handle cold-water wash protocols, without generating false alarms.

Note: TTRs are not expected to accommodate cold-water wash protocols that require a warm or hot wash at a designated frequency.

- For **warm or hot washes**, alarms must be set to the following parameters:
  - Temperature can be taken at the beginning or end of the cycle.
  - Minimum of a monthly check (weekly preferred).
  - Whether start or end temperature taken, the temperature must conform to the specifications on the cleaning and sanitizing chart as filled out by the equipment dealer or industry professional.
  - Probe can be in either the fill sink or on the return wash line.
  - If using an alarm and measuring temperature at the beginning of the wash cycle, alarm must be triggered if the temperature drops more than 5°C below the accepted range.
  - If using an alarm and measuring temperature at the end of the wash cycle, alarm must be triggered if the temperature drops more than 10°C below the accepted range.

You can also check your automatic cleaning system or your manual cleaning process for:

- A clean bulk tank before it receives its first milking.
- The operation of each cleaning cycle.
- Proper function of the automatic detergent dispensing system.
- Pre-rinse water entering into the receiver when the vacuum pump is switched on for milking; if so, adjust the slope of the milkline.
- Proper water treatment, if you treat your water (proper function of the equipment and product).

8.1.3 Corrective Actions

To prepare for emergency situations, you need written corrective action plans (CAPs) for improper cleaning and improper water temperatures.

8.1.3.1 Improper Cleaning

To prepare for an emergency situation, you must have a written CAP on how to communicate and address the situation where equipment has not cleaned properly (Record 16). See Chapter 11, under FS42, for more information and the Workbook for an example of Record 16.

You also must record whenever a problem occurs regarding equipment sanitation in Record 13 and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring in Record 17. See the Workbookfor example of Records 13 and 17.

8.1.3.2 Improper Water Temperature

To prepare for an emergency situation, you must have a written CAP on how to communicate and address the situation where the water temperature is not adequate (Record 16). See Chapter 11, under FS42, for more information and the Workbook for an example of Record 16.

You also must record whenever a problem occurs regarding hot water/wash water temperature and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample form (Record 13 or 17).

8.1.4 Post-Milking Cleaning SOPs

FS31: Have you established and implemented a Standard Operating Procedure for post-milking system cleaning? (SOP 4)

Reference: BMP 6

Issue: Ensure that milk is cooling properly and that the equipment is cleaned.

Explanation: To ensure that milk is cooling properly and that the equipment is cleaned adequately, a documented (e.g. written, video) post-milking cleaning SOP is an important part of proAction. Write your own SOP using the Workbook (SOP 4) or your own variation. The SOP must contain enough information to ensure that a relief milker can set-up the cleaning system. Describe step-by-step the various actions that must be taken to set-up the equipment for cleaning after milking.

You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey.** This SOP should be accessible in the milk room.

- Check and record the milk temperature (after each milking) (this can be done automatically with some time temperature recorders).
- Check and record the cleanliness of milking equipment regularly (e.g. receiver jar and bulk milk tank) for each AMS and each washing system (e.g. two robots washed by a single wash sink, each CIP system sink, and each bulk tank) (minimum acceptable frequency is monthly, weekly is recommended).
- Check and record the temperature of the hot water or wash water (monthly) (Record 13). This can be done automatically with some time temperature recorders.

- Put the wash diverter valve into the "wash" position.
- Let air into the washline to empty the milkline.
- Clean the claws' outer surfaces and set them in wash position.
- Empty the receiver.
- Clean the strip cup and teat dip cup.
- Move the milk transfer line from the bulk tank to the wash sink.
- Remove the milk filter, checking for milk clots and unusual dirt.
- Replace milk filter with a clean one if the milking system has a plate cooler.
- Add detergent (if using a manual system).
- Flick the wash panel switch to the "wash" position.
- Clean the milk house floor.
- Close the doors between the milk house and the barn (self-closing doors are recommended).

8.1.5 Wash System Evaluation and Maintenance

FS32: Do you have each wash system evaluated annually by an industry professional and have the deficiencies been corrected? (Record 14b)

Reference: BMP 6

Issue: Equipment must be working properly so that it cleans properly.

Explanation: Milking systems are washed automatically after every milking in many installations, manually in some. As with every automatic system, problems can occur. An important part of a good on-farm food safety program is the annual evaluation and maintenance of each AMS or wash system (e.g. two robots washed by a single wash sink, each CIP system, and each bulk tank) by an equipment dealer or industry professional to prevent problems from occurring.

Note: If you have two milk lines of different lengths washed by one wash sink at the same time, it is recommended that you have the wash system analysis conducted on the longest line, and the slugging action or air injector or air compressor function checked in both lines or AMS units to ensure that they are cleaning properly.

Farmers who manually wash their systems do not have to have an annual wash system evaluation conducted; however, they must write their equipment cleaning procedures in their post-milking SOP and they must write their bulk tank cleaning procedures in their pre-milking SOP.

The basis of the wash system evaluation is a CIP analysis (e.g. time, temperature, slugging action and chemical concentrations). The wash system evaluation should include all milk contact surfaces (e.g. milking equipment and bulk tank). A sample form is in the Workbook (Record 14b).

The annual wash system evaluation must include the following parameters:

- **Test water characteristics.** The amount of detergent used depends on water characteristics. These characteristics such as hardness and iron content can vary and should be tested regularly.
- **Ensure adequate circulation time.** Cleaning time is critical for the detergents to complete the cleaning functions.
- **Test water temperature and compare with the detergent manufacturer requirements and/or the farm's Cleaning and Sanitizing Chart (Record 14).** Adequate water temperature is essential for an effective wash cycle.
- **Regularly check slugging action.** Water slugs are necessary to ensure proper cleaning of the milkline. A testing protocol allows the milking machine technician to adjust the air injector to obtain proper water flow conditions.
- **Check automatic detergent dispenser for the correct amount and dispersal of chemicals regularly.** Systems can be plugged and fail to dispense; therefore, they should be tested to ensure proper chemical concentration in the wash system.
- **Include washing of all milk contact surfaces.**

Some farms have very hard water, which means that the wash systems require larger volumes of detergent. Farmers can install water softeners to help reduce the amount of detergent needed.

After completing an annual wash system analysis, equipment dealers or industry professionals may identify issues with a washing system or opportunities for improvement. Some equipment dealers may check more than the proAction requirements, but farmers have to correct proAction-related issues (e.g. time, temperature, slugging action and concentration).

If a new wash or equipment system is installed or a major change is made in the current system, it is recommended to have another wash system analysis performed by an equipment dealer or industry professional to ensure the new or revised system washes effectively.

8.2 Milk House

FS33: Is the milk house used exclusively for cooling and storing milk and for cleaning, sanitizing and storing materials and equipment used in the production and handling of milk?

FS34: Are cleaning chemicals stored in a location and manner that will not contaminate milk?

FS35: Are the milk house and external surfaces of the milking and milk storage equipment kept clean?

FS36: Do you have a functioning safety switch or fail-safe system in place to avoid accidental entry of wash water into the tank?

FS38: Do all lights near the bulk tank opening have a protective covering or do the bulbs have a protective safety coating?

Reference: BMP 6

Issue: Minimize risk of contaminating milk

Explanation: The milk house is the **final on-farm site for quality control.** The following BMPs should be followed in the milk house:

- Use it **exclusively** for cooling and storing milk, and for cleaning, sanitizing and storing materials and equipment used in the production and handling of milk. If other items are stored in the milk house, they must not pose a food safety hazard.
- Store approved chemicals and products used in the milk house in a location and manner that will not contaminate milk. Also ensure that containers are in good condition and properly labelled (e.g. to be compatible with the cleaning and sanitizing chart).
- Ensure the milk house and external surfaces of the milking and milk storage equipment are kept clean (e.g. bulk tank and gasket around man-hole must be clean; milk house must be free of unnecessary clutter).
- A functioning safety switch or fail-safe system (for Automatic Milking Systems) must be in place to avoid accidental entry of water and cleaning chemicals into the milk. The safety switches prevent the wash system from turning on unless the swing pipe is removed from the bulk tank. If you have a manually operated clean-in-place (CIP) system, you must have a safety device as well (e.g. plug for the sink is attached to the swing pipe so that sink cannot be plugged unless the swing pipe is detached from the bulk tank).
- Remove all mercury thermometers or vacuum columns from the milk house. Mercury vacuum gauges can be replaced by mercury-free dial or digital gauges, which do not pose a health risk. **Contact your local hazardous waste depot to dispose of any mercury thermometers or vacuum gauges!** Even if a mercury thermometer or vacuum gauge is not in use, it still must be removed.
- Ensure that any lights located near the man-hole on the bulk tank have protective coverings or that the bulbs have a protective safety coating.
- Broken glass from lights located near the man-hole on the bulk tank is another hazard to stored milk. Some milk houses have low roofs and long dip-sticks, increasing the possibility that the milk truck driver will smash a light when checking the level of the milk in the bulk tank. Fluorescent tubes have also been known burst on their own. It is also recommended to cover lights located near the wash sink.
- **Ensure clear drains in milking centre.** Milk room drains must handle milking equipment and bulk tank wash water. They must have an easily cleaned gas trap to keep waste odours out of the milk house and milking centre. Drains should be cleaned regularly to avoid blockage of the drain. It is recommended that drains be located a minimum of 60 cm (2 feet) away from the outlet of the bulk tank and not be placed under the tank (this is regulation in some provinces). This allows for easy access and avoids contamination of the tank outlet.
- Construct floors, walls and ceilings of smooth, durable and easy-to-clean material, and maintain cleanliness on a regular basis.
- Properly ventilate the milk house to reduce condensation and decrease mould and dust on ceilings walls and windows.
- Properly dispose of any empty milking chemicals containers.

> The milk house is often the first area that visitors (consumers) see when touring or driving by your dairy operation. That first impression can determine their overall perception of the quality and cleanliness of your product.

8.3 Milking Equipment Evaluation and Maintenance

Milking machines must be in good condition to obtain high milk quality consistently. Regular maintenance will assure that milking machines can milk cattle adequately day after day. Depending upon farmer expertise, regular

maintenance should be done by the farmer with more in-depth analysis done by the equipment dealer or an industry professional.

Milking machine technicians should be able to perform a complete evaluation protocol such as that produced by the National Mastitis Council.

A milking equipment evaluation should include:

- Teat end vacuum during milking.
- Pulsation characteristics.
- Effective reserve.
- Milkline slope.

This material on milking equipment was sourced from the manual "Managing Milk Quality" published by ITA de La Pocatière.

8.4 Water

Milk safety can be adversely affected by the quality of water used to clean milking equipment and the milk house. If the water is contaminated, the contaminants may cause milk safety to suffer. Since pasteurization does not kill 100% of bacteria in the milk, increasing the load of bacteria in the milk will increase the milk safety risk. Spore-forming bacteria are usually found in dirty water. Spores can survive pasteurization and can reduce shelf-life of dairy products. The water used for cleaning milk contact surfaces can be a significant source of bacteria; therefore, testing the water is an important step in ensuring milk safety.

The components of water quality can be subdivided into two groups: contaminants and aesthetics.

Contaminants could affect the safety of the milk by residues of contaminated water left from cleaning the equipment. Contaminants can be either biological or chemical.

The **aesthetics** of water and the willingness of animals to drink it have an indirect effect on animal health, and, as a result, may impact the safety and quality of food produced from these animals. Characteristics that impact taste and colour are part of this group. Dirty water can smell and transfer odours to finished products.

8.4.1 Sources of Contaminants

Private wells may be recharged from areas on the same property as the farm or may extend to neighbouring properties. The activities of the farm, the homes on the farm, and the activities of neighbours can directly affect well water quality.

Many contaminants can enter water supplies and threaten the health and safety of families, livestock and the milking equipment rinsed with the contaminated water. The most common contaminants include:

- Pathogenic microorganisms (e.g. *E.coli* bacteria).
- Toxic chemicals such as pesticides, petroleum and solvents.
- Nitrates.

Most contaminated water is caused by:

- Contamination sources too close to the well or water source.
- Improper well construction.
- Inadequate well and system maintenance.
- Unused or improperly abandoned wells.

8.4.2 Water Quality Parameters and Testing

FS39: Do you:

- **Annually test the water used for milking equipment sanitation for the microbiological parameters determined by the provincial authority?**
- **Ensure the water meets the microbiological parameters?**
- **Keep or record the water test results? (Record 15)**

Reference: BMP 7

Issue: Contaminated equipment washing water could contaminate milk (residues from washing).

Explanation: Contaminated water is not easily detected by taste, smell or colour. Testing is the only way to detect most contaminants and to ensure a safe water supply.

All water used for milking equipment sanitation, regardless of source, must be tested yearly for microbiological parameters (e.g. bacteria), which are determined by each provincial authority.

Note: At the time of your proAction validation or when a self-declaration is due, the water test results will only be considered valid if the test has been done in the previous 12 months.

The water sample should be collected as close as possible to the point of use (e.g. from the tap in the milk house), not from the source (e.g. from a well). Water quality is a provincial jurisdiction; therefore, each province sets potability standards for bacteria in its respective province.

Additional testing is recommended after events such as floods, spills or heavy rainfall or if colour, taste or odour changes. Water should also be tested for nitrates and pesticides that are commonly used on or near the farm, especially if the area, well or specific water source, has elevated nitrate levels or if pesticides have been detected in a neighbouring well or area.

Well owners should test for volatile organic compounds (VOCs) if petroleum or solvents have been spilled nearby or if the property is near an industrial site or landfill. Testing for volatile organic compounds is particularly important if an old underground fuel storage tank is near a well.

Farmers who always sanitize milking equipment before milking still have to test their water. Sanitizing chemicals do kill bacteria, but higher bacteria loads and organic content, reduces their effectiveness.

Testing Procedure:
To collect an appropriate sample to test water sources for bacteria, use the sterile bottles or bags provided by the local public health units or the laboratory that will perform the testing. Carefully follow the instructions provided by the laboratory. The water sample must be collected properly or the test results may not be valid.

General Sample Collection Guidelines:
Step 1. Collect from a tap or outlet in the water system that is as close as possible to the point of use (e.g. from the tap in the milk house) for washing milk contact surfaces.

- If the system has not been in use for several days, run the water for 1–2 hours before taking the sample.
- If it is used daily, run the water for 5–10 minutes before taking the sample.

Step 2. Immediately fill the container and cap it.

- If a plastic container is used, its sides should be compressed to ensure the air is expelled.
- Make sure that you do not contaminate the inside of the container or cap with your fingers or place it on a surface.

Step 3. Keep the sample refrigerated and deliver it to a lab within 24 hours.

General Testing Guidelines

- Sample water for bacterial contamination once a year, preferably after heavy rains or during wet seasons.
- If the sample is contaminated, the water source must be re-sampled and/or treated until the water source passes the microbiological parameters of the province.
- Keep or record the water test results. The Workbook contains a sample form (Record 15), or you can simply keep the test results report from the lab, which should be kept with your proAction records.
- Test any new well or after an existing well has been repaired.
- If a well has been disinfected, test it before using it for drinking or cleaning.
- Re-test 1–3 weeks after the first test to confirm acceptable results.
- Test before using a well that has not been in use.
- Sample well for pH, iron content, bicarbonates etc. annually.

8.4.3 Interpreting Results of Water Quality Analysis

The results of the water analysis can be reported in different ways, depending on the laboratory. Be careful when comparing the results of analyses from individual laboratories to published 'normal' reference ranges, because the same methods may not have been used in the laboratory that determined the reference ranges.

Contact the laboratory that performed the testing on your water or your local authorities for the appropriate normal reference range.

8.4.4 Corrective Action When Water is Contaminated

When water samples fail to meet water quality objectives, the appropriate remedial action depends on the type and extent of the contamination. This usually requires a consultation with specialists in water supply and water treatment. The large water demands on most dairy farms usually mean that corrective measures suitable for domestic use are not practical for farms.

To prepare for an emergency situation, you must have a written CAP on how to communicate and address the situation where the water sample is contaminated. The workbook contains a sample form (Record 16). See Chapter 11 for more information.

You also must record whenever a problem occurs regarding water quality and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample form (Record 15 or 17).

9.0 HANDLING AND SHIPPING ANIMALS



INDEX:

Handling animals

Shipping animals

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 9		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
AC16	Do you handle cattle using low-stress handling techniques without the use of electric cattle prods?		✓	9.1
FS40 (AC)	Have you established and implemented a Standard Operating Procedure for shipping cattle? (SOP 6)	✓		9.2

Introduction

All Canadian dairy farmers are beef as well as milk farmers, and, as such, must produce safe and wholesome beef. Shipping animals is another Critical Control Point (CCP) in the Food Safety module. This CCP has two hazards associated with it: chemical—livestock medicines and chemical residues (including any residues that may persist following vaccinations), and physical—broken needles. All animals leaving a dairy farm have the potential to be slaughtered for beef soon after sale.

9.1 Handling Animals

AC16: Do you handle cattle using low-stress handling techniques without the use of electric cattle prods? (Demerits)

Code of Practice: Section 4.1

Issue: Cattle that are handled in a consistent, calm manner will be relaxed and more productive. Stressful handling can lead to fear responses in cattle and injuries to both cattle and humans.

Explanation: Cattle should be moved in a calm manner to reduce stress to the animals. Quiet handling techniques must be used and farm personnel trained accordingly. Electric prods must not be used in routine handling – they must only be used in extreme situations, such as when an animal's safety is at risk. For example, in consultation with a veterinarian, an electric prod may be used (applied to a maximum of twice on the rear flank and upper rear leg) when necessary to determine if the animal can rise and her likelihood of recovery. An animal must not be repeatedly encouraged to move once she has demonstrated she cannot get up or move.

Electric prods must never be used on the face, anus or reproductive organs of dairy cattle. Electric prods must never be used on calves.

9.2 Shipping Animals

FS40 (AC): Have you established and implemented a Standard Operating Procedure for shipping cattle? (SOP 6)

Code of Practice: Section 6

Reference: CCP 3

Issue: Prevent antibiotic residues from entering the human food supply. Withdrawal times must be followed to ensure residues are not found in meat. All farm personnel responsible for shipping cattle must be able to identify what animals are able to be loaded for transport and the procedures to follow to minimize stress and ensure welfare.

Explanation: Animals are constantly being shipped from a dairy farm for a variety of reasons. Some cattle are culled due to reproductive problems, mastitis, lameness or other illnesses. Other cattle are sold as replacement stock for other herds. Bull calves are born on all dairy farms and are often sold to the veal industry or other buyers to end up as beef.

Whenever cattle are shipped, you have a responsibility to ensure that the animals are safe to enter the human food chain. Appropriate withdrawal times for livestock medicines and chemicals must be observed for any

animals being sold or shipped directly to slaughter. As a result, when an animal is being shipped you must check to ensure that there are no chemical residues or broken needles in the animal. If the animal is carrying residues or a broken needle, then you must transfer that information to the next buyer or the transporter. See the Workbook for a sample shipping record.

Once cattle leave the dairy farm, the animal/carcass must bear an approved tag at all times. You must ensure that all cattle intended for shipping are identified with dairy approved DairyTrace dual tags or single white button tags (calves born on a dairy farm and destined for purposes other than dairy production may be identified with an approved DairyTrace single white button tag) or Attestra tags (refer to section 3.2 for more detail).

Shipping animals is a Critical Control Point on a dairy farm because it is the last step in the process where you can control whether or not an animal carrying a chemical residue or broken needle is shipped, or whether the appropriate information is transferred to the next buyer or transporter.

Critical Control Point: Shipping animals

Hazards:
Chemical: Livestock medicines, chemicals and biological products (e.g., vaccines)
Physical: Broken needles

Critical Limits:
Chemical: Negative on a recognized test by the federal or a provincial regulatory authority or, if animal is not intended for slaughter, treatment information is communicated to the next buyer.
Physical: Zero tolerance or information of the broken needle is communicated to the next buyer.

Control Measures: Follow shipping animals Standard Operating Procedure and follow meat withdrawal times when shipping animals.

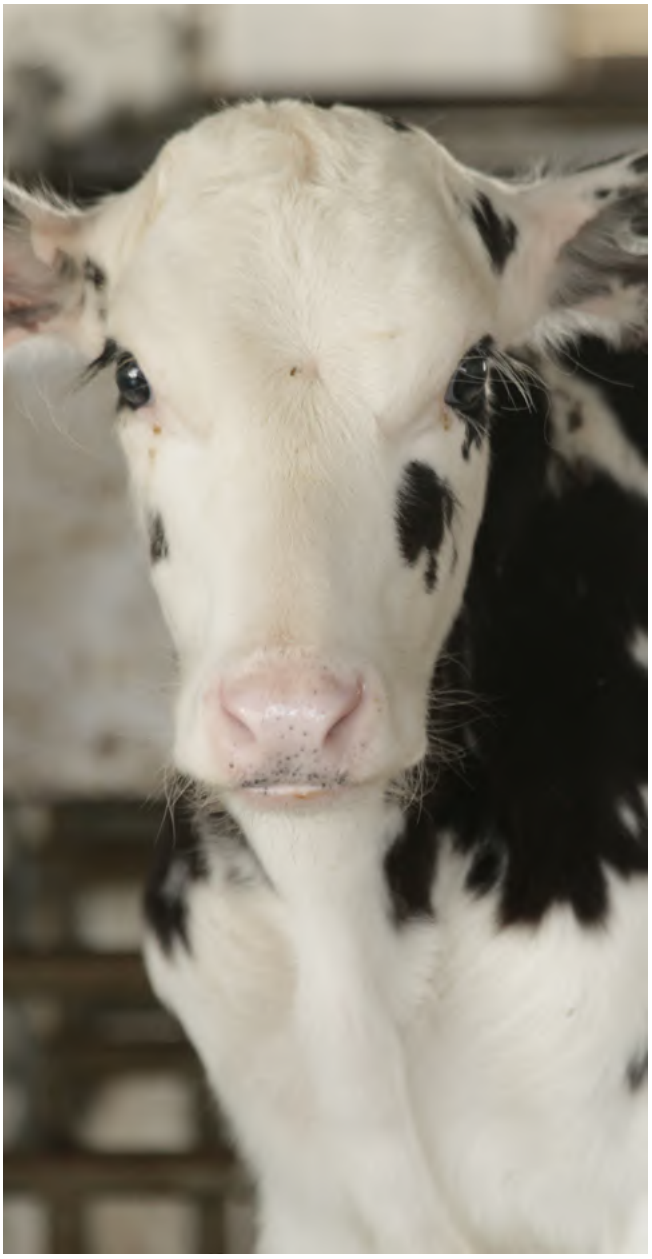
Code of Practice: Section 5

Issue: All farm personnel responsible for shipping cattle must understand how to decide if an animal can or should be shipped and the procedures to follow to minimize stress to the animals and ensure their welfare.

Standard Operating Procedures:
To ensure that all personnel on a farm understand and follow the same procedures when shipping an animal, and to prevent animals with chemical residues or broken needles from entering the human food chain, establish a documented (e.g., written, video) SOP for shipping animals. The SOP must contain enough information to ensure that someone shipping animals would not cause a hazard to milk or meat. Your SOP must contain enough information so that anyone responsible for shipping cattle can ensure that animals are fit for transport, identified, well prepared for the journey and handled properly to ensure their welfare. You should work with your veterinarian to ensure your procedures are the best fit for your farm. You should also be aware of any provincial regulations related to cattle transportation that you are required to meet.

You should consider the following BMPs when you develop your own SOP, but **you must include the BMPs that are shaded grey.** Wording does not need to match the BMPs in grey, but must meet their intent.

- **Check the treatment records** to ensure animals have met the appropriate withdrawal times for milk and meat before shipping them (Record 10). Treatments include medicines, vaccines, Veterinary Health Products, pesticides and medicated feeds. Some treatments have very long meat withdrawal times (especially if used extra-label), so ensure you check far enough back to ensure that withdrawals have been met.
- **Check the broken needles record** to ensure animals do not have broken needles in them (Record 11).
- **Ensure that all cattle intended for shipping are identified with dairy approved (DairyTrace) dual tags or single white button tags** (calves born on a dairy farm outside the province of Quebec and destined for purposes other than dairy production may be identified with an approved DairyTrace single white button tag) **or Attestra tags.** Refer to section 3.2 for more details.
- Ensure animal birth or tag activation information is reported to the national traceability database before animals leave the farm (particularly for bull calves). Refer to section 3.3 for more details.
- If animals are going directly to slaughter, withdrawal times must be met before shipping. If animals carry broken needles, the information must be passed on to the next buyer. See Workbook for a sample shipping record.
- If animals carrying chemical residues or broken needles have to be shipped for one reason or another other than slaughter, you must transfer the information to the transporter or next buyer. You must communicate information on broken needles to the next buyer to avoid consumers finding needles in meat. A treatment record and/or log of the site of the broken needle and the animal's approved identification number must accompany the animal. See Workbook for a sample shipping record (Record 11b).
- Alternatively, if an animal has been treated and the milk and meat withdrawal times have not been met, keep the animal until after the withdrawals and then ship.



- Ensure all individuals who work with dairy animals are aware of the SOP for shipping cattle and follow proper withdrawal periods and administration techniques (see Chapter 5).

Note: Your SOP does not need to state this bullet; however, you still must do the practice.

Assess cattle fitness for travel for the duration of the proposed journey

- Display 'Transport Decision Tree' poster in loading area (see Appendix F of the Code of Practice for the Care and Handling of Dairy Cattle).
- Assess every animal prior to loading and transportation as per the 'Transport Decision Tree' (see Appendix F of the Code of Practice for the Care and Handling of Dairy Cattle). Evaluate fitness for transport in the context of each trip including relevant factors such as the anticipated total trip duration from farm to final destination and prevailing weather conditions.
- Animals that are compromised, as defined by the Health of Animals Regulations Part XII must only be transported directly to the nearest suitable place (within 12 hours) with special provisions to receive care or be promptly slaughtered, except an assembly centre. Examples of compromised conditions are listed in Appendix IV.
- Do not transport unfit animals, as defined by the Health of Animals Regulations Part XII except for veterinary care under a veterinarian's direction. Examples of unfit conditions are listed in Appendix IV.
- Transport calves only if they are healthy and vigorous.
- Calves that are 8 days of age or less must only be transported with special provisions and directly to their final destination (not through an auction or assembly yard).
- Calves must only be shipped if they are free from signs of fever or disease and have a healed, uninfected navel.
- Lactating cattle must be transported in a manner to prevent mammary engorgement (e.g., transporting with suckling calf or the animal is milked at intervals to prevent mammary engorgement).

Prepare cattle for transport:

- Feed newborn calves at least 4 L (for a 45 kg (100 lb) calf) of colostrum prior to loading to ensure that they do not exceed 12 hours without feed, water, and rest before they reach their destination.
- Feed and water unweaned calves, as appropriate, prior to loading to ensure that they do not exceed 12 hours without feed, water, and rest.
- Feed and water weaned and older cattle prior to loading to ensure that they do not exceed 36 hours without feed, water, and rest.
- Milk out lactating cattle immediately before being transported.
- Dry off heavy lactating cattle destined for slaughter before shipping to auction.
- Remove any hobbles used for handler safety reasons before an animal is transported.

Arrange for transport:

- Confirm that the transporter is familiar with cattle behaviour and quiet handling techniques and has experience transporting cattle. While commercial carriers are required to provide training to their transporters, a non-commercial transporter does not need formal training, but must have experience (e.g., handled and transported cattle in the past independently or with a mentor).
- Discuss and reach agreement with the transporter on the following:
  - Number of cattle to be shipped
  - Type of cattle
  - Time and point of loading
  - Destination
- Complete all required paperwork. See Appendix V for a sample Transfer of Care document.
- Obtain signed statement from transporter regarding welfare of animals at loading.

Loading and unloading:

- Check that loading facilities are compatible with type of trailer being used for transport.
- Verify that there is no unprotected gap between the vehicle and the ramp.
- Walk through the loading route prior to the introduction of the animals to check for details that may cause stress to cattle such as clanging chains, clothing hung on a fence, objects on the floor, pieces of moving plastic, etc.
- Only experienced and trained handlers should load and unload cattle.
- Only experienced and trained transporters should be transporting cattle.
- Move cattle in small groups.
- Load cattle calmly and quietly (do not yell or whistle).
- Avoid the use of electric prods (only use in extreme situations when animal or human safety is at risk).
- Ensure cattle that are incompatible by nature are segregated. Do not mix cattle during transport that will lead to fighting or injury (e.g., two bulls).
- Ensure ramps, gangways, chutes, and steps minimize the risk of an animal incurring injury such as tripping, slipping, or falling as per the Health of Animal Regulations Part XII.

Corrective Action:

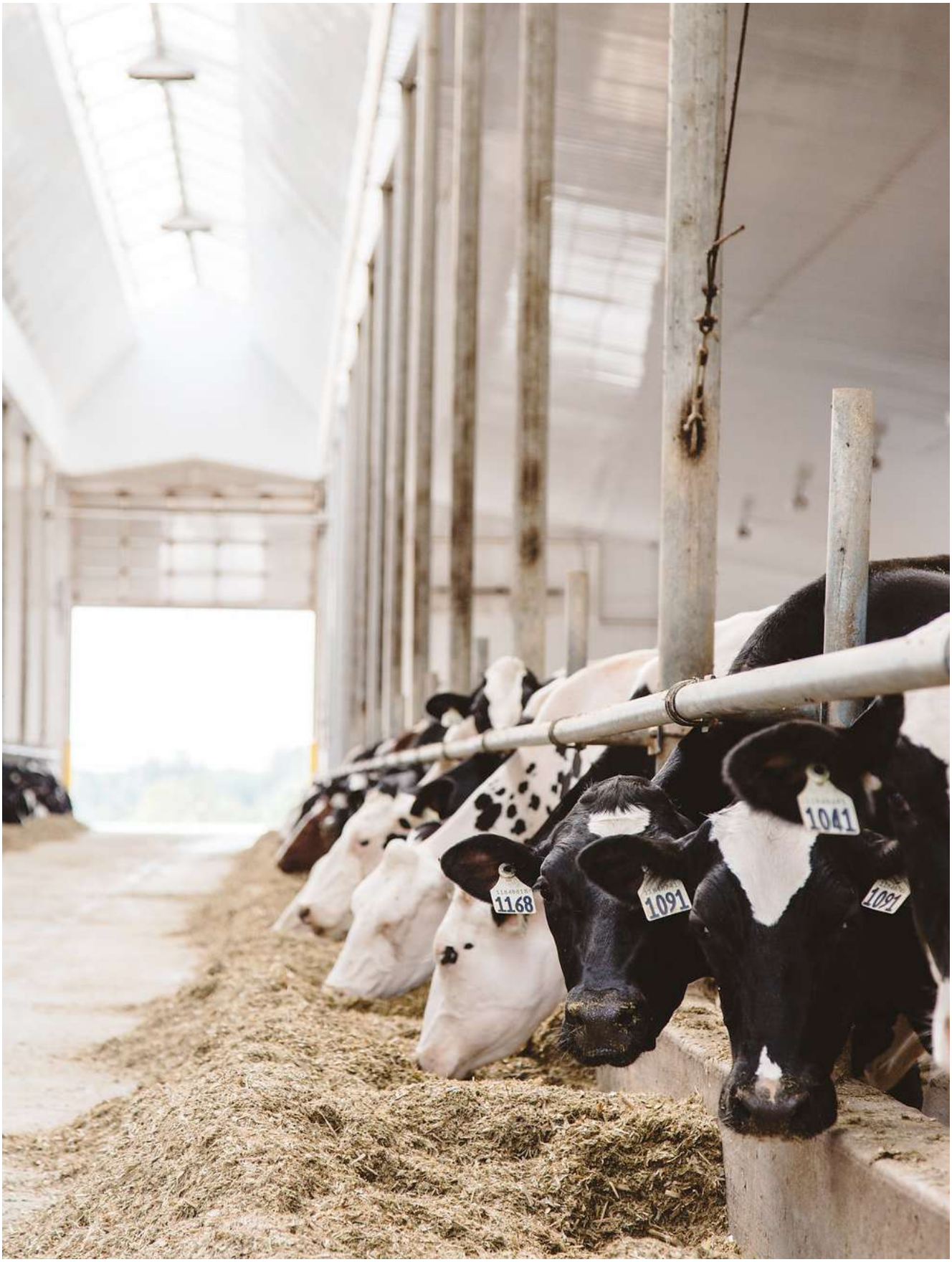
To prepare for an emergency situation, you must have a written corrective action plan on how to communicate and address the situation where animals carrying a chemical residue or broken needle have accidentally been sold and the next buyer has not been informed. The Workbook contains a sample form (Record 16). See Chapter 11 for more information.

You also must record whenever a problem occurs while shipping animals (including cattle that have been condemned for the presence of residues) and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. The Workbook contains a sample record (Record 17).

Records:

- Animal Health and Treatment Record required in BMP 7 for treating animals. A sample record is in the Workbook (Record 10).




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10.0 ENVIRONMENT



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Environmental questionnaire

Milking centre wastewater

Manure storage

Manure management

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 10		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
EN2	Have you completed the questionnaire on soil health, greenhouse gases, water, biodiversity, and waste?	✓		10.1
EN3	Is your milking centre wastewater managed with proper storage or a regulatory approved treatment system?		✓	10.2
EN4	Is your manure storage adequate to avoid contamination of surface and ground water and to avoid spreading manure on frozen, snow-covered or saturated ground?		✓	10.3
EN5	Do you manage nutrients on your farm to make optimal use of manure and/or fertilizer on land?		✓	10.4

Introduction

Dairy farmers are committed to caring for the environment. Because the health of their land is essential to the long-term success of their farm, careful management is both important and economically beneficial.

Dairy farmers manage a host of environmental concerns on their farms every day, whether it be in the farmyard, fields, pastures, or other areas of the farm, such as wetlands or woodlots. Beyond the requirements of the Environment module, it is the farmer's responsibility to meet the applicable provincial regulations. For more information on these, farmers should contact their provincial agriculture or environment department, or provincial dairy association.

10.1 Environmental Questionnaire

Both farmers and the public value a healthy ecosystem, leading to a greater emphasis on environmentally beneficial practices. The Environmental Questionnaire is intended to assess the actions being taken toward environmental stewardship while providing the opportunity for farms to learn how they compare to others, and where opportunities for change exist. The questionnaire is designed to promote environmental awareness and encourage self-evaluation. Each farm will complete their questionnaire online or with the assistance of a Provincial Coordinator. The questions included in the questionnaire are listed in the Workbook for reference.

EN2: Have you completed the questionnaire on soil health, greenhouse gases, water, biodiversity, and waste?

Issue: Environmental risks exist on farms, and understanding the current status of those risks on the farm promotes awareness and can help inspire improvement.

Explanation: The questionnaire provides an overview of a farm's environmental stewardship practices, including efforts to improve soil health, reduce greenhouse gases, preserve water quality, enhance biodiversity, and manage waste. The questionnaire lists voluntary actions that may or may not be undertaken and is intended to help farms identify where they are at, and where potential improvements can be made. Aggregated information will help the industry describe practices undertaken to advance environmental stewardship.

Farmers must complete the questionnaire every 2 years and have the confirmation of completion available.

The questionnaire covers the following topics:

- **Soil health:** Managing soil health is important to the success of farms and its ecosystems. Healthy soil can support plant growth without becoming degraded or otherwise harming the environment. Many at-risk soils can be enhanced through practices that improve soil health.
- **Greenhouse gases:** Methane, nitrous oxide, and carbon dioxide are emitted during livestock management and crop production. Working with a dairy specialist, storing and using manure effectively, and reducing energy use can all contribute to greenhouse gas mitigation and improved nutrient management.
- **Water:** Protecting wetlands and watercourses, while preserving water resources, is essential to maintaining a healthy environment. Practices that prevent silage seepage, reduce erosion, and limit livestock access to wetlands and watercourses help ensure clean and abundant water supplies, protect ecosystems, and maintain biodiversity.
- **Biodiversity:** Managing lands with biodiversity in mind not only supports diverse habitats, but also helps reduce off-site environmental risks, particularly in areas located near water sources. Depending on the farm's unique location, biodiversity can be enhanced through careful and responsible natural resource management to provide mutual benefits.
- **Waste:** Waste from plastic and chemical containers should be disposed of in environmentally responsible ways to avoid burning or burying on farm.

Also included in the questionnaire is a question on whether the farm has completed an Environmental Farm Plan (EFP) or equivalent (Plan d'accompagnement agroenvironmental (PAA) or PAA-equivalent) in the past 10 years. Provincially-regulated EFPs (and equivalents) have regionally-specific questions regarding environmental stewardship that may not be captured in the questionnaire. Completion of an EFP (or equivalent) is highly encouraged.

Results over time from this questionnaire will reflect Canada's diverse landscape and what farmers do to protect or enhance land, water and wildlife. Some practices listed will not apply in all regions, which is why the completion of an EFP (or equivalent) is highly encouraged. Aggregate data will be analysed and used by DFC and its members for national and provincial communications and planning efforts related to the proAction program and sustainability.

10.2 Milking Centre Wastewater

Milking centre wastewater is a mixture of water, milk solids and fat, chemicals used to clean and sanitize the milking system and bulk tank, and possibly, small amounts of manure and animal feed. Because it contains nutrients such as phosphorus and nitrogen as well as detergents, acids and potential pathogens, milking centre wastewater must be properly managed and disposed of.

EN3: Is your milking centre wastewater managed with proper storage or a regulatory approved treatment system? (Demerits)

Issue: Milking centre wastewater contains contaminants which need to be managed to reduce environmental risk.

Explanation: Farmers must manage and dispose of milking centre wastewater in a manner that prevents contamination of soil, ground water, and surface water. Milking centre wastewater should not go into a ditch or stream.

Some provinces have established specific regulations pertaining to wastewater. It is the farmer's responsibility to be aware of and meet any regulations in their province.

Management options for milking centre wastewater include:

- Storage within a liquid manure storage system – construction design should incorporate expected volumes of wastewater.
- Storage or disposal within a separate liquid storage system or septic tank. Note that septic tanks need to be monitored and pumped when the level of solids in the tank approaches capacity.
- Treatment within sediment tanks and/or a flocculator. Flocculators add lime to coagulate milk solids. Liquids can be removed from the top, while heavier milk solids settle to the bottom for removal. Regular maintenance of flocculators is required.
- Treatment within constructed wetlands or vegetated filter strips – often done in association with settling tanks and/or grease traps. Constructed wetlands and filter strips should be designed by an engineer. These areas will remove organic matter from the wastewater. Constructed wetlands may require renovation 10-15 years after construction if solids accumulate within the cells.
- In some cases when soil conditions are suitable and regulations allow, ejection systems into vegetated areas are acceptable.

10.3 Manure Storage

Applying manure to saturated or frozen soil provides little to no agronomic value. In addition, the potential for surface water contamination increases significantly

because frozen or snow-covered soil cannot absorb applied nutrients effectively, making manure-contaminated runoff more likely to occur.

EN4: Is your manure storage adequate to avoid contamination of surface and ground water and to avoid spreading manure on frozen, snow-covered or saturated ground? (Demerits)

Issue: Application of manure to frozen, snow-covered or saturated soil poses significant risk to surface and ground water contamination. Insufficient storage capacity or weather-related factors are the main reasons for manure application on frozen, snow-covered, or saturated ground.

Explanation: Farmers must store and use manure in a manner that prevents contamination of surface and ground water and that avoids spreading manure on frozen, snow-covered or saturated ground.

Some provinces have established specific regulations pertaining to manure storage. It is the farmer's responsibility to be aware of and meet any regulations in their province. The required number of days of storage varies by province, though some provinces have not stipulated storage capacity requirements. Most provinces allow for the temporary storage of manure in piles in a field, but stipulate that certain conditions must be met in order to avoid nutrient loss and ground water contamination. Farms in all provinces must take measures to avoid manure applications that may create environmental risk.

Beneficial practices for all manure storage types:

- In association with a qualified engineer or geoscientist, ensure storage construction meets or exceeds provincial regulations related to siting, capacity and safety.
- Regularly inspect manure storage for leaks, cracks or structural issues.
- Where possible, locate manure storage away from public roads and/or plant windbreaks to help reduce odour impacts on neighbours.
- Consider installing secondary containment systems and/or monitoring wells around the site to help detect and manage leaks.

In some situations, manure application outside agronomic timing windows may be unavoidable. This may occur following extreme weather, such as a flood, early or prolonged winter, or due to an emergency situation, such as a manure storage failure. Practices to reduce negative environmental impacts of manure application at this time should be used, and farms should also be aware of any provincial regulations that apply to emergency situations.

Regulations may specify special procedures for manure applications outside of the growing season and may include:

- Only applying on un-sloped fields.
- Applying manure at lower rates.
- Respecting increased setbacks from surface water.
- Applying on fields with crop residues, rather than bare fields.
- Obtaining a license to apply outside of permitted dates.

In some provinces, application is strictly forbidden even in emergency situations, and alternative storage must be found. Other concerns related to manure storage, such as odour and safety, are outside the scope of this requirement, but should also be considered in daily management of manure.

10.4 Manure Management

Manure is a source of valuable nutrients that can improve crop fertility and soil health and can reduce the need for synthetic fertilizer. When managed effectively, manure can reduce fertilizer purchase costs. In addition to a general prohibition against pollution that exists in every province, most provinces have some level of regulation to govern manure and fertilizer use. All farmers are expected to understand and comply with the environmental regulations in their province of operation.

EN5: Do you manage nutrients on your farm to make optimal use of manure and/or fertilizer on land? (Demerits)

Issue: Inadequate soil testing and nutrient management planning when applying manure, fertilizer or other soil amendments can lead to improper application rates. This increases the risk of nutrient and manure contamination of surface and groundwater and reduces the efficient use of resources.

Explanation: Farmers must either have a valid provincially approved nutrient management plan, **OR** conduct soil testing at least every three years for all lands receiving manure (or more frequently if required by provincial regulations) and use the results to optimize manure and fertilizer application. Exceptions to some soil testing may be made with a written recommendation letter from a licensed agronomist.

Some provinces have established specific regulations pertaining to manure management, nutrient management plans, and soil testing. It is the farmer's responsibility to be aware of and meet any regulations in their province.

Nutrient Management Plans

A nutrient management plan (NMP) is encouraged but not required. If a farm already has a plan in place, separate soil testing is not necessary. A primary goal of an NMP is to make the best agronomic use of manure and other fertilizing inputs. This can improve a farm's profitability by reducing fertilizer purchases, improving crop yields, and reducing nutrient loss to the atmosphere, surface water, and ground water. NMPs are required in some provinces based on the number of animal units or an increase in farm size. NMPs are most helpful when updated annually, though only required to be updated in accordance with provincial regulations when used to meet this requirement. Note that across the country, formal NMPs can go by different names.

Topics covered within an NMP may include, but are not limited to:

- Proposed rate of nutrient application, particularly nitrogen, phosphorus and potassium, taking into account crop nutrient requirements, soil nutrient levels and manure nutrient levels.
- Proposed timing, frequency and method (injection vs. broadcast) of nutrient applications.
- Location where manure and other nutrients will be applied.
- Topography of the land to which manure and other nutrients will be applied.
- Spreading agreements, where manure is being spread or sold off-farm.
- Crop rotation and reasonable yield goal.
- Tillage practices.

Soil Testing

Regular soil testing is a valuable tool to ensure soil nutrient levels are adequate to meet crop requirements and to prevent over-application of manure or fertilizer. If a farm does not have a valid provincially approved NMP, the farm is required to test soil at least every three years for all lands receiving manure (or more often if required by provincial regulations).

Keep a copy of the test results and/or any other record of results. Fields with widely varying soil or topographical conditions should be broken into sections or zones for the purpose of sampling. Soil analysis should include both nitrogen and phosphorus to help determine fertilizer requirements for the current crop year. Some provincial regulations prescribe minimum requirements for analyses. Most soil analytical labs also recommend specific analyses and provide sampling methodology for the most accurate results, and in some cases the province dictates which method is to be used.





11.0 STAFF TRAINING AND COMMUNICATION



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Orientation

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The training process

Communication and corrective actions

Workbook Self-Evaluation Questions:

Farmer Requirements Reference Manual, Chapter 11		Validation Info		Chapter Section #
		Major/ Minor	Demerits	
FS41 (AC, LT, BIO, EN)	Do you ensure personnel have the competencies to carry out the procedures that they are responsible for in the following ways? Do you: • Regularly train staff to implement all modules of the proAction program that relate to their duties? • Train new staff in the implementation of the proAction program? • Ensure staff have access to Standard Operating Procedures, corrective action plans and records that you have developed and maintained? • Regularly supervise staff to ensure that they are following the proAction requirements?		✓	11.2
FS42	Do you have a written corrective action plan on how to communicate and address: (Record 16) • Incorrect administration of medications or other chemicals to an animal (BMP)? • Entry of milk from a treated animal into the bulk milk tank (CCP)? • Improperly cooled or stored milk (CCP)? • Dirty milk contact surfaces (BMP)? • Improper water temperature (BMP)? • Milking equipment water contaminated with bacteria (BMP)? • Sale of a treated animal or an animal with a broken needle and the next buyer was not informed (CCP)?	✓		11.4
FS43	Do you keep a record of any problems that have occurred with and the corrective actions taken regarding: • Any treatments administered to animals (Record 17)? • Inhibitor residues in milk (Record 17)? • Cooling and storage of milk (Record 12 or 17)? • Equipment sanitation and hot water/wash water temperature (Record 13 or 17)? • Water quality (Record 15 or 17)? • Shipping animals (Record 17)?	✓		11.4

Introduction

Staff have an important role in implementing any HACCP-based plan. A validator may interview staff during a validation; therefore, it is in a farmer's best interest to train staff well.

11.1 Orientation

Often new staff — employees and family members alike — are reluctant to ask too many questions at the start of a job for fear of embarrassment. By providing them with an orientation, you give them a chance to:

- Learn what you expect from them.
- Understand the layout and components of the operation.
- Appreciate the importance of their role in the dairy business.

To do this, consider providing them with a:

- Written explanation of their tasks, responsibilities and workplace policies.
- Tour of the operation to explain your production system as it relates to their jobs.
- Map – especially for new hired help.

11.2 Training Staff

FS41 (AC, LT, BIO, EN): Do you ensure personnel have the competencies to carry out the procedures that they are responsible for in the following ways? Do you:

- **Regularly train staff to implement all modules of the proAction program that relate to their duties?**
- **Train new staff in the implementation of the proAction program?**
- **Ensure staff have access to Standard Operating Procedures, corrective action plans and records that you have developed and maintained?**
- **Regularly supervise staff to ensure that they are following the proAction requirements? (Demerits)**

Reference: BMP 8

Code of Practice: Section 1 and 4.1

Issue: Everyone working on the farm must understand and follow the SOPs, Corrective Action Plans (CAPs) and records for the program that apply to their areas of responsibility so that procedures are performed consistently and effectively. Staff must understand the current program (records, SOPs and CAPs) in order to effectively implement the proAction program.

Explanation: Each person on the farm must be trained in the area of the program they are responsible for. For example, milkers must know and follow the milking SOPs, and staff who administer livestock treatments must know where the CAPs are in case they do something wrong. You must train your staff to ensure that staff understand and follow the SOPs and CAPs, and maintain the records applicable to their responsibilities. You also must update staff training, as is appropriate (e.g., SOPs or responsibilities change), and train new staff to implement your proAction program. The method and frequency of training and supervision will vary by farm and personnel (e.g., mentorship or workshop). The staff must be able to explain or demonstrate that they are knowledgeable of their duties.

You also must ensure that SOPs, CAPs and records (including electronic records) are available at all times to staff and anyone who may eventually need to use them (e.g., relief milker).

Training has two major benefits, which are:

- Improved productivity and quality, because trained staff will:
  - Do the right thing the right way.
  - Waste less time and materials.
  - Offer new and better methods of doing things.
- Motivation and job satisfaction for staff, because training and ongoing managerial support will help them meet new challenges.

Even the best-planned program will not work unless hired help and family members understand the principles and practices of a HACCP-based system. Training helps staff learn:

- **Who** does what.
- **What** the:
  - Rules and policies are
  - HACCP-based system is all about
  - SOPs are
  - CAPs are
- **When** SOPs and preventative BMPs are to be implemented and records kept.
- **Why** the HACCP-based system is important.
- **Where** the CCPs are in the operation.
- **How** to apply SOPs, CAPs, etc.

Hiring and retaining a workforce can always bring new challenges. Hiring workers who do not speak your language or who have a different cultural background can bring about a variety of new issues and demands. Some things to consider are:

- Do not segregate staff who speak your language from those who do not. Staff morale will be better if you include all staff in training sessions and staff meetings – you may even find that during these sessions everyone learns new words and phrases from each other, which will improve everyday communication.
- Be prepared to have a translator or someone on staff who can speak both languages present during training sessions and staff meetings. The meetings may be slow at first, but, over time, the benefits will outweigh any delays.
- Be aware that some cultures are more male-oriented and some workers may need time to adjust to having a female supervisor, or vice versa. Be prepared to give your staff time to adjust to you, as you will need time to adjust to them. Be patient and yet firm in your messaging.
- If you hire a group of foreign workers, depending on the culture, the group may develop a class-system within itself. Understanding this group dynamic will help you spot and solve problems before they gain momentum.
- Understand cultural needs and work with them, not against them. This will ensure things run more smoothly without any surprises, for example, some cultures require separate toilet facilities, while others may need time to accommodate religious needs. Knowing your "farm culture" and having a shared respect for these needs will ensure a happier, more successful workforce.

Note: If you manufacture a medicated feed without a withdrawal period (e.g., Rumensin, Monensin, Coban, etc.), to comply with the Feeds Regulations, 2024, all training of staff to implement proAction requirements must also include instruction on how those requirements are applied on farm to medicated feed without a withdrawal period.

11.3 The Training Process

- **Develop a training plan.** Work with your staff to develop the HACCP-based plan for your operation. Get their input on the CCPs, BMPs, corrective measures, SOPs and record-keeping responsibilities.
- **Set objectives.** Clearly state the specific tasks your employee should be able to do after training.



- **Select training methods.** Training should progress from basic to complex in small, easy-to-master steps. Match the training method, including whether to provide individual or group instruction, to your employees' skill level.
- **Use the four-step method (Table 9) of Prepare, Present, Verify and Follow up.** Active involvement promotes learning: we learn by doing.
- **Evaluate the training.** Have the objectives been met? How does the staff feel? What are the 'bottom line' results or benefits? Are SOPs being practiced? Are records being kept? Are milk and meat safety indicators improving?
- **Update training.** Make sure all staff are given regular training updates according to any changes in the program.

Table 9: The four-step method of training

Step 1 Prepare • Put the learner at ease. • Find out what he or she already knows about the job. • Get him or her interested in learning the job. • Place him or her in the correct position.	**Step 2 Present the operation** • Tell, show, illustrate and question carefully and patiently. • Stress key points. • Instruct clearly and competently, one point at a time — but no more than the learner can master.
Step 3 Verify the performance • Verify by having the learner perform the job. Have him or her tell and show you and explain key points. • Verify by asking questions and correct errors. • Continue until you are satisfied that he or she knows the job. • Note the verification task on that day's record.	**Step 4 Follow up** • Put the learner on his or her own. • Check frequently. Designate someone who can help if needed. Get the learner to look for key points as he or she progresses. • Taper off extra coaching and close follow-up.



11.4 Communication and Corrective Actions

FS42: Do you have a written corrective action plan on how to communicate and address: (Record 16)

- **Incorrect administration of medications or other chemicals to an animal (BMP)?**
- **Entry of milk from a treated animal into the bulk milk tank (CCP)?**
- **Improperly cooled or stored milk (CCP)?**
- **Dirty milk contact surfaces (BMP)?**
- **Improper water temperature (BMP)?**
- **Milking equipment water contaminated with bacteria (BMP)?**
- **Sale of a treated animal or an animal with a broken needle and the next buyer was not informed (CCP)?**

FS43: Do you keep a record of any problems that have occurred with and the corrective actions taken regarding:

- **Any treatments administered to animals (Record 17)?**
- **Inhibitor residues in milk (Record 17)?**
- **Cooling and storage of milk (Record 12 or 17)?**
- **Equipment sanitation and hot water/wash water temperature (Record 13 or 17)?**
- **Water quality (Record 15 or 17)?**
- **Shipping animals (Record 17)?**

Reference: BMP 4, BMP 6, BMP 7, CCP 1, CCP 2, and CCP 3

Issue: Mistakes happen and emergency situations occur. Panic and confusion around these incidents can cause corrective actions to occur too late, and unsafe milk may enter the human food chain.

A record of problems and corrective actions enables farmers to prove that they do correct their mistakes and the record also highlights potential areas for improvement.

Explanation: CAPs outline the steps family and staff should take to correct problems that may occur. CAPs should contain detailed instructions and contact numbers.

To prepare for an emergency situation, you must have written CAPs on how to communicate and address the situations listed above. See the Workbook for a sample of Record 16.

You also must record whenever a problem occurs regarding the following situations and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for a sample of Record 17.

11.4.1 Medicines and Chemicals Used on Livestock

You must have a written CAP for incorrect administration of medications or other chemicals to an animal. Some possible actions are:

- Call a veterinarian to discuss withdrawal times and possible residue concerns.
- Call provincial regulatory authority for assistance.
- Use appropriate test kit to check for residues.
- If milk is unmarketable, dump the milk in an environmentally acceptable manner.
- Review and revise SOP control measures to avoid a reoccurrence.

You also must record whenever a problem occurs regarding treating animals and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for a sample of Record 17.

See Chapter 5, Section 5.4 for more information on administration of treatments.



11.4.2 Milking Treated Animals

You must have a written CAP for the entry of milk from a treated animal into the bulk milk tank. Some possible actions are:

- Put a note in a prominent place on the bulk tank warning the driver not to pick-up the milk.
- Notify the transporter.
- Call milk regulatory authority for assistance.
- Use appropriate test kit to check for residues. If the sample is positive, another sample may be sent to a laboratory for an official test.
- If milk is unmarketable, dump milk in an environmentally acceptable manner.
- Review and revise SOP and implementation to avoid a reoccurrence.

You also must record whenever a problem occurs regarding shipping milk and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for a sample of Record 17.

See Chapter 6, Section 6.2.3 for more information on milking treated animals.

11.4.3 Cooling and Storage of Milk

You must have a written CAP for improperly cooled or stored milk. Some possible actions are:

- Check that the cooler is turned on.
- Clean the condenser radiator and ensure there is ample ventilation for the unit to cool.
- Adjust, replace or calibrate thermostat.
- Check refrigerant level yourself and/or call service dealer.
- Check accuracy of cooler thermometer with your own handheld thermometer or with the transporter's thermometer. Adjust, replace or calibrate accordingly.
- Call service repairman.
- Call milk regulatory authority for assistance.
- If milk is unmarketable, dump the tank of milk in an environmentally acceptable manner.
- Review and revise SOP control measures to avoid a reoccurrence.

You also must record whenever a problem occurs regarding cooling and storage of milk and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for a sample of Record 17.

See Chapter 7, Section 7.1 for more information on cooling and storage of milk.

11.4.4 Equipment Sanitation

You must have a written CAP for dirty milk contact surfaces. Some possible actions are:

- Verify the following with information on the posted milk house wash chart:
  - Check wash water temperatures. Adjust, repair or replace water heater if necessary.
  - Check chlorine concentrations of alkaline wash solution and sanitizer solution.
  - Check pH level of alkaline wash and acid rinse solution.
  - Check that the proper amount of chemicals is being added.
  - Check lengths of all cycles.
- Check slugging action yourself with appropriate equipment or call service dealer.
- Call service dealer if you are unable to perform the above procedures (including corrective actions) as a farmer. A service dealer should perform a complete CIP Analysis.
- Call milk regulatory authority for assistance.
- Clean residue from milk contact services according to guidelines set out by the service dealer, milk regulatory authority or refer to the proAction website for troubleshooting guides.
- Review and revise SOP control measures to avoid a reoccurrence.
- The following procedure can be used to remove the old build-up of fat, mineral and protein on your CIP system during the wash cycle:

Step 1. Let the system go through the hot wash cycle, doubling the amount of detergent and adding the same amount of chlorine sanitizer.

Step 2. Reset the system to a second hot wash cycle, but replace the detergent by three times the normal acid amount.

If equipment is still not clean, the process may have to be repeated.

Remember: The sanitizer can only be mixed with the alkaline cleaner—never with the acid.

Note: After repeated exposure to high concentrations of detergent, rubber parts (i.e., liners) may have to be replaced. High chlorine content breaks down the inner protective coat of the liner.

Note: Be vigilant in ensuring that the hot water system can deliver sufficient hot water to complete the above procedure.

You also must record whenever a problem occurs regarding equipment sanitation and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for samples of Records 13 and 17.

See Chapter 8, Section 8.1 for more information on equipment sanitation.

11.4.5 Water Temperature

You must have a written CAP for improper water temperature. Some possible actions are:

- Check hot water heater to ensure it is functioning (e.g., one element may be burned out,faulty thermostat).
- Check if the bulk tank was previously washed; thereby, exhausting the hot water tank and using all of the available hot water. If this is the case, wait and then re-run the wash cycle and check to make sure the temperature is adequate.
- Check electrical breakers.
- Repair or replace hot water heater.
- If the water heater works normally, call an equipment dealer to have the valves within the washer checked.

You also must record whenever a problem occurs regarding hot water/wash water temperature and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for samples of Records 13 and 17.

See Chapter 8, Section 8.1 for more information on equipment sanitation.

11.4.6 Water Quality

You must have a written CAP for when milking equipment water is contaminated with bacteria. Some possible actions are:

- Immediately contact local health unit or other competent authority for direction on appropriate action.
- Treat water accordingly and re-test to ensure it passes the provincial microbial standards for proAction.
- Consider taking two samples for analysis, one sample from the source (e.g., a well) and one sample at the point of use. The test results may help you determine where the contamination is occurring. You may also want to remove any hoses or devices guiding the water into the sink and sample the water directly from the tap.
- Check well-head to ensure it is properly capped.
- Call milk regulatory authority, provincial health authority or a water specialist for assistance.
- Review and revise control measures to avoid a reoccurrence.

You also must record whenever a problem occurs regarding water quality and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for samples of Records 15 and 17.

See Chapter 8, Section 8.4 for more information on water quality.

11.4.7 Shipping Animals

You must have a written CAP for the sale of a treated animal or an animal with a broken needle and the next buyer was not informed. Some possible actions are:

- Call the trucker or trucking company to inform them of the incident and animal identification.
- If you know where the animal was being shipped to or who purchased the animal, call the destination buyer and inform them of the incident and animal identification.
- Review and revise SOP control measures to avoid a reoccurrence.

You also must record whenever a problem occurs while shipping animals (including cattle that have been condemned for the presence of residues) and what corrective actions you implemented to remedy the situation and prevent the same problem from re-occurring. See the Workbook for a sample record of Record 17.

See Chapter 9, Section 9.2 for more information on shipping animals.

12.0 AUTOMATIC MILKING SYSTEMS



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Medicines and chemicals used on livestock

Milking management

Milking treated animals

Cooling and storage of milk

Facility and equipment sanitation

Staff training and communication

Introduction

Additional information is required for Automatic Milking Systems (AMSs). This chapter explains how farmers with AMSs can meet proAction requirements.

The chapter lists each proAction Workbook question that has a different application for AMSs and then describes the requirements. The proAction Workbook questions not listed apply to AMSs as written, and do not need any modification.

Note: All proAction-required data must be easily accessible for validations.

Definitions:

Bulk tank: Primary refrigerated tank(s) that receives and stores milk.

Refrigerated buffer tank: Refrigerated tank that receives and stores milk when the bulk tank is being emptied or washed and until it has collected a sufficient volume of milk to move back to the bulk tank without freezing the milk.

Non-refrigerated buffer tank: Non-refrigerated tank that receives and stores milk while the bulk tank is being emptied or washed and until it has collected a sufficient volume of milk to move back to bulk tank without freezing the milk.

12.1 Medicines and Chemicals Used on Livestock

FS19: Do you mark all treated cattle in the milking herd that have milk withdrawals (e.g., leg bands)?

With an AMS, an acceptable method of identifying treated animals is entering the treated animal into the computer system; however, you must enter livestock medicine treatments into the computer, before you treat the animal. Your Standard Operating Procedure (SOP) for treating animals must also reflect this procedure (see FS21 in Chapter 5 for general information and below for AMS-specifics).

FS21: Have you established and implemented a Standard Operating Procedure for treating cattle? (SOP 5)

Your SOP for treating cattle must state that you enter livestock medicine treatments into the computer before you treat the animal.

Note: Health Canada sets a milk withdrawal time for a particular drug using scientific data and a statistical procedure, which estimates the time it takes for residues in milk to reduce to a safe level. This calculation is based on three assumptions:

1. that you treat an animal immediately after milking;
2. that you follow a 12-hour milking interval; and,
3. that you treat the animal according to the label directions.

Milk withdrawals are based on the concept of discarding all of the milk that the animal produces during the withdrawal time; hence, milk withdrawals are always in 12-hour intervals. If you deviate from either one of these three items, you may need to discard the animal's milk for an extra milking to ensure that the milk is safe to ship.

In an AMS system, you should check to make sure that your computer program calculates milk withdrawal times properly for your cattle. Depending on how frequently your cattle are choosing to be milked, you may need to double-check that the milk withdrawal is going to be adequate.

12.2 Milking Management

FS22: Have you established and implemented a Standard Operating Procedure for pre-milking? (SOP 1) (Demerits)

Since AMSs run continually, your pre-milking SOP becomes your robot maintenance SOP. See FS31 in Chapter 5 for general information and below for AMS-specifics.

FS23: Have you established and implemented a Standard Operating Procedure for milking? (SOP 2) (Demerits)

See FS31 in Chapter 5 for general information and below for AMS-specifics.

FS25: Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping abnormal milk? (SOP 3)

You have to demonstrate how you prevent abnormal milk (e.g., mastitic milk, colostrum, bloody milk) from entering the bulk tank. You should check conductivity reports for animals with abnormal milk. If any animals are identified as having abnormal milk, you should manually check her milk and keep it out of the bulk tank. See FS25 in Chapter 6 for general information.

12.3 Milking Treated Animals

FS26: Have you established and implemented a Standard Operating Procedure to minimize the risk of shipping milk from treated cattle? (SOP 3)

Your SOP must either have clear directions describing how staff should enter data in the computer to keep treated milk out of the bulk tank and how staff can access treated cattle information should they need to confirm treatments, or state that a trained person must always be available.

12.4 Cooling And Storage Of Milk

FS28: Is the bulk tank temperature recorded and checked after every milking for each bulk tank? (Record 12)

Constant electronic milk temperature monitoring is mandatory for AMSs (both for the main bulk tank(s) and the buffer tank, if milk is stored in the buffer tank for more than 2 hours). Time temperature recorders (TTRs) can be used to monitor the temperature of the milk, or the AMS unit itself, if it has the capability programmed. TTRs are not mandatory under proAction but could be required under your provincial regulations. However, if you opt to have the TTR record temperatures without confirming and initialing them yourself, then the TTR must have "smart" alarms to ensure the system is working correctly.

If the TTR or AMS **has "smart" alarms** that are set according to the TTR Specifications for AMSs, the farmer does not need to keep a manual log of temperatures, but alarm events must be logged in the deviation and corrective action record (Record 17 in the Workbook). A summary of the alarm parameters are listed below, but the TTR Specifications for AMSs contains the complete list.



If your TTR or AMS **does not have alarms,** you must check the TTR or AMS a minimum of twice a day, with at least 8 hours between each check, review the history of milk temperatures since your last check, and record the temperature at the time of your check. It is important to review the history to check that the milk temperature was acceptable throughout that period of time, since milk is constantly entering the tank.

In a conventional system, milk enters the bulk tank only during milking. Therefore, at the end of milking, a farmer can check the temperature of the milk and, if it is at an acceptable level, it is likely that the cooling system is working and the milk temperature will not rise until the next milking starts. With an AMS, milk is constantly entering the bulk tank; therefore, there is no logical time that a farmer can check the temperature of the milk, and be assured that the milk temperature is likely to be maintained. As a result, constant electronic monitoring is mandatory for AMSs.

If milk is stored in the buffer tank for more than 2 hours, the buffer tank must have a TTR as well.

Note: Thermometers must be accurate within ±1°C. This variation also applies to the temperatures listed below.

If you do not want to record data manually, the AMS or TTR must have the features outlined below:

Milk Temperature

1. For the bulk tank, the TTR must have:
   - At least one rolling year of alarm log easily accessible and available.
   - An accurate, operating temperature probe to measure the temperature of the milk in the bulk tank.
   - Alarms set to the following parameters:
     - Not alarm when bulk tank is empty or washing or just filling with the 1st milk.
     - Alarm if the temperature is not greater than 0ºC and less than or equal to 4ºC within 2 hours from the start of milk harvest (i.e., from the moment milk is diverted to the buffer tank).
       If equipment is capable of detecting fractions of a degree, alarms may be set to a lower limit above 0ºC to avoid nuisance alarms.

Note: The 2-hour delay includes the time that milk is in the buffer tank.

     - Be able to set blend temperature alarms (i.e., after 2-hour delay from first milk harvest).
     - Alarm if the blend temperature ever goes above 4ºC for longer than 15 consecutive minutes.

2. If milk is in the buffer tank for longer than 2 hours, the TTR monitoring the buffer tank must have the ability to perform the same functions listed for the bulk tank in section 1, except that all references to “bulk tank” should read “buffer tank”.

12.5 Facility and Equipment Sanitation

FS30: Do you regularly inspect and record the cleanliness of milking equipment for each washing system, including checking and recording the temperature of the hot water from the tap or wash water, at least monthly? (Record 13)

Farmers must maintain a milking equipment sanitation record (Record 13) for **each AMS or washing system** (e.g., two robots washed by a single wash sink, cleaning trough, charge vessel, or water reservoir container), as well as for each bulk tank (e.g., bulk tank and buffer tank).

Note: If you have two AMS or Clean-In-Place (CIP) systems washed by one wash sink at the same time, it is recommended that you complete Record 13 with elements from each component of the wash system (e.g., check elements from each AMS unit and each CIP system).

Since AMSs are completely automatic, the regular inspection for cleanliness is very important and farmers should take the time to stop the robot and do the inspection well.

Hot water from the tap or wash water:
A time temperature recorder is recommended but you also can check and record the temperature manually. You have to be able to demonstrate to a validator how you take the temperature of either the hot water or wash water.

If you do not want to record data manually, the AMS or TTR must have the features outlined below:

Note: Thermometers must be accurate within ±1°C. This variation also applies to the temperatures listed below.

Wash Water Temperature
The TTR or AMS must have:

- At least one rolling year of alarm log easily accessible and available.
- A temperature probe to measure the temperature of the wash water.

- The ability to set the alarm monitoring for the AMS and bulk tank wash water temperatures to match the temperatures specified in the farm's Record 14: Cleaning and Sanitizing Chart(s). For example, the TTR must be able to handle cold-water wash protocols without generating false alarms.

> **Note:** TTRs are not expected to accommodate cold-water wash protocols that require a warm or hot wash at a designated frequency.

- For **warm or hot washes**, alarms must be set to the following parameters:
  - Temperature can be taken at the beginning or end of the cycle.
  - TTRs usually check the wash temperature every wash, but the proAction requirement is a minimum of a monthly check.
  - Whether start or end temperature taken, the temperature must conform to the specifications on the cleaning and sanitizing chart as filled out by the equipment dealer.
  - Probe can be in either the fill sink or on the return wash line.
  - If using an alarm and measuring temperature at the beginning of the wash cycle, alarm must be triggered if the temperature drops more than 5°C below the accepted range.
  - If using an alarm and measuring temperature at the end of the wash cycle, alarm must be triggered if the temperature drops more than 10°C below the accepted range.

> **Note:** The alarms for the wash water are intended to monitor the milking equipment, not the bulk tank.

FS31: Have you established and implemented a Standard Operating Procedure for post-milking system cleaning? (SOP 4)

For an AMS, the post-milking SOP becomes your SOP for cleaning and maintaining an AMS.

Standard Operating Procedure for Cleaning and Maintaining an Automatic Milking System

To ensure that milk is cooling properly and that the equipment is cleaned adequately, a written or documented AMS cleaning SOP is an important part of your proAction program. The SOP must contain enough information to ensure that a relief farm worker can perform the steps.

The following are various elements that should be included in your AMS Cleaning SOP.

- **Describe how the robot is programmed to wash, sanitize and rinse.** For example, some robots are programmed to run a complete wash 3 times a day, to rinse the teat cups after every cow or every 10 cows are milked, and to rinse and sanitize if idle for more than 45 minutes and after every treated cow is milked.
- **Check the cleaning of the system once per day.**
  - Check to ensure there were no cleaning or milk temperature alarms in both the main and buffer tank (e.g., time temperature recorders) or attention lists (e.g., slow cooling of milk, too long between washes, abnormal milk) or exception reports.
  - Check the inflations, sanitary trap and receiver jar.
  - Check the air bleeds on each quarter unit.
  - Check the level of the soaps and other chemicals used (e.g., teat spray) weekly.
- **Clean the outside of the AMS and surrounding area once per day.**
  - Scrub with soap and clean components of the milking system.
  - Clean the robot room floor daily.
  - Check and clean the laser and camera periodically during the day while the robot is not in use.
- **Check and record the temperature of the hot water or wash water (monthly)** (Record 13).
- **Check and record the cleanliness of milking equipment regularly** (e.g., receiver jar and bulk milk tank) (minimum acceptable frequency is monthly, weekly is recommended).
- **Change the filter.**
  - Describe how to shut the system down and change the filter.
  - Change the filter at the start of washing at least twice per day.
  - Check the filter for signs of mastitis and other debris. If you identify a problem, ensure that you follow corrective actions.
- **Check the buffer tank and main bulk tank.**
  - Post a milk pick-up/cleaning procedure for the milk truck drivers. The instructions should include how to switch diversion from the main tank to the buffer tank, how to start the wash for the main tank and how to start the cooler for the buffer tank.
  - Inspect the main bulk tank whenever it is empty to make sure it is clean (drying the bulk tank milk contact surfaces may help you detect deficiencies in surface cleaning).

- Follow the same wash procedures for the buffer tank after milk transfer to the main tank, including sanitizing approximately prior to its use (if possible, check the main tank and the buffer tank when they are dry).
- Sanitize the buffer tank about half an hour before the milk truck arrives.

- **Teat Cleaning.**
  - Observe teat cleaning and post spraying/dipping of one animal for each milking unit at least once a day.
  - Check that roller brushes are clean.

  Clean teats remain a concern with AMS. AMS are capable of cleaning, sanitizing and drying teats, but they may not do it well. Cattle in an AMS herd may be expected to be kept cleaner to reduce the incidence of dirty teats. The Hygiene Scoring Card in Chapter 1 of the Reference Manual shows you how to score the cleanliness of your cattle's udders.

FS32: Do you have each wash system evaluated annually by an industry professional and have the deficiencies been corrected? (Record 14b)

Farmers must have an annual wash system evaluation completed on **each AMS or washing system** (e.g., two robots washed by a single wash sink, cleaning trough, charge vessel, or water reservoir container), as well as for each bulk tank (e.g., bulk tank and buffer tank). Each AMS or washing system is a separate unit with its own CIP components. As a result, an equipment dealer must conduct a wash system evaluation on each AMS or washing system to ensure that it is washing adequately.

Note: If you have two milk lines of different lengths washed by one wash sink at the same time, it is recommended that you have the wash system analysis conducted on the longest line, and the slugging action or air injector or air compressor function checked in both lines or AMS units to ensure that they are cleaning properly.

FS36: Do you have a functioning safety switch or fail-safe system in place to avoid accidental entry of wash water into the tank?

An AMS does not have a safety switch but it must have a fail-safe system to keep antimicrobial milk and wash water out of the tank. The device is also designed to err on the side of dumping clean milk if there is a malfunction.

12.6 Staff Training and Communication

FS41 (AC, LT, BIO, EN): Do you ensure personnel have the competencies to carry out the procedures that they are responsible for in the following ways? Do you:

- **Regularly train staff to implement all modules of the proAction program that relate to their duties?**
- **Train new staff to in the implementation of the proAction program?**
- **Ensure that staff have access to Standard Operating Procedures, corrective action plans and records that you have developed and maintained?**
- **Regularly supervise staff to ensure that they are following the proAction requirements? (Demerits)**

Staff training is even more important for people working on a farm with an AMS than on a farm with a manual milking system. Staff training is essential to ensure that everyone working with the AMS understands how to keep the system working effectively and how to ensure that milk is kept as clean and safe as possible. See Chapter 11 for more details on staff training and communication.

Note: If you manufacture a medicated feed without a withdrawal period (e.g., Rumensin, Monensin, Coban, etc.), to comply with the Feeds Regulations, 2024, all training of staff to implement proAction requirements must also include instruction on how those requirements are applied on farm to medicated feed without a withdrawal period.

13.0 LIST OF ABBREVIATIONS AND GLOSSARY OF TERMS

AAFC Agriculture and Agri-Food Canada
AMS Automatic Milking System
BMPs Best Management Practices
CAP Corrective Action Plan
CCP Critical Control Point
CFIA Canadian Food Inspection Agency
CFIT Canadian Feed Ingredients Table
CIP Clean-In-Place
DFC Dairy Farmers of Canada
DIN Drug Identification Number
HACCP Hazard Analysis and Critical Control Point
IM Intramuscular
IMM Intramammary
IU Intrauterine
IV Intravenous
MAPAQ Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec
MSD Material Safety Data Sheets
SCC Somatic Cell Count
SOPs Standard Operating Procedures
VOCs Volatile Organic Compounds
OR Oral
Pr Prescription drug
SQ/SC Subcutaneous
TP Topical
TSE Transmissible Spongiform Encephalopathy
VHP Veterinary Health Product

GLOSSARY

WORD OR PHRASE	DEFINITION
Abortion	The loss of a calf or fetus between 45 and 270 days of gestation
Approved Dairy Tags	See Figure 8
Attestra	Distributes approved tags to both dairy and beef farmers within Quebec and is the online traceability system, allowing Quebec farmers to report their traceability information
Audit*	A systematic and independent process for obtaining evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled
Auditor*	A person who conducts an audit
Best Management Practices (BMPs)	BMPs are equivalent to prerequisite programs of HAACP and describe the production processes. The Food Safety module has 8 major BMP subject areas, which are: 1 Dairy Facilities, Pesticides and Nutrient Management 2 Feed 3 Animal Health 4 Medicines and Chemicals Used on Livestock 5 Milking Management 6 Facility and Equipment Sanitation 7 Use of Water for Cleaning Milk Contact Surfaces 8 Staff Training and Communication
Buffer tank	Refrigerated or non-refrigerated tank that receives and stores milk when the bulk tank is being emptied or washed and until it has collected a sufficient volume of milk to move back to bulk tank without freezing the milk

WORD OR PHRASE	DEFINITION
Bulk tank	Primary refrigerated tank that receives and stores milk
Calf	A young unweaned bovine animal **Note:** For the purpose of calculating calf mortality in completing the Biosecurity Risk Assessment Questionnaire, a calf refers to female calves from 2 to 60 days of age
Cattle Implementation Plan	An implementation program led by the CCIA and all the associations involved in the cattle industry to draw and implement a road map for the industry to implement traceability
CCIA	Canadian Cattle Identification Agency | Administers multi-species database in Calgary of tag distribution, retirement, age verification, movements for livestock industry. CCIA oversees tag numbering and tag distribution for the Canadian beef sector
CFIA	Canadian Food Inspection Agency | Responsible for disease surveillance/control, risk assessment and enforcement of identification regulations
CLTS	Canadian Livestock Tracking System | National database for beef cattle, bison, sheep, cervids and goats in Canada, administered by CCIA
Control (noun)	The state wherein correct procedures are being followed and criteria are being met
Control (verb)	To take all necessary actions to ensure and maintain conformance with criteria established in the HAACP plan
Control Measures	Actions and activities that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level
Corrective Actions*	Action to eliminate the cause(s) of a nonconformity and to prevent recurrence **Note:** Corrective action is taken to prevent recurrence whereas preventive action is taken to prevent occurrence
Critical Control Point (CCP)	A point, step or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to acceptable levels
Critical Limit	The maximum or minimum set values that control a hazard at a CCP.
Dairy cow	A female dairy bovine that has had one or more than one calf
DairyTrace	National traceability database for dairy bovines in Canada, outside of Quebec, administered by Lactanet in partnership with DFC (www.dairytrace.ca). Administers tag numbering and distribution for all dairy breeds/dairy animals outside Quebec.
Deviation	Failure to meet required critical limits for a CCP
Deviation Procedure	Predetermined and documented set of corrective actions, which are implemented when a deviation occurs
Double-tagging	A set of tags or two pairs of tags (RFID button/panel tag and a visual panel tag) bearing the same unique identification number. One tag pair is applied to each ear of the animal - see Figure 8 in Chapter 3
Hazard	Biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect
Hazard Analysis	Process of identifying hazards, their characteristics and how they can best be prevented and/or controlled in the production process
Heifer	A female dairy bovine from weaning until first calving
Inhibitor	Inhibitor means any substance, other than a bacterial culture, that does not occur naturally in milk and inhibits the growth of microorganisms in milk (Source: National Dairy Code, Part 1, Interpretation, https://agriculture.canada.ca/en/sector/animal-industry/canadian-dairy-information-centre/acts-regulations-codes-and-standards/national-dairy-code-part-i)

WORD OR PHRASE	DEFINITION
Inspection*	Determination of conformity to specific requirements **Note 1:** If the result of an inspection shows conformity, it can be used for purposes of verification **Note 2:** The result of an inspection can show conformity or nonconformity or a degree of conformity
Lactanet	Responsible administration for dairy bovine traceability in Canada
Monitoring*	Determining the status of a system, a process or an activity. **Note 1:** To determine the status, there can be a need to check, supervise or critically observe **Note 2:** Monitoring can also determine the status of a product or service **Note 3:** Monitoring is generally a determination of the status of an object carried out at different stages or at different times
National Traceability Database	Centralized database that collects Health of Animals Regulations Part XV data. For bovine (dairy and beef), it is administered and accessible by Lactanet as DairyTrace (dairytrace.ca) for all Canada, except for Quebec farmers that use Attestra (www.attestra.com)
Non-registered animal	An animal for which no registration has been requested for or that is unqualified for registration
Nurse cow	Also referred to as a foster cow. A lactating cow used to nurse up to four calves at the same time. Nurse cows are not considered part of the lactating herd.
Part XV data	All mandatory information required by Part XV (Animal Identification) of the federal Health of Animal Regulation for animal identification and traceability
Pesticide	The generic term used for any substance used to destroy an organism harmful to plants, animals, stored food, etc. More specific terms are herbicides (e.g. weeds), avicides (e.g. birds), insecticides (e.g. insects), and rodenticides (e.g. rodents).
PID number	Premises identification number | A provincial government responsibility to assign such a number to all premises on which poultry or livestock might be
Prerequisites Program	Universal steps or procedures that control the operational conditions within a food establishment (or livestock production unit) allowing for environmental conditions that are favourable to the production of safe food. BMPs are equivalent to prerequisite programs of HACCP
Record*	Document stating results achieved or providing evidence of activities performed
Registered animal	An animal for which a registration application has been made for and recognized by the breed herd book and for which the animal and lineage data has been verified and entered into the herd book
Reference Manual	A document that explains the proAction issues associated with each requirement, and provides an explanation on what producers need to do to meet the requirements. It is designed to be a useful tool for you as you develop your farm plans and train your staff.
Registration	Process through which a farmer becomes recognized as conforming to the proAction requirements
Report	Action of reporting traceability data to the national administrator through the national traceability database (DairyTrace/Attestra)
Responsible administrator	A person who is authorized by the Minister of Agriculture and Agri-Food to receive information in relation to animals or things to which the Health of Animals Regulations Part XV apply, is listed on the Agency's web site as an administrator and administers a national identification program in relation to certain animals of all or part of one or more genera, species or subspecies that are located in one or more provinces. (Attestra for Quebec farmers and Lactanet (DairyTrace) for the rest of Canada)

WORD OR PHRASE	DEFINITION
Risk	Effect of uncertainty. **Note 1:** An effect is a deviation from the expected – positive or negative **Note 2:** Uncertainty is the state, even partial, of definciency of information related to, understanding or knowledge of, an event, its consequence, or likelihood. **Note 3:** Risk is often characterized by reference to potential events and consequences, or a combination of these **Note 4:** Risk is often expressed in terms of a combiation of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence **Note 5:** The word "risk" is sometimes used when there is the possibility of only negative consequences
SimpliTRACE	Traceability database for dairy bovine in Quebec, administered by Attestra
Standard Operating Procedures	Standard Operating Procedure | Documented procedures that describe step-by-step how various production processes should be carried out. For livestock farmers these often outline specific steps of BMPs.
Tag pair	It is the male and female part of either the visual panel or electronic RFID button tag. The two parts of the pair is needed to be able to apply the tag pair to the animal's ear - see Figure 8 in Chapter 3.
Tag set	It is the two tag pairs in combination, the visual panel tag pair and the electronic RFID button tag pair. One tag pair is applied to each ear of the animal - see Figure 8 in Chapter 3.
Validation	Same as "Audit"
Validator	Same as "Auditor"
Verification	Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled. **Note 1:** The objective evidence needed for verification can be the result of an inspection or of other form of determination such as performing alternative calculations or reviewing documents **Note 2:** The activities carried out of verification are sometimes called "qualification process" **Note 3:** The word "verified" is used to designate the corresponding status
Workbook	Document designed to assist dairy farmers in creating their own unique farm plan which outlines the minimum mandatory tasks that dairy farmers must do to satisfy the proAction requirements

* Reference: International Standard ISO 9000:2026(E) Fifth Edition: Quality management systems – Fundamentals and vocabulary.

Other references:

- Adapted from Manitoba On-Farm Food Safety GPP website
- Adapted from Canadian Food Inspection System website

I

APPENDIX I:
Hazards Index

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
BIOLOGICAL		
Environmental bacteria	• Dirty teat and udders • Dirty hands • Contaminated milking equipment • Infected animal(s)	☐ Establish a SOP for pre-milking. ☐ Establish a SOP for milking. ☐ Ensure teats are cleaned, sanitized and dried. ☐ Establish an SOP for milking animals with abnormal milk. ☐ Discard abnormal milk. ☐ Use single-service towels to prep teats. ☐ Ensure the environment is clean. ☐ Practice personal hygiene. ☐ Sanitize milking units. ☐ Segregate cattle. ☐ Milk infected cattle separately. ☐ Forestrip and milk-out properly. ☐ Examine udder. ☐ Teat-dip after milking. ☐ **See Chapter 6.**

Bacteria in milk - microbes on milk contact surfaces	• Build-up of fat, protein or minerals on milking equipment and bulk tank interior
	  • Improperly cleaned equipment (e.g. milking units, pipelines, receiving jar, tank)
	• Malfunctioning equipment
		☐ Regularly inspect all milk contact surfaces.
		☐ Test water supply for provincial microbiological parameters annually.
		☐ Establish a Standard Operating Procedure (SOP) for post-milking system cleaning.
		☐ Use approved cleaning products according to the accessible milk house wash charts.
		☐ Have written plans outlining how to deal with a situation when:
		  • Milk contact surfaces are found to be dirty.
		  • Pre-rinse or wash water is not the correct temperature.
		☐ Check and record pre-rinse water (weekly) or wash water (monthly).
		☐ Have wash system evaluated annually.
		☐ Keep milk house and external surfaces of milking equipment clean.
		☐ Check detergent concentration regularly.
		☐ Check slugging action during equipment maintenance check.
		☐ Check timing of cleaning system during equipment maintenance check.
		☐ **See Chapters 8 and 13.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
Bacteria in milk—microbes on milk contact surfaces	• Water supply contaminated with pathogenic bacteria effecting milking equipment sanitation	☐ Test water supply for provincial microbiological parameters annually. ☐ Ensure water meets provincial standards for bacteria. ☐ Have a written plan to deal with a situation where water is shown to be contaminated. ☐ **See Chapter 8.**
	• Dirty bulk truck milk transfer hose	☐ Keep milk loading area free of manure contamination. ☐ Equip hose port with tight-fitting door or self-closing cover. ☐ Maintain a concrete or crushed stone apron outside the milk house directly under the hose port that is large enough to keep the milk hose off the ground and clean. ☐ **See Chapter 1.**
Post harvest sources of bacteria in bulk tank **(CCP 2)**	• Slow cooling • Malfunctioning equipment	☐ Check and record milk temperature after every milking. ☐ Have a written plan outlining how to deal with a situation where milk has been improperly cooled or stored. ☐ Check and record bulk tank temperature before every milking. ☐ Add or maintain a pre-cooler. ☐ Have the cooling system evaluated annually by industry professional. ☐ **See Chapter 7.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES

Contamination of milk with bacteria	• Manure and sewage sludge
	  ◦ All environments
	  ◦ Exercise yards
	  ◦ Traffic areas and laneways
	  ◦ Pasture areas
	  ◦ Stalls – design, base and bedding
		☐ Make sure animal husbandry, manure and waste management systems facilitate clean udders of lactating cattle.
		☐ Restrict cattle access to manure storage, run-off areas, muddy areas and surface water.
		☐ Ensure farm has the necessary approvals/ permits required to use sewage sludge.
		☐ Follow stated withdrawal times after application of sewage wastes.
		☐ Follow withdrawal times after application of manure.
		☐ Design exercise yards for animal safety and cleanliness.
		☐ Divert clean water.
		☐ Ensure laneways and milk loading area are free of manure at time of milk pick-up.
		☐ Install proper cattle crossings
		☐ Construct and maintain proper lanes and traffic areas.
		☐ Assess stocking rates and reduce grazing intensity where necessary.
		☐ Evenly distribute manure.
		☐ Design stalls for cattle safety, comfort and cleanliness.
		☐ Use best available stall base.
		☐ Use recommended stall bedding materials.
		☐ **See Chapter 1.**

	• Insects and vermin	☐ Establish an insect and vermin control program. ☐ Keep all exterior doors, windows and openings closed or fitted with screens to prevent entry of pests. ☐ Ensure exterior doors are tight-fitting and self-closing. ☐ Trap floor drains to prevent entry of odours, insects or rodents. ☐ Keep exterior of building clean and in good repair, and eliminate all potential fly breeding and feeding grounds. ☐ **See Chapter 1.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
Pathogens (bacterial, viral and TSE's) and parasites in feed	Contaminating feed supply: • Ruminant by-products • Manure • Pathogens from sewage sludge	☐ Store and handle feeds designated not for use for ruminants and pet foods to avoid feeding those feeds to cattle or cross-contaminating feeds for cattle. ☐ Ensure cattle do not have access to and are not fed pet foods or feeds that are labeled not for use for ruminants. ☐ Store and handle pet foods and feeds that are labeled not for use for ruminants separately from ruminant feed. ☐ Maintain a biosecurity program for feed supply. ☐ Ensure feed facilities, equipment and feeding methods minimize manure contamination. ☐ Follow stated withdrawal times before grazing or harvesting crops treated with sewage sludge or manure. ☐ Control vermin. ☐ **See Chapters 1 and 2.**
Communicable disease (from people)	• Dirty hands and clothing	☐ Practice personal hygiene. ☐ Wear disposable gloves. ☐ **See Chapter 6.**
Colostrum	• Recently freshened cows/heifers	☐ Do not add milk to bulk tank from animals 15 days prior to calving or 3 days after calving. ☐ **See Chapter 6.**
CHEMICAL		
Livestock medicine or chemical or VHPs residues in milk and meat	• Any treatments with livestock medicines	☐ Identify all cattle according to DairyTrace or Attestra. ☐ Identify all cattle (e.g. ear tag) so that treatment records can be maintained. ☐ Buy residue-free animals from a reliable source. ☐ **See Chapter 3.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES

	• Livestock medicines or chemicals or VHPs improperly stored
	• Improper use of livestock medicines or chemicals or VHPs
	  ◦ Systemic
	  ◦ Intramammary
	  ◦ Topical treatments
	  ◦ Feed
		☐ Store and handle livestock medicines in a way that will not contaminate milk, meat or feeds.
		☐ Store livestock treatments and needles in a clean and sanitary manner and according to label directions.
		☐ Store medicines and chemicals intended for use in non-lactating and lactating dairy cattle and products not intended for dairy cattle in separate cupboards, shelves or areas (if on same shelf).
		☐ Use only livestock medicines (including medicated foot baths) approved in Canada for use in dairy cattle.
		☐ Use livestock medicines and pesticides according to the label or written instructions from a veterinarian or use products listed in **Section 5** of the Permitted Substances Lists for Livestock Production (CAN/CGSB-32.311-2020) according to the specifications indicated.
		☐ Create a drug listing or catalogue of all medications and chemicals used on livestock including product name and storage location.
		☐ Mark all treated cattle in the milking herd that have milk withdrawals (e.g. leg bands).
		☐ Maintain a permanent written record of livestock treatments.
		☐ Have an SOP for treating animals.
		☐ Have a corrective action plan in case an animal is treated incorrectly.
		☐ **See Chapter 5.**

	• Medicated feeds and/or feed additives	☐ If medicated feeds are fed, have an SOP in place on how to feed medicated feed. ☐ If medicated feeds are received, mark bins. ☐ Follow storage and administration BMPs required for all medications, including recommended milk withdrawal times for all medicated feed. ☐ Ensure that your feed supplier has a valid Ensure that your feed supplier has a valid medicated feed license for any medicated feed used on farm (Pending legislation). ☐ Ensure feed manufacturers and suppliers use an HACCP-based system. ☐ Prevent cross-contamination of feed. ☐ Clearly mark feed bins. ☐ Keep samples of incoming feeds and ingredients. ☐ **See Chapters 2 and 5.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
Livestock medicine and chemical residues in milk and meat **(CCP 1)**	• Any treatment with livestock medicines or chemicals	☐ Have an SOP in place to milk cattle with abnormal or treated milk. ☐ Have an SOP in place for shipping animals. ☐ Follow recommended milk withdrawal times for medicines, pesticides and medicated feed. ☐ When an animal calves or aborts, check withdrawal time on treatment records. ☐ Test milk from new animals entering the herd before shipping their milk or get a letter of guarantee from the person selling the animal. ☐ Have a written plan on how to deal with a situation where treated milk enters the bulk tank. ☐ Have a written plan on how to deal with a situation where an animal is shipped that contains chemical residues. ☐ Milk treated animals last or with separate equipment. ☐ Post treatment information on a message board to ensure people milking cattle are aware of which animals have been treated. ☐ Have a program in place to minimize the risk of contaminating the bulk tank with milk from treated animals (e.g. milk last). ☐ **See Chapters 3, 5, 9, 12, and 13.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
Pesticides e.g. insecticides, rodenticides, avicides and herbicides	• Treated pasture or crops • Milk house and barns • Treated seed • Backflow into hoses used to fill pesticide sprayers	☐ Use only pesticides registered for use in pastures, forages, milk houses and barns in those respective areas. ☐ Follow all pesticide label directions and watch for "Days to Grazing" or "Days to Harvest" warnings. ☐ Use an anti-backflow device on hoses connected to milk house and barn water supply. ☐ Maintain a valid, up-to-date pesticide safety certificate where required. ☐ Keep accurate records of pesticides used. ☐ Properly locate pesticide handling facility. ☐ Communicate effectively with family and staff at all times about residue hazards. ☐ Prevent cross-contamination of feeds. ☐ Use labs and test kits for suspected contaminants. ☐ Store and use pesticides in a safe and secure manner in original containers in a manner that does not contaminate water. ☐ Have a written plan outlining how to deal with a situation where water becomes contaminated with pesticides. ☐ Test water and verify source. ☐ **See Chapter 1.**
	• Improper pesticide storage	☐ Store pesticides and treated seed in a safe and secure manner in original containers, away from livestock access, feed, feed storage and milking equipment. ☐ Store treated seeds separately from feed ingredients. ☐ **See Chapter 1.**
	• Spill or leak	☐ Follow proper spill clean up procedures. ☐ **See Chapter 1.**
Volatile organic compounds in water	• Fuel storage leak • Workshops and machine sheds • Industrial landfill	☐ Have a written plan on how to deal with a situation where your water source becomes contaminated. ☐ Test water and verify source. ☐ Contain and clean up spills. ☐ Upgrade storage features. ☐ Inspect and repair well casing. ☐ Relocate well. ☐ **See Chapter 8.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
Fertilizers	• Spilled bulk fertilizer • Cross-contamination • Mixing errors	☐ Store fertilizers in a safe and secure manner in original containers, away from livestock access, feed storage and milking equipment. ☐ Clean up spills. ☐ Apply fertilizer only at recommended rates. ☐ Calibrate application equipment. ☐ Harrow re-distributed fertilizer. ☐ **See Chapter 1.**
Wood preservatives	• Treated lumber	☐ Do not use treated lumber for feed bunk surfaces, stall bases, or platform of free stalls. ☐ Do not store feed in contact with treated lumber. ☐ Do not use bedding made from treated materials. ☐ **See Chapter 1.**
Contamination of milk with chemical residues	• Cleaning solutions • Pesticides (e.g. insecticides and rodenticides) • Overuse of cleaning products • Incomplete drainage of milking equipment (e.g. milk pipelines, receiver jar and bulk tank) • Improper storage of chemicals • Faulty safety switch • Sewage sludge	☐ Use approved products according to accessible cleaning and sanitizing chart. ☐ Install a safety switch or fail safe system or check function of existing one. ☐ Have wash system evaluated annually. ☐ Store chemicals in a location and manner that will not contaminate milk or meat. ☐ Store in properly identified and labeled containers. ☐ Use milk house exclusively for cooling and storing milk and for cleaning, sanitizing and storing materials and equipment used in the production and handling of milk. ☐ Ensure farm has necessary approvals/permits required to use sewage sludge. ☐ Have a written plan on how to deal with a situation where pre-rinse or wash water has contaminated milk. ☐ Inspect equipment to ensure all water is drained prior to milking. ☐ Check pipeline for back slopes and adjust if necessary. ☐ Have a written plan outlining how to deal with a situation when milk is contaminated. ☐ **See Chapters 1 and 8.**

HAZARD	SOURCE	BEST MANAGEMENT PRACTICES
	• Improper removal of udder washes, teat dips and udder salves from teats before milking	☐ Ensure teats are cleaned and dried. ☐ Use an approved teat sanitizing product and use it according to the label directions. ☐ Follow label directions when preparing udder washes and teat dips. ☐ **See Chapter 6.**
Mercury	• Mercury vacuum gauge	☐ Replace with a suitable gauge. ☐ **See Chapter 8.**
PHYSICAL		
Contamination of milk with foreign material	Milk house • Broken glass • Oil and dirt from compressors, vacuum pumps etc.	☐ Protect lights near the man-hole of the bulk tank or ensure bulbs have a protective coating Operate and maintain equipment to reduce oil and dirt build-ups, and if possible install in a separate utility room. ☐ **See Chapter 8.**
Broken needles in meat **(CCP 3)**	• Intramuscular and subcutaneous injection of livestock medicines	☐ Record the animal and site of the broken needle. ☐ Have a veterinarian remove the broken needle — if this is not possible; inform packing plant or next buyer of broken needle. ☐ Have a written plan to deal with the situation where a treated animal or an animal with a broken needle has been sold and the next buyer was not informed? ☐ Use recommended tools and techniques when administering injections. ☐ Ensure animal to be injected is properly restrained. ☐ Use subcutaneous route to administer medications by injection if label permits. ☐ Buy animals from a reliable source that do not contain broken needles. ☐ **See Chapters 3, 5 and 9.**



2

APPENDIX II:
Animal-Based Measurement Protocols

The Animal-based Measurement Protocols include step-by-step instructions and scoring charts for the assessment of dairy cattle for the following animal-based measures:

1. Body Condition Scores
2. Hock, Knee and Neck Scores
3. Mobility: Gait Score or In-stall Score

Follow these steps to assess cattle.

Step 1: Determine assessor: who is going to assess your cattle?
You must have a trained independent assessor assess a sample of your cattle **every second year**, completed within 24 months before your registration anniversary date (e.g. the due date for your proAction validation or Self-Declaration). If your herd's results fall below the predetermined threshold, the frequency will increase to every 12 months. So, the first step is that a trained independent assessor will contact you to arrange the assessment prior to your validation.

Assessor Options: To be eligible, the independent assessor must meet the qualification criteria set by DFC and the provincial association (which is the same as the education and experience criteria for validators), and must have completed DFC training in animal assessments. Your provincial association will have a list of qualified independent assessors in your province.

Step 2: Determine the sample size
The assessor needs to evaluate a **sample of cattle** for each measure. The same animals must be assessed for all of the measures.

The assessor can determine the number of cattle needed to assess by referring to Table 10, and following these steps:

- Choose the row corresponding with the milking herd size (lactating cattle).
- Select the related sample size according to the cattle assessment frequency the farm is on (24 months or 12 months).

For example, for a milking herd size of 100 cattle, at the 24-month cattle assessment frequency, the assessor must evaluate 30 cattle, and at the 12-month cattle assessment frequency, the assessor must evaluate 80 cattle.

Table 10: Sample size calculator for cattle assessments

Average number of cattle in milking herd (lactating cattle)	**Sample Size for 24-month Frequency**		**Sample Size for 12-month Frequency**	
	Sample size: minimum number of cattle for assessment	Approximately every _____ animal	Sample size: minimum number of cattle for assessment	Approximately every _____ animal
1 to 24	14	All to every 2nd	19	Almost every animal
25 to 34	18	2nd	28	All to every 2nd
35 to 44	21	2nd	36	All to every 2nd
45 to 59	23	2nd	44	All to every 2nd
60 to 79	27	3rd	59	All to every 2nd
80 to 94	29	3rd	73	All to every 2nd
95 to 124	30	3rd	80	All to every 2nd
125 to 199	33	5th	108	All to every 2nd

Average number of cattle in milking herd (lactating cattle)	Sample Size for 24-month Frequency		Sample Size for 12-month Frequency	
	Sample size: minimum number of cattle for assessment	Approximately every _____ animal	Sample size: minimum number of cattle for assessment	Approximately every _____ animal
200 to 299	37	7th	152	2nd
300 to 399	38	9th	183	2nd
400 to 499	39	12th	207	2nd
500 to 624	40	14th	226	2nd to 3rd
625 to 849	40	18th	248	3rd
1,000	5%	20th	278	4th
2,000	5%	20th	322	6th
3,000	5%	20th	341	9th
4,000	5%	20th	351	11th
5,000	5%	20th	357	14th

***Note:** sample sizes for the 24-month frequency are calculated on the basis of 95% confidence level and a margin of error of 15, except for herd sizes over 1,000 cattle. Sample sizes for the 12-month frequency are calculated on the basis of 95% confidence level and a margin of error of 5 for all herd sizes.

Step 3: Select sample of cattle

- Cattle should be selected from the milking herd only (lactating cattle). If a group of cattle are housed on a different site or are inaccessible, they can be excluded from the assessment.
- Animals to be assessed **must be randomly chosen**. The assessor cannot, for example, assess the first 23 animals he or she sees.
- All of the cattle in the sample **must be assessed on the same day** for all measures in order for the results to be significant to the farm.
- If cattle are distributed amongst different pens, the animals selected should be proportional to the number of animals in each pen. For example: # animals per pen ÷ total herd size x sample size = # animals to be sampled per pen.
- Cattle in the sick pens should not be included in the sample, because the farmer is already taking corrective actions to care for those animals (If all or a significant proportion of the lactating herd is housed in the sick pen, the Provincial Coordinator should be notified). For cattle in a tie-stall, farmers must identify which animals are considered "sick" in advance of the assessment.

Step 4: Assess cattle

Follow the protocols outlined in the following sections to assess the cattle in the sample size for Body Condition Score, Hock Score, Knee Score, Neck Score and Mobility Score.

All animals are scored as either 'acceptable' or 'requires corrective action.' The scoring system is intended to simplify the evaluation. For example, it is not critical to know that an animal has a body condition score of 1, 2, 3 or 4; but it is important to know if she is too thin or acceptable.

Step 5: Record the results
The independent assessor will recorded the results of the assessment in the forms provided, including the summary results. An animal is considered "requires corrective action" if it has at least one hock or knee scored as requires corrective action. Sample forms are included in the Workbook; however, the independent assessor will capture the cattle assessment data electronically.

Step 6: Compare your results to the targets for animal-based measures
Table 11 outlines the targets for the animal-based measures.

The zones have been established based on the results of the first round of cattle assessments across Canada. The Green, Yellow and two Red zones represent the top, middle and bottom results, with the zone thresholds adjusted for simplicity.

The Green zone represents the ideal goals to reach. Results that fall in the Green zone are good. The Yellow zone means caution, and you should consider corrective actions to improve. The Red zones means that you need to document a corrective action plan in consultation with your veterinarian or nutritionist or dairy specialist to outline your plan to improve out of that zone, and then implement that plan. The Dark Red zone is a zone implemented to focus on farms that need to improve the most. In addition to having to document a corrective action plan in consultation with a dairy professional, farms with results in the Dark Red zone will under-go more frequent cattle assessments with higher numbers of cattle assessed to increase accuracy of results.

Table 11: Targets for animal-based measures and zone thresholds

Measure	Zones			
	Green Meets excellent target	**Yellow** Corrective action plan recommended	**Red** Corrective action plan required	**Dark Red** Corrective action plan and increased cattle assessments required**
Body Condition Score	**≥95%***	**80% to <95%**	**60% to <80%**	**<60%**
Hock Score	**≥90%**	**75% to <90%**	**60% to <75%**	**<60%**
Knee Score	**≥90%**	**75% to <90%**	**60% to <75%**	**<60%**
Neck Score	**≥90%**	**75% to <90%**	**60% to <75%**	**<60%**
Mobility Score	**≥90%**	**75% to <90%**	**60% to <75%**	**<60%**

*Percentage of cattle in the sample scoring Acceptable

**Next cattle assessment is due in 12 months with a larger sample size

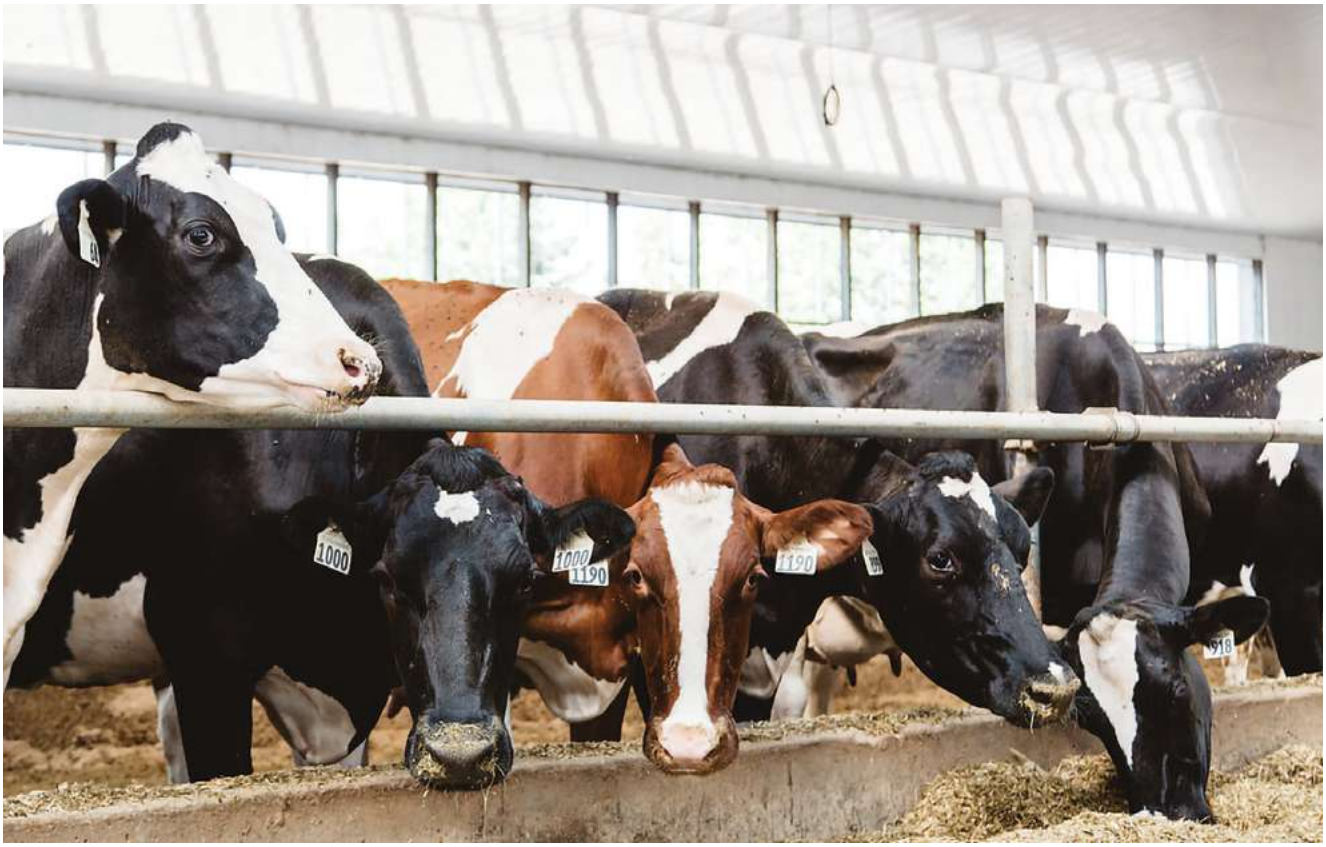
The Animal Care module encourages continuous improvement with the Green zone or excellent targets for animal-based measures being the ultimate goal. Improvements can take time to work, so you should work towards the targets, and be able to demonstrate continuous improvement over time, until your herd reaches the excellent targets for all measures.

Step 7: Implement corrective actions, as necessary
If your cattle assessment highlights an area for improvement, you need to implement corrective actions.

If one or more of your results fall in the Yellow zone, you should consider corrective actions that could help your herd move into the Green zone. You should work with your veterinarian or nutritionist or dairy specialist to help you determine what you can do to improve.

If one or more of your results fall in the Red or Dark Red zones, you must document a corrective action plan (Record 7b or another document that includes all the required fields specified in Record 7b) in consultation with your veterinarian or nutritionist or dairy specialist to outline your plan to improve and move out of those zones, and then you must implement the plan. For example, you may need to simply add more bedding to improve hock scores or you may need to adjust your stall design significantly, in the long term. You should strive to develop your corrective action plan as soon as possible after your cattle assessment (recommendation is within 30 days).

Continuous improvement expectations and timelines are defined in Table 10, including a transition period to provide time for farmers and the industry to adjust.



If one or more of your results fall in the Dark Red zone, your next cattle assessment will be due in 12 months (instead of 24 months) from your registration anniversary date and the sample size will increase. The increased cattle assessment frequency will ensure timely follow-up, and the increased sample size will improve the accuracy of the cattle assessment results, which will help you evaluate how effective your corrective actions have been in resolving the root cause of the problem(s). Farms will remain on the 12-month frequency until they improve out of the Dark Red zones. After three consecutive Dark Red zone results for the same animal-based measure, farms must demonstrate improvement out of the zone to continue to meet proAction requirements. Once a herd has improved to the Green, Yellow and Red zones, the next cattle assessment will be due in 24 months from the validation anniversary date with the standard sample size. This timeline represents the standard assessment frequency, however, provinces maintain the flexibility to implement additional monitoring, follow-up, or assessment as they deem appropriate.

Table 12: Requirements related to cattle assessment results

Parameter	Result, next step or requirement			
Results	All results in Green zone	One or more results in Yellow zone, and the rest are in the Green zone	One or more results in Red zone	One or more results in Dark Red zone
Due date of next cattle assessment	Due in 24 months with standard sample size	Due in 24 months with standard sample size	Due in 24 months with standard sample size	Due in 12 months with larger sample size
Corrective action plan signed by a dairy professional	N/A	Recommended for any result in the Yellow zone	Required	Required

Parameter	Result, next step or requirement			
Continuous improvement timelines	N/A	Recommended to strive for improvement to Green zone	The aim for all farmers is to make adjustments on farm to achieve improving results, preferably into the Green zone for all measures.	The aim for all farmers is to make adjustments on farm to achieve improving results, preferably into the Green zone for all measures. After three consecutive Dark Red zone results for the same measure, a major nonconformance will be assigned in the validation report and will not be closed until the farm shows a cattle assessment with results in the Red, Yellow or Green zones. As a result, the validation will not be approved and the farm will not achieve/ maintain registration.

Reference: All protocols are based on protocols developed and validated by E. Vasseur, J. Gibbons, J. Rushen and A. M. de Passillé (Agriculture Agri-Food Canada), with funding from DFC and AAFC under the Dairy Science Cluster initiative.

1: BODY CONDITION SCORE (BCS): ON-FARM MEASUREMENT PROTOCOLS

Reference: Dairy Code of Practice: Section 3.1

Background: Body Condition Score (BCS) is a tool for determining if an animal is too thin, too fat or in ideal condition. BCS charts range from 1 (emaciated) to 5 (fat). Ideal BCS is a range and will vary depending upon the stage of lactation. However, if a herd has a significant number of thin animals, the farmer should evaluate possible causes and take corrective actions to improve the BCS of those animals.

Protocol:

1. **Record** the identification number of the animal on the Cattle Assessment Record.
2. **Assess** body condition of the animal to determine if the animal is too thin (i.e. BCS ≤ 2) or acceptable (BCS >2).

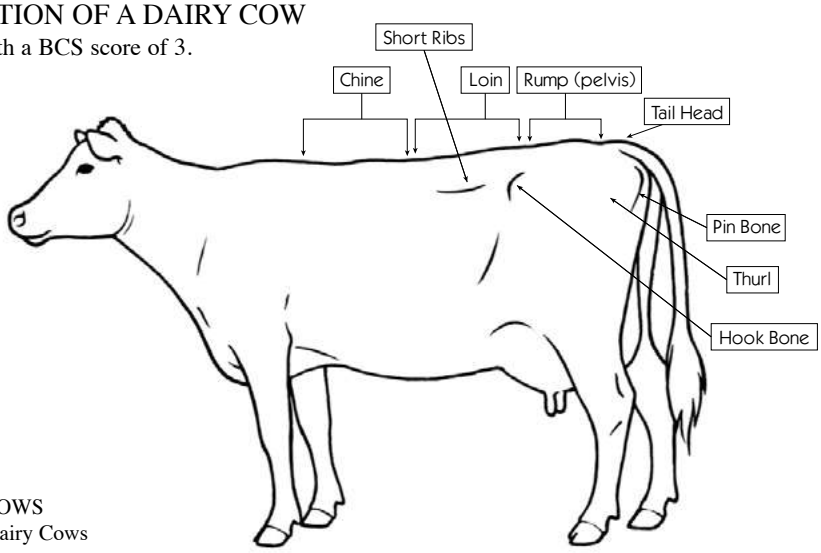
   Refer to the Body Condition Scoring Chart in Figure 14 below to conduct the assessment.
3. **Record** body condition status on the Cattle Assessment Record as either Requires corrective action/too thin (BCS ≤ 2) **OR** acceptable (BCS >2). Sample Cattle Assessment Records are in the Workbook.

Reference: Vasseur E., J. Gibbons, J. Rushen, A. M. de Passillé (submitted). *Development and implementation of a training program to ensure high repeatability of body condition score of dairy cows.* J. Dairy Sci.

Figure 14: Body condition scoring chart

Body Condition Scoring Chart

LABELLED ILLUSTRATION OF A DAIRY COW
Illustration of a Dairy Cow with a BCS score of 3.



BODY CONDITION SCORES FOR DAIRY COWS
Overview of all the body condition scores for Dairy Cows

BCS 1:

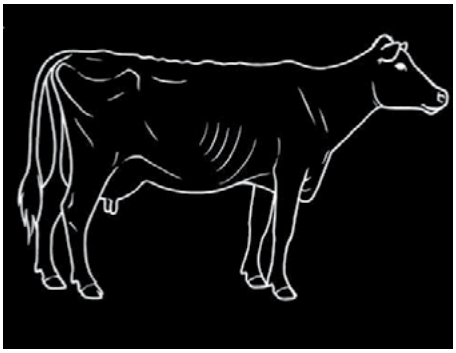
SHORT RIBS:
- Ends sharp to touch
- Loin prominent, shelf-like appearance
- Obvious scalloping over top and ends

BACKBONE:
- Vertebrae prominent in chine, loin and rump area
- Individual bones easily visible

HOOK AND PIN BONES:
- Sharply defined, very angular in appearance
- No discernable fat pad

THURL (area over pelvis):
- Severe "V shaped" depression without fat cover

TAIL HEAD:
- Sunken and hollow on either side of tail head with obvious folds of skin
- Ligaments connecting pin bones to spine are sharply defined
- Vulva prominent.



BCS 2

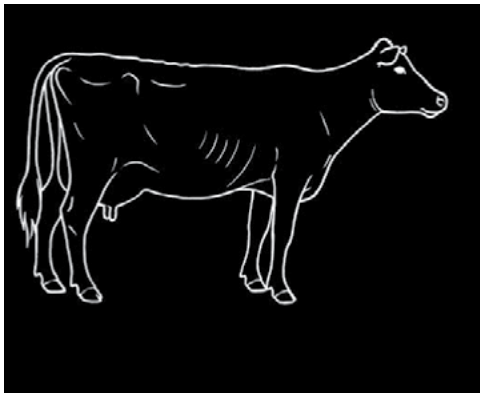
SHORT RIBS:
- Ends not as prominent as BCS 1, but can be felt
- Edges easily felt, with slight fat cover, and slightly more rounded appearance
- Overhanging shelf effect less apparent

BACKBONE:
- Vertebrae in chine, loin and rump area, less visually distinct
- Easily feel individual vertebrae

HOOK AND PIN BONES:
- Bones still prominent, angular
- No fat pad palpable

THURL (area over pelvis):
- Less severe "V shaped" depression
- Little tissue cover

TAIL HEAD:
- Both sides of the tail head are sunken and hollow
- Sharply defined ligaments connecting pin bones to spine



Source: Adapted from What's the Score? Body Condition Scoring for Livestock CD-ROM, Agdex CD 400/40-1, with permission of Alberta Agriculture and Rural Development.

Body Condition Scoring Chart

BODY CONDITION SCORES FOR DAIRY COWS
Overview of all the body condition scores for Dairy Cows

BCS 3

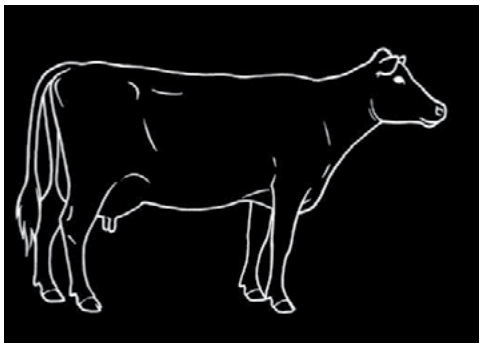
SHORT RIBS:
- Ends can be felt with moderate pressure
- Ribs appear smooth without noticeable scalloping
- Overhanging shelf effect much less apparent

BACKBONE:
- Vertebrae in chine, loin and rump area appear rounded
- Backbone visible, but individual vertebrae not distinct

HOOK AND PIN BONES:
- Visible, but smooth, with rounded appearance
- Fat pad palpable

THURL (area over pelvis):
- Forms "U shaped" depression

TAIL HEAD:
- Both sides of tail head somewhat hollow, but skin folds not distinct
- Ligaments connecting pin bones to spine are rounded in appearance



BCS 4

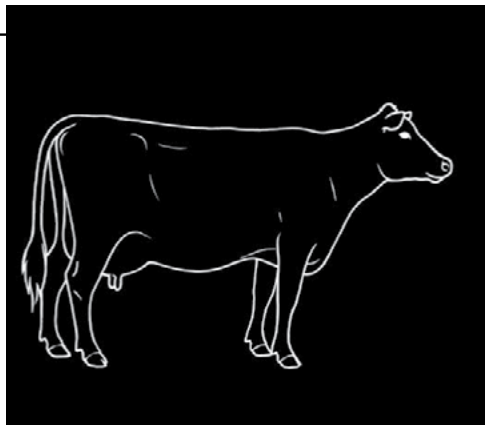
SHORT RIBS:
- Individual rib ends not visible, only felt with firm pressure
- Overhanging shelf effect slight, barely visible

BACKBONE:
- Vertebrae in chine rounded, smooth
- Loin and rump areas appear flat

HOOK AND PIN BONES:
- Rounded, with obvious fat covering

THURL (area over pelvis):
- Area between hooks and pins almost flat
- Pelvic bone only felt with firm pressure

TAIL HEAD:
- Sides of tail head not hollow, no skin folds
- Some fat deposit palpable



BCS 5

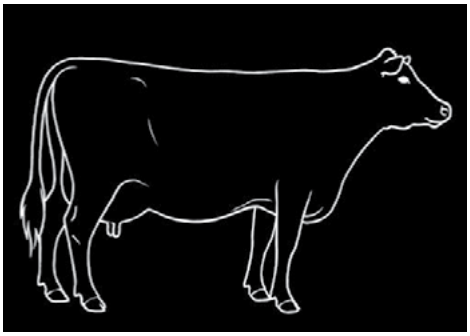
SHORT RIBS:
- Ends can't be seen or felt
- No overhanging shelf effect

BACKBONE:
- Vertebrae in chine, loin and rump not visible
- Difficult to feel individual vertebrae

HOOK AND PIN BONES:
- Very round, buried (almost disappearing) in fat tissue

THURL (area over pelvis):
- Appears flat
- Filled in between the hooks and pins

TAIL HEAD:
- Hollow filled in
- Areas on both sides of tail head buried in fat tissue



2A: HOCK SCORING: ON-FARM MEASUREMENT PROTOCOLS

Reference: Dairy Code of Practice: Sections 2.2.3 and 2.5.1,

Where: In the parlour/tie-stall/feed bunk

Background: Condition of the hocks can be an important indicator of the abrasiveness of stall bedding and cow comfort. Injury is usually the result of prolonged exposure to an abrasive stall surface. Skin breakage provides an opportunity for infection to occur, which can lead to swelling, discomfort and possibly lameness.

Protocol:

1. **Record** the identification number of the animal as she stands in the tie-stall, barn or milking parlour.
2. **Score** only within the area of the leg as shown in Figure 15 (score the tarsal joint but not the point of the hock). If it is too difficult to score both hocks in the herringbone parlours, score as they exit the parlour or at the feed bunk.
3. **Assess** the condition of the left and right hocks using 'A' for Acceptable or 'R' for Requires corrective action (simplified version of four-point ordinal scale), as shown in Figure 16.
4. **Record the score of the worst hock** on the Cattle Assessment Record. If both hocks are scored the same, you still only record one score. Sample Cattle Assessment Records are included in the Workbook.
5. **Repeat** for all cattle in the sample size.

Figure 15: Area assessed during hock scoring

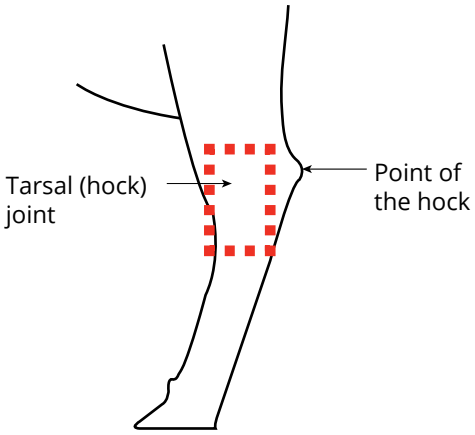


Figure 16: General description of hock scores



No swelling.

No hair is missing, some hair loss or broken hair.



No swelling or minor swelling (< 1 cm).

Bald area on hock.

Score 'A' Acceptable



Medium swelling (1 to 2.5 cm) **and/or** lesion **or** scab on bald area.





Major swelling (> 2.5 cm).

May have bald area/lesion.

Score 'R' Requires corrective action

Reference: Gibbons J., E. Vasseur, J. Rushen, A M de Passillé 2012. *A training program to ensure high repeatability of injury of dairy cows.* Invited paper to Animal Welfare 21:379-388

2B: KNEE SCORING: ON-FARM MEASUREMENT PROTOCOLS

Reference: Dairy Code of Practice Sections: 2.2.3 and 2.8

Where: At the feed bunk, when cattle are feeding/tie-stall

Background: Condition of the knees is an important indicator of cow comfort and the hardness of the stall floor. Injury is usually the result of prolonged exposure to a hard stall floor leading to swelling and skin breakage, which provides an opportunity for infection to occur resulting in discomfort and possibly lameness.

Protocol:

1. **Record** the identification number of the animal. It is recommended to score cattle at the feed bunk when they are feeding (ideally, shortly after feed delivery). If it is too difficult to score all animals at the feed bunk, cattle can be scored in the stall. When the animal is lying encourage her to stand and then score her knees.
2. **Score** only within the area of the leg as shown in Figure 17 (score the front of the carpal joint only).
3. **Assess** the condition of the left and right knees using 'A' for Acceptable and 'R' for Requires corrective action, as shown in Figure 18.
4. **Record the score of the worst knee** on the Cattle Assessment Record. Sample Cattle Assessment Records are included in the Workbook. If both knees are scored the same, you still only record one score.
5. **Repeat** for each animal in the sample size.

Figure 17: Area assessed during knee scoring

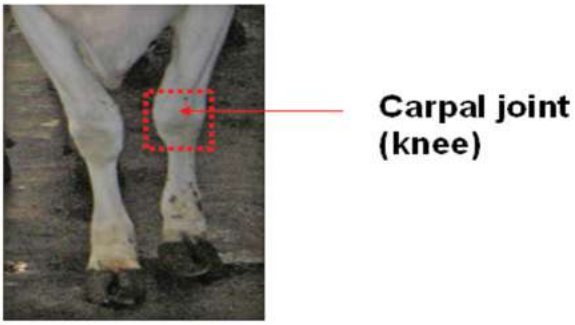


Figure 18: General description of knee scores

Score 'A' Acceptable

No swelling. No hair is missing, some hair loss or broken hair.



No swelling. Bald area.



Score 'R' Requires corrective action

Broken skin **or** scab **and/or** swelling (< 2.5 cm). May have bald area.



Major swelling (≥ 2.5 cm). May have bald area/lesion.



Reference: Gibbons J., E. Vasseur, J. Rushen, A M de Passillé 2012. *A training program to ensure high repeatability of injury of dairy cows.* Invited paper to Animal Welfare 21:379-388.

2C: NECK SCORING: ON-FARM MEASUREMENT PROTOCOLS

Reference: Dairy Code of Practice: Sections 2.5 and 2.7

Where: At the feed bunk, when cattle are feeding/tie-stall

Background: Condition of the neck is an important indicator of whether the neck rail/chain in the stalls and/or at the feed bunk is at the correct height or length (chain) and that the feed is well within easy reach for the animal. Neck injury is usually the result of prolonged exposure to rubbing or hitting against the neck rail/chain or feed bunk rail/chain.

Protocol:

1. **Record** the identification number of the animal to be scored on data recording sheet. Score each animal at the feed bunk when cattle are feeding or in the stall (ideal timing may be shortly after feed delivery, as the majority of cattle will be feeding).
2. **Score** only within the area of the neck as shown in Figure 19 (score only the part of the neck directly behind the ear up to the point directly above the shoulder). In general, this is the part of the neck that comes into contact with the neck rail or chain (stall/feed bunk).
3. **Assess** the condition of the neck. Score 'A' for Acceptable and 'R' for Requires corrective action, as shown in Figure 20.
4. **Record** scores on the Cattle Assessment Record. Sample Cattle Assessment Records are included in the Workbook.
5. **Repeat** for all cattle in the sample group.

Figure 19: Area assessed during neck scoring



Figure 20: General description of neck scores

Score 'A' Acceptable



No swelling. No hair is missing, some hair loss or broken hair.



No swelling. Bald area visible.

Score 'R' Requires corrective action



Broken skin or scab and/or swelling. May have bald area.

Reference: Gibbons J., E. Vasseur, J. Rushen, A M de Passillé 2012. *A training program to ensure high repeatability of injury of dairy cows*. Invited paper to Animal Welfare 21:379-388.

3: MOBILITY SCORING (GAIT SCORE OR IN-STALL SCORE): ON-FARM MEASUREMENT PROTOCOLS

Reference: Dairy Code of Practice: Section 2.1, 2.5, 5.3, 5.7 and 5.7.1

Background: Compromised mobility in dairy cattle is a significant welfare problem indicating pain. Lame cattle alter their behavior to reduce bearing weight on the affected limb.

The gait scoring method is the most accurate and preferred method for detecting lameness in dairy cattle. In tie-stall systems where cattle are routinely exercised, gait scoring is recommended. If walking and observation of cattle is not practical, the in-stall score system should be used.

Gait Scoring Protocol

1. **Establish a suitable location:** Often the easiest location is the transfer alley between the parlour and the pen (particularly after a footbath as this will slow the animals down).

   Criteria for choosing a location:
   - Distance allows observation of cattle walking for **four strides**.
   - Surface is smooth and flat.
     - Avoid slatted concrete surfaces if possible.
     - Sloped flooring (downward or upward) and areas with steps should be avoided.

> **Note:** If it is difficult to find a suitable alley to walk the cattle, consider other possibilities (e.g. maybe re-route the animals or have them go down a walk-way to pasture used during the summer months).

2. **Gait score sample cattle:**
   - Record the identification number of the animal.
   - If cattle have been released from tie-stalls, habituate them to walking by walking up and down a passageway in a calm manner until the cattle walk in a straight line at a steady pace.
   - Observe at least four strides for each animal and record the degree of limping on the Cattle Assessment Record. The gait scoring categories are based on the Gait Scoring System referenced in Appendix F of the Code of Practice, developed by Flower and Weary (2006).
     - Score 'A' for Acceptable for no limp present (equivalent to Scores of 1 and 2)
     - Score 'M' for Monitor for moderate limp present (equivalent to Score 3)
     - Score 'R' for Requires corrective action for an obvious or severe limp present (equivalent to Scores of 4 and 5)

A threshold of 25% for gait score 3 (Monitor) has been added as an incentive for early lameness intervention to and improve lameness management on farms. Cows with a gait score of 3 are considered lame, and identifying these animals earlier provides an opportunity to address issues before they progress to more severe stages of lameness. The overall goal of this addition is to drive continuous improvement in animal care through improved lameness management to reduce the incidence of lameness on farms.

In addition, this threshold is intended to evolve over time. Future updates may introduce a stepdown approach, gradually reducing the allowable percentage of cows scoring a 3 as industry capacity, training, and on farm practices continue to improve.

Under this new approach, farms can have up to 25% of their herd scoring a 3 without any impact on their mobility zone result.

However, if more than 25% of the animals assessed receives a score of 3, the percentage exceeding that threshold will be deducted from the herd's overall mobility score. This deduction may influence where the mobility score lands within the colour zone system.

Example calculation for a 100 cows herd:
- 33 cows are assessed.
- 1 cow (3%) is scored as a 4 and 0 cows are scored as 5s.
  - Acceptable score, before considering 3s, is 97% (i.e., 100% - 3% = 97%).
- 12 cows (36%) are scored as 3. This is 11% higher than the 25% allowed threshold (i.e., 36% - 25% = 11%).
  - Acceptable score, after considering 3s, is 86% (i.e., 97% - 11% = 86%).
- The farm's overall mobility score is 86% acceptable, so the farm is in the Yellow zone for mobility.

> **Note:** This new approach only impacts gait scoring. In-stall scoring remains the same, as it is a binary scoring system.

- Sample Cattle Assessment Records are included in the Workbook.
- The **gait behaviours associated with limping are**: favouring one or more limbs. An animal free from injury should bear weight evenly over the four limbs. An animal with an injury may not place all her weight on an affected limb and may walk with an uneven, irregular, jerky or awkward step as if favouring one leg.

In-stall Scoring Protocol

1. **Encourage** the animal to be assessed to stand.
   - Each animal must be standing undisturbed for at least 3 minutes before their assessment begins (allows for urination/defecation).
   - If the sample size means that you need to score adjacent animals, do not score them immediately after each other, as the scoring of the first animal may affect the second one. Move to the next animal to be scored and then return to the skipped animal once she has had at least 3 minutes of standing undisturbed.
   - Encourage the animal to stand up by standing behind her while saying 'up up'. If she does not respond to this, a gentle tap on the spine may be required. If she does not respond, tap her on the flank to encourage her. If she still does not respond, move on to the next few animals and then return to the original animal to try again or ask the farmer or farm worker to help.
2. **Record** the identification number of the animal.
3. **Observe** the animal. If the animal urinates or defecates during the assessment, stop scoring and return to assess her later, or ignore the behaviours just before and during urination or defecation, and continue scoring once the animal has returned to normal resting posture.

   The assessment consists of two parts:

   Animal standing in stall
   - Stand about one meter behind the animal slightly to one side for a good view of both front and hind feet.
   - Observe the animal's feet for a full 60 seconds.
     - Record the presence of EDGE, WEIGHT SHIFT and REST (UNEVEN WEIGHT) indicators for each position for all four feet, except for EDGE which can only be assessed on the hind feet. See Table 11 and Figure 21 for descriptions of each indicator.

   Animal moved from side to side
   - Stand behind the animal with a view of both hind feet.
   - Shift the animal from side to side by walking from one side to the other behind the animal and then back. If she does not respond, gently tap her hip-bone with your hand to encourage her to move over.

> **Note:** If an animal refuses to move because she obviously does not want to bear weight on one foot or limb, do not force her to move and double-tick this element and score her as "R" for Requires corrective action.

   - Observe how the animal shifts weight from hind foot to hind foot. Observe if the UNEVEN MOVEMENT indicator (Table 13) is present.
   - Record presence of UNEVEN MOVEMENT indicator on the Cattle Assessment Record. Sample Cattle Assessment Records are included in the Workbook.
4. **Score an animal** 'A' for Acceptable if less than 2 indicators are recorded, and score an animal as 'R' for Requires corrective action if 2 or more indicators are recorded (i.e. obviously/severely lame).

Table 13: Behavioural indicators of lameness

Behaviour Indicator	Description
Animal standing in stall (voluntary movements)	
Edge	Placement of one or more hooves on the edge of the stall while standing stationary. Standing on the edge of a step when stationary, typically to relieve pressure on one part of the claw (Figure 21). This does not refer to when both hind hooves are in the gutter or when cow briefly places her hoof on the edge during a movement/step.
Weight shift	Regular, **repeated** shifting of weight from one hoof to another. Repeated shifting is defined as lifting each hind hoof at least twice off the ground (L-R-L-R or vice versa). The hoof must be lifted and returned to the same location and does not include stepping forward or backward
Rest (uneven weight)	Repeated resting of one foot more than the other as indicated by the cow **raising** a part or the entire hoof off the ground. This does NOT include raising of the hoof to lick or during kicking.
Animal moved from side to side	
UNEVEN MOVEMENT	Uneven weight bearing between hooves when the cow was encouraged to move from side to side. This is demonstrated by greater **rapid movement** of one hoof relative to the other, or by an evident **reluctance to bear weight** on a particular foot.

Figure 21: Examples of standing on edge of stall



Reference: Gibbons J., D. B. Haley, J. Higginson Cutler, C. Nash, J. Zaffino, D. Pellerin, S. Adam, A. Fournier, A. M. de Passillé, J. Rushen and, E. Vasseur. (Submitted) *Technical Note: Reliability and Validity of a Method to Measure Lameness Prevalence of Cows in Tie-stalls.* J. Dairy Sci.



3

APPENDIX III:
Preventive Control Plan Template for Dairy Farms Manufacturing Medicated Feed

Farms that manufacture (prepare or mix) feeds for their own animals are considered on-farm feed mills. The Feeds Regulations, 2024, apply to on-farm feed mills if they sell feed off the farm and/or mix feed that contains a medicating ingredient, feed with a novel trait, or substances that pose a risk of harm to human or animal health or the environment.

Medicating ingredients include low-risk antimicrobials, such as ionophores (e.g., Rumensin or Monensin), which have no milk or meat withdrawal period. Farms are expected to meet applicable requirements and prepare a Preventive Control Plan (PCP) to identify hazards, assess their risks, and develop control measures to prevent, eliminate, or reduce those risks to an acceptable level.

This template is designed for Canadian dairy farms that mix medicated livestock feed on-site. Farms that sell or export feed are considered to be commercial feed mills under the Feeds Regulations, 2024, and are subject to additional requirements. Farms that manufacture animal food (contains an animal product or by-product) would also be subject to the Health of Animals Regulations.

This template is designed for efficiency and can be filled in with details of what happens on your farm. You may include details of specific practices, or personnel should be prepared to justify them verbally unless specific documentation and records are required.

Background Information

Farm Name: _____

Farm Address: _____

Owner's Name: _____

Date Completed: _____

Contact information for those responsible for manufacturing medicated feed:

Name: _____	Name: _____
Phone Number: _____	Phone Number: _____
Email Address: _____	Email Address: _____

For each feed mixed on the farm, document the following:

Types of Feed Manufactured: _____

Intended Use: _____

Ingredients (including medicating ingredients)[1]: _____

_____

_____

_____

[1] Farms that manufacture animal food (food containing an animal product or by-product) would also be subject to the Health of Animals Regulations.

Identify and Evaluate Hazards

The PCP must include a description of the biological (B), chemical (C), and physical hazards (P)[2] that may contaminate the feed. Table 14 lists potential hazards on your farm and allows you to indicate the risk of that hazard. Check which inputs and steps apply to your operation. Table 14 does not include every risk that may occur on every farm. If you identify an input, step, or potential hazard not listed, include it in the table. Table 15 provides guidance on assessing a hazard's likelihood of contamination and its severity.

Table 14. Identification and Evaluation of Hazards without Control Measures

Identification		Evaluation of Hazards without Control Measures			
Check if Applicable	Input or Process Step	Potential Hazards	Hazard Type[2] (B, C, P)	Risk of Hazard[3] (Very Low, Low, Medium, High)	
				Likelihood of Contamination	Severity for the Hazard
☐	**Homegrown forage**	Pathogenic bacteria, parasites, mould, and viruses	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Dioxins (e.g., treated wood bunkers)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Bought forage (silage, haylage, hay)**	Pathogenic bacteria, parasites, mould, and viruses	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Dioxins (e.g., treated wood bunkers)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Homegrown grain**	Pathogenic bacteria, mould, and viruses	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Dioxins (e.g., from treated wood storage)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Bought grain**	Pathogenic bacteria, mould, and viruses	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Dioxins (e.g., from treated wood storage)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		

[2] Biological hazards (B) include microorganisms (e.g., bacteria, viruses, parasites, fungi) that can cause illness or produce harmful toxins. Chemical hazards (C) include contaminants (e.g., heavy metals, pesticides, natural toxins). Physical hazards (P) refer to irrelevant materials that may be introduced.

[3] See Table 2. The reasoning behind the risk evaluation does not need to be documented, but farmers should be prepared to justify it verbally to an inspector.

Identification		Evaluation of Hazards without Control Measures			
Check if Applicable	Input or Process Step	Potential Hazards	Hazard Type[2] (B, C, P)	Risk of Hazard[3] (Very Low, Low, Medium, High)	
				Likelihood of Contamination	Severity for the Hazard
☐	**Bought concentrates (non-medicated)**	Pathogenic bacteria, mould, viruses, and prohibited materials	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients (e.g., antibiotics)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Bought concentrates (medicated)**	Pathogenic bacteria, mould, viruses and prohibited materials	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients (e.g., antibiotics)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Supplements (protein, minerals, vitamins, other additives)**	Pathogenic bacteria, mould, and prohibited materials	B		
		Chemicals (e.g., herbicides, insecticides, fungicides, heavy metals, machinery chemicals) Medicating ingredients (e.g., antibiotics)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Food by-products**	Pathogenic bacteria, mould, viruses, and prohibited materials	B		
		Chemicals (e.g., pesticides, cleaning chemicals) Medicating ingredients (e.g., antibiotics)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Receiving feed**	Pathogenic bacteria, mould, viruses, and prohibited materials	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients (e.g., antibiotics) contamination	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		

Identification		Evaluation of Hazards without Control Measures			
Check if Applicable	Input or Process Step	Potential Hazards	Hazard Type[2] (B, C, P)	Risk of Hazard[3] (Very Low, Low, Medium, High)	
				Likelihood of Contamination	Severity for the Hazard
☐	**Harvesting**	Pathogenic bacteria, mould, viruses, prions (e.g., BSE – cross-contamination with manure)	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients (e.g., antibiotics – manure cross-contamination)	C		
		Stones, rocks, dirt, machinery metal fragments, wood splinters, plastic, glass, weed seeds, etc.	P		
☐	**Storing feed**	Pathogenic bacteria, mould, viruses, prions (e.g., cross-contamination with manure)	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) (e.g., Cross-contamination) Dioxins (e.g., cross-contamination from treated wood storage) Medicating ingredients (e.g., antibiotics – cross-contamination with medicated feed)	C		
		Machinery metal fragments, wood splinters, plastic, glass, etc.	P		
☐	**Loading and unloading feed**	Pathogenic bacteria, mould, viruses, prions (e.g., cross-contamination with manure)	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) (e.g., Cross-contamination from machinery) Medicating ingredients (e.g., antibiotics - cross-contamination with medicated feed)	C		
		Machinery metal fragments , wood splinters, plastic, glass, etc.	P		
☐	**Mixing feed**	Pathogenic bacteria, mould, viruses, prions (e.g., cross-contamination with manure)	B		
		Agri-chemicals (e.g., herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients (e.g., antibiotic hot spots through inadequate mixing)	C		
		Machinery metal fragments, wood splinters, plastic, glass, etc.	P		

Identification		Evaluation of Hazards without Control Measures			
Check if Applicable	Input or Process Step	Potential Hazards	Hazard Type[2] (B, C, P)	Risk of Hazard[3] (Very Low, Low, Medium, High)	
				Likelihood of Contamination	Severity for the Hazard
☐	**Personnel**	Pathogenic bacteria, mould, viruses, prions (e.g., cross-contamination with manure)	B		
		Agri-chemicals (e.g., cross-contamination with herbicides, insecticides, fungicides, fertilizers, machinery chemicals) Medicating ingredients, nutrient excesses, improper formulation (e.g., improper mixing due to lack of training or not following procedures)	C		
		Metal, wood splinters, plastic, glass, etc. (e.g., Cross-contamination)	P		
☐			B		
			C		
			P		
☐			B		
			C		
			P		
☐			B		
			C		
			P		
☐			B		
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			C		
			P		
☐			B		
			C		
			P		
☐			B		
			C		
			P		

Table 15. Guidance on assessing a hazard's likelihood of contamination and its severity

Determining the Severity of a Hazard to Human and Animal Health and the Environment	
High	Death; acute severe sickness; impact is significant and irreversible
Medium	Sickness or injury may be moderate to severe; impact may be significant and long-term; may be reversible
Low	Sickness or injury is moderate; impact is reversible
Very Low	Sickness or injury is minor
Determining the Likelihood of a Hazard to Human and Animal Health and the Environment	
High	Frequent (likely to occur, to be expected)
Medium	Probable (not surprising, will occur in a given time)
Low	Remote (could occur occasionally)
Very Low	Improbable (unlikely though possible)

Control Measures for Hazards Identified

Control Measures Implemented through proAction Requirements

proAction has many requirements that serve as control measures for the identified hazards. DFC has conducted a hazard analysis of inputs to dairy operations, including the appropriate critical control points and critical limits. Farms are validated every 2 years to verify that requirements are being met and, if needed, that corrective actions are completed.

DFC recognizes the low risk posed by medicating ingredients **without** a withdrawal period (e.g., ionophores such as Rumensin, Monensin, Coban, etc.). Therefore, requirements related to medicated feed may only apply to medications with a withdrawal period. Table 16 lists the control measures that apply to all feed medications, regardless of the withdrawal period. Table 17 lists the control measures farmers may use to administer feed medications without a withdrawal period. **Instead of writing their own control measures for medicated feeds without a withdrawal period, farmers may apply the control measures listed in Table 17 and indicate so in the table.**



Note: Farms that sell or export feed will be subjected to additional requirements under the Feeds Regulations, 2024. Farms that manufacture animal food (food containing an animal product or by-product) will also be subject to the Health of Animals Regulations.

Table 16. proAction requirements that implement control measures for medicated feeds, including those without a withdrawal period

proAction Requirement	Control Measures Implemented
FS2: Pesticide choice	Products used to control rodents and flies must be registered for use in Canada. Handle all chemicals to prevent feed contamination.
FS3: Pesticide use	Follow label instructions for handling, mixing, and applying pesticides. Never mix, store, rinse, or clean pesticide containers and equipment near dairy feed.
FS4: Pesticide storage	Store pesticides, treated seed, and fertilizers separately in original containers, away from livestock, following provincial regulations. Store substances not for cattle separately from medicines and chemicals. Pesticides should pose no risk of contaminating feed.

proAction Requirement	Control Measures Implemented
FS5: Hoses and anti-backflow devices	Handle pesticides, treated seeds, and fertilizers properly. Hoses connected to the milk house/barn water system used to fill pesticide sprayers/containers must have an anti-backflow device/air-gap to prevent contamination.
FS8: Laneway	The laneway and loading area for milk pick-up must be free of manure contamination at pick-up.
FS9: Sewage sludge	Follow approved/permitted application in the province/municipality, and withdrawal times for grazing/harvesting.
FS12: Pet foods	Ensure pet foods and feeds that are labelled not for use for ruminants are not fed to dairy cattle. Non-ruminant livestock feed must be designated not for use for ruminants. Store and handle feed to prevent contamination. Do not feed flushed feed to cattle.
AC9: Feed for cattle	Cattle must be fed a ration that meets their nutritional, developmental and growth requirements and promotes satiety. Feed must have minimal spoilage, mould, and contaminants. Monitor growth, identify cattle losing condition, investigate, and develop corrective actions.
AC10: Water for cattle	Cattle, except calves ≤10 days old, must have access to good-quality water to stay healthy and productive.
AC14: Cattle assessments	Monitor BCS, hock, knee, neck, and mobility scores. If in the Red or Dark Red zones, implement a CAP.
BIO1: Risk assessment	Complete a Biosecurity Risk Assessment with the herd veterinarian every 2 years. During this, review health records and calculate female calf mortality. If the calf mortality rate exceeds 10%, establish and implement a CAP.
BIO2: Disease records	Cattle health records must record, at minimum, disease events, cattle ID, and date of occurrence. Disease events, regardless of whether treatment is given, must be recorded for at least abortion, lameness, mastitis, diarrhea, pneumonia, and death.
BIO6: Visitors and service providers SOP	The SOP must require visitors and service providers to wear clean clothing and overshoes/ disposable boots before entering the production area, and the farm to have a disposal area and a washing station for hands and boots.
BIO7: Biosecurity sign	Farms must post biosecurity signage that is clearly visible at the main access point to alert visitors.
FS15: List of medicines and chemicals	Farms must create a list/catalogue of all medicines and chemicals (i.e., all medicines, chemicals, specially prepared products, medicated feed ingredients, and teat dips/sprays) used on livestock, including product name and storage location.
FS16: Medicine and chemical storage	Store medicines in a clean, sanitary manner to prevent milk and meat contamination, and use them according to label. Drugs not in original containers must be properly labelled and packaged. Farms may store medicines differently with written veterinary instructions.
FS17: Medicine use	Farms must use only Canada-approved products according to the label. Extra-label treatments need written Veterinary Directions.
EN4: Manure storage	Farms must store and use manure to prevent water contamination and avoid spreading on frozen, snow-covered, or saturated ground.
FS42: CAPs	Farms must have written CAPs outlining how to communicate and address specific situations. Farms must record when a problem occurs and what corrective actions were implemented to remedy the situation and prevent recurrence.
FS43: Deviation and corrective action record	

Table 17. proAction requirements that implement control measures that may be applied to medications without a withdrawal period

proAction Requirement no-withdrawal medications	Applied to no-withdrawal medications[4]	Control Measures Implemented
FS10: Medicated feed SOP	☐	Farms that feed medicated feed must establish a documented feeding medicated feed SOP. The SOP must include: • Use only approved feed medications, VHPs and feed additives. • Use feed medication according to the label or written instructions from a veterinarian. • Record milk and meat withdrawal times for all feed medications and additives. • Record animals being fed medicated feed, when required. • If mixing medicated feed, follow feed mixing instructions to ensure the correct amounts are used.
FS11: Medicated feed signs	☐	Farms must identify all medicated feed storage areas, feed bins, and carts, indicating that they contain medicated feed and the target group of animals it is intended for.
FS20: Treatment record	☐	Farms must record treatments for all cattle on the farm that have milk or meat withdrawal and for treatments mixed into feed, regardless of withdrawal period. Farms must have permanent records that include: • Animals' identification. • Treatment administered (product, dosage, mode of treatment). • Date(s) of treatment(s). • Withdrawal times for milk and meat. • Date when animal and milk is suitable for marketing. • Broken needles. • Valid expiry date at time of treatment. • Signature or initials of the person treating. • Appropriate documentation of any extra-label treatments administered by the veterinarian.
FS41: Staff training	☐	Personnel must be trained in the area they are responsible for. Staff must be trained to understand and follow the SOPs and CAPs, and to maintain applicable records. Personnel must have access to SOPs, CAPs and records.

[4] Requirements with a marked checkbox indicate that the farm has adapted them for feed medications without milk or meat withdrawal (i.e., included in the farm's SOPs and records).

Additional Control Measures

Table 18 outlines control measures not implemented through proAction, and provides methods to apply them. If you have identified the need for a control measure not listed, please include it in the table.

Table 18. Feed Regulations control measures not addressed by the proAction program

Control Measure	Method of Implementation
Cleaning and sanitation activities	Procedures for cleaning and sanitizing facilities and equipment used to mix medicated feed must be established and documented to prevent contamination of the medicated feed.

Testing for uniformity of mix	To ensure a feed is uniformly mixed, mixer performance must be assessed on a sample batch. The manufacturer's recommendations should be used to establish a performance procedure. Mixers must be tested:
	• Within 90 days after installing a new or replacement mixer.
	• After a major repair or modification that could impact the mixer's functionality.
	• At a minimum, **once every 3 years.**
	Testing procedure options:
	• Laboratory testing – the CFIA have examples in their Developing Mixer Performance Testing Procedures (https://inspection.canada.ca/en/animal-health/livestock-feeds/inspection-program/developing-mixer-performance-testing-procedures).
	• Penn State Particle Separator (https://extension.psu.edu/penn-state-particle-separator#section-9).
	• Other methods must be reviewed and accepted by the CFIA before use.
	In total, farms are expected to have the following documentation:
	• Mixer performance testing procedure.
	• Records from mixer performance testing that includes:
	  ◦ Testing date.
	  ◦ Documentation of what was used as a tracer and the number of samples taken.
	  ◦ Mixing time.
	  ◦ Laboratory results or raw data from non-laboratory methods.
	• Equipment maintenance records as recommended by the manufacturer.
	• Records of corrective actions taken when unacceptable uniformity is found.

Testing for chemical and physical composition	To ensure that the feed is suited for the purpose for which it is intended, the feed must meet the compositional and safety standards for livestock feeds under the Feeds Regulations, 2024. Check with your nutritionist to determine if this testing is already being done.
Balancing scales	To ensure accurate measurement of feed ingredients: • All scales and metering devices should be appropriate for their use. • All scales and metering devices used in the making of feed should be calibrated and maintained properly to avoid errors. • All scales and metering devices used in the making of feed should be tested for accuracy. Farms must determine appropriate calibration and verification procedures for their equipment. See link below for more information. Developing scale and metering device calibration and verification procedures (https://inspection.canada.ca/en/animal-health/livestock-feeds/inspection-program/scale-and-metering-device).
Investigation	The farm must investigate if it is suspected that the feed: • Presents a risk to human or animal health. • Presents a risk to the environment. • Does not meet the Feeds Regulations. • If a risk is confirmed, then the local CFIA feed inspection office must be notified.

Control Measure	Method of Implementation
Record Keeping	Farms must keep a copy of the mix sheet (see below), mix formula and any veterinary prescriptions issued for a custom medicated feed for **2 years** after the last day the feed was mixed. If the feed contains an animal product or by-product, the farm must keep a copy of the mix formula, mix sheet, information if the feed contains prohibited material, the date feed was made, lot number and any other information use to identify each lot of feed, and the name and address of any person to whom the feed was distributed or sold to, including the description, name of the feed and the quantity, for 10 years after the day the feed was made. Farms must keep a copy of each version of their PCP for 2 years after the day on which it was no longer implemented. A copy of this completed template would be suitable. **NOTE:** The SOPs and Records from Table 4 that apply to your farm's PCP must also be kept for **2 years** after the day the PCP was no longer implemented.

Mix Sheet Template

Ration name: _____

Group: _____

Number of nimals: _____

Batch Size: _____

Load Order	Ingredient	Target weight	Loaded weight
TOTAL			

Source: Oelberg, T. J., & Stone, W. (2014). Monitoring Total Mixed Rations and Feed Delivery Systems. Veterinary Clinics of North America: Food Animal Practice, 30(3), 721–744. https://doi: 10.1016/j.cvfa.2014.08.003

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APPENDIX IV:
Unfit and Compromised Conditions

Animals that are compromised, as defined by the Health of Animals Regulations Part XII must only be transported directly to the nearest suitable place to receive care or be promptly slaughtered, except an assembly centre.

Animals are considered compromised if they are showing the following conditions:

- Bloated with no signs of discomfort
- Acute frostbite
- Blind in both eyes
- Not fully healed after a procedure (including dehorning, or castration)
- Lame other than as described in unfit
- Has a deformity or fully healed amputation
- Is in period of peak lactation
- Unhealed or acutely injured penis
- Minor rectal or minor vaginal prolapse
- Mobility limited by a device to its body
- Has any other signs of infirmity, illness, injury or condition that indicates an animal has a reduced capacity to withstand transport

Compromised animals must be transported with special provisions to minimize suffering (e.g., isolated on the trailer or transported with a familiar animal, if safe to do so). Additionally, these animals must be provided feed, water, and rest at least every 12 hours.

Do not transport unfit animals, as defined by the Health of Animals Regulations Part XII except for veterinary care, under veterinarian direction. Animals are considered unfit if they are showing the following conditions:

- Non-ambulatory
- Any fracture that impedes the animal's mobility
- Is lame in one or more limbs to the extent that it exhibits signs of pain or suffering and halted movements or a reluctance to walk
- In shock or is dying
- Severe prolapse (uterus, rectal or vaginal)
- Signs of a generalized nervous system disorder
- Labored breathing
- Severe open wounds
- Hobbled to aid in treatment of an injury
- Signs of dehydration
- Signs of hyperthermia or hypothermia
- Signs of fever
- Has a large hernia
- Last 10% of gestation or has given birth within the preceding 48 hours
- An unhealed infected navel
- Gangrenous udder
- Severe cancer eye (squamous cell carcinoma of the eye)
- Bloat with discomfort and weakness
- Signs of exhaustion
- Is extremely thin
- Has any other signs of infirmity, illness, injury or condition that indicates an animal cannot be transported without suffering

Source: Health of Animals Regulations (C.R.C., c. 296), ss. 139, 140


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APPENDIX V:
Transfer of Care Document Example

Arrival Date: _____

Arrival Time: _____

Arrival Location: _____

Condition of Animals upon Arrival: _____

_____

_____

Date, Time, and Place when Animals were last fed, watered, and rested:

_____

_____

Owner Name: _____

Owner Contact Information: _____

Transporter Name: _____

Transporter Contact Information: _____

Receiver Name: _____

Additional Comments (e.g., number of animals, types of animals, welfare concerns, etc):

_____

_____

_____

Note: Federal regulations require that transporters give the Transfer of Care (TOC) document to the recipient of the animals before leaving the slaughter establishment or assembly centre. This ensures that there is no interruption in responsibility for animal care**.**

Source: Health of Animals Regulations (C.R.C., c. 296), s. 153


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dairyfarmersofcanada.ca/en/proaction