

Livestock Wintering: Locating and Managing Your Site to Make It More Sustainable

What Is Sustainable Wintering?

The necessities of livestock production — food, water and shelter — have, in some cases, led producers to overuse confinement facilities or over-utilize key areas of the farm. A sustainable wintering system is one that provides livestock with access to these necessities in a way that balances production efficiencies, farm profits, and environmental stewardship.

A sustainable wintering system requires farm management, feeding, infrastructure and resource management strategies that work together. They create

flexibility and maximize profits, while at the same time minimizing the environmental effects of livestock production.

In recent years, livestock practices have come to the forefront of public scrutiny because they affect not only farms, but also neighbouring communities and the general public. Even though it's your livestock operation, the protection of land and water resources is an issue for everyone — including the consumers who buy your products. For more information on sustainable wintering systems, see the factsheet titled *Sustainable Livestock Wintering: How Can It Work for You?*, available from Manitoba Agriculture, Food and Rural Initiatives and from Agriculture and Agri-Food Canada (PFRA)

Environmental and Health Concerns Associated With Livestock Production

- Concentration of livestock in feeding or confinement areas for extended periods can lead to localized accumulation of manure and excessive nutrients. This can result in the potential for nutrients and micro-organisms (bacteria and parasites) to run off into nearby surface waters.
- When manure accumulation occurs on shallow soils over bedrock, or when there is coarse sand and gravel at or near ground surface, groundwater becomes vulnerable to nutrients and micro-organisms that migrate (leach) into the system.
- Manure can contain bacteria such as *E-Coli*, including the 0157:H7 strain that causes human diarrhea, fever, vomiting, kidney failure and sometimes death. It can also contain *Cryptosporidium* and *Giardia* parasites that can cause serious gastrointestinal sickness, diarrhea and weight loss in both humans and animals.
- Wildlife habitat can be harmed from high animal densities, trampling of shorelines and waterway banks, and runoff in surface waters.

Choosing A Sustainable Wintering Site That Works For You

The ideal wintering site(s) should be feasible for you, healthy and comfortable for the herd or flock, and safe for the environment.

Your land contours, your water resources, your herd size and requirements, and your existing arrangements will all be important factors in determining the site or sites you choose. You'll also want to consider your existing infrastructure, in combination with some new options such as wind fences, portable fencing for paddocks and feeding, and alternate water stations. Because no two situations are alike, your solution to finding a sustainable wintering site will be uniquely yours.

Ultimately, there are two goals. One is to move animals away from, or restrict use of, sensitive areas such as slopes, sandy soils, non-vegetated areas, riparian zones, woodlots, and land already nutrient rich from manure additions. The other is to take advantage of a greater portion of your land base and in-field feed sources over a greater portion of the year.



Greenhouse Gas Mitigation Program for Canadian Agriculture

Reducing greenhouse gas through healthy pastures, efficient feed practices and better manure management

Guidelines for Locating a Sustainable Wintering Site

Avoid areas that are over-utilized.

Over dependence on key areas can result in nutrient build-up, vegetation loss, and a decline in production – as well as movement of nutrients, bacteria and sediment off the site. In addition, animals are more prone to health problems when kept in an unhealthy environment.

Locate watering stations away from water sources to avoid runoff contamination.

A deeply-buried water pipeline to a central location on pasture works well to bring water to the animals, and solar and wind-powered pumps can ensure there is a clean and reliable water supply even at the most remote locations.

Select a site that has good ground cover.

Ground cover or crop residue will help catch and filter nutrients, bacteria, and sediment from surface runoff.

Try and choose a site with less than 2% slope to minimize runoff.

The steeper the slope, the more runoff and erosion you can expect. If a sloped area is your only option, locate bedding and feeding sites as far as possible from any waterways, in a spot where runoff is least likely to flow in the direction of the waterway. Try to select naturally elevated grounds for high traffic areas and bedding sites, in order to ensure any field drainage can be controlled in a direction of least risk to waterways.

Consider soil type.

Clay soils are best at reducing leaching, while sandy soil, gravel, shale or sandstone outcrops are prone to leaching and will require many of the management considerations discussed in this factsheet.

You Can Help Reduce Greenhouse Gas

Healthy pastures and riparian areas are better able to sequester carbon, and more-widely distributed manure reduces greenhouse gas emissions compared to manure packs. For more information on greenhouse gas, and how livestock producers can do their part to help reduce it, visit the following two websites.

- Canadian Cattleman's Association: www.cattle.ca
- Greenhouse Gas Mitigation Program: http://www.agr.gc.ca/progser/ghgm_e.html

Avoid areas with high water tables or spring flooding history.

This will help minimize the potential of nutrients and bacteria leaching into groundwater, or washing into surface water.

Strategies for Maintaining a Sustainable Wintering Site

Try and utilize more of your farm.

If you increase the size of the wintering area and provide more land to utilize the manure, the likelihood of accumulation is less while the benefits to growing crops is greater. Remember that animal density, available land base, and length of pressure on a particular area go hand in hand. Good, healthy vegetation cover growing over the entire wintering area the following summer is a good indicator that manure distribution was adequate. If this does not happen, your animal density is too high.

Remove and spread manure build-ups.

This often includes manure from bedding, watering, feeding and other high-traffic areas.

Be aware of your farm's "nutrient budget."

That is, based on your farm and your crops, how much manure can your land use? You wouldn't likely over-apply nutrients that are commercially bought, but you may be letting your animals over-apply manure. Use provincial factsheets to figure out how much is enough, soil test, and adjust nutrient levels accordingly. A new publication titled *Tri-Provincial Manure Application and Use Guidelines* is now available at your ag rep office.

Keep animals moving.

Every few days is ideal, but once or twice a winter is much better than no movement at all. Even changing wintering locations from year to year will help manage manure build-up and can help to prevent over utilization of any one spot.

Use wind fences and portable fencing.

This will allow you to set up temporary sites which can be moved as often as you want. If you can't move the site, move bedding and feeding areas as often as possible, in order to spread manure as much as possible.

Consider a different approach to winter feeding.

Utilize a program that takes the animals to the feed, and not the feed to the animals. This might involve stockpiled forage early in the winter, followed by swath grazing, corn grazing, and then bale feeding (on pasture).

Establish satellite feed storage areas.

Stored feed supplies are traditionally harvested and transported back to a central storage and feeding area. →

Production Benefits of a Sustainable System

- Costs associated with spreading and distribution of manure will be greatly reduced.
- Livestock will be more comfortable in a natural environment where they are not stressed. The result will be less animal health problems and better performance.
- Cost of hauling feed will be reduced when you use on pasture sources such as stockpiled forage, cereal and corn swaths, and bales.
- Manure or “farmers’ gold” provides major soil-building benefits, and when animals are allowed to use marginal and unproductive land at appropriate rates, manure can make that land become productive.

Consider storing a portion of your feed supplies in key areas throughout your farm where they can be accessed and fed on different feeding grounds than traditionally used. You’ll help spread manure, plus there are potential savings on labour, gas and equipment use.

Manage for the least amount of impact when moving cattle.

This can be done by creating gravel stream crossings with control gates, and by ensuring that alleyways are not located on land prone to runoff or seepage. Don’t overuse alleyways. Provide greater amounts of bedding litter to absorb nutrients, and prevent leaching and runoff.

Increase vegetative cover where at all possible.

This will provide natural filters for runoff or sediment that might otherwise lead to surface water or groundwater quality problems. Seed crops in these areas that will utilize the nutrients and provide highly nutritious feed to the herd or flock.

Create buffers around sensitive areas.

Permanent vegetation around water bodies will help to protect them.

Protect well heads.

Allow a minimum 30-foot buffer between the well and the animals, and ensure drainage is away from the well head. The cribbing and lid should be properly constructed.

Consider diverting off-site water flow.

Water coming onto the site should be diverted around bedding and feeding spots to help reduce runoff. This type of runoff control will help reduce mud and provide

a healthier environment for animals, including preventing newborn animal scours. It will also reduce the amount of bedding that needs to be replaced.

Consider landscaping with ditches and channels.

Water leaving the site can be controlled in this manner to direct flow to less-sensitive areas.

Remove and spread manure early.

If manure has built up, haul it away early in the spring to minimize the chances of it being washed away or seeping into the ground. When you spread it, avoid land that is prone to erosion from surface water and areas that drain directly into waterways. Take precautions on all land adjacent to permanent water bodies and major field drains.

Consider fencing to put you in control.

Portable or permanent fencing is essential to control and direct feeding, control animal distribution and density, encourage better field rotation, protect sensitive areas, and enhance manure distribution.

Look into watering options.

You’ll be surprised at the innovations out there, at their cost, and how they can make your whole wintering site more portable. Check with your local ag rep or PFRA office.

Consider wildlife habitat.

While most producers are respectful of the need to sustain our wildlife populations, sometimes it might take a little extra planning to accomplish this.

Refer to provincial factsheets.

There are a wide variety of provincial factsheets available for many of the topics discussed here. Check with your local ag rep.

For More Information

- Your local Manitoba Agriculture, Food and Rural Initiatives office
- Manitoba Agriculture, Food and Rural Initiatives website: www.gov.mb.ca/agriculture/index.shtml
- Foragebeef Website: foragebeef.ca
A forage and beef production website that contains information gathered from Manitoba, Alberta and Saskatchewan.
- Your local Agriculture and Agri-Food Canada (PFRA) office
- *Alberta Agriculture’s Cattle Wintering Sites* publication, available on the Alberta Agriculture, Food, and Rural Development website: www.agric.gov.ab.ca/sustain/cattliewintering.html

Evaluate Your Wintering Site

(Put a ✓ to your sustainable practices; X to the ones that need attention)

| SITE CHARACTERISTICS | ✓ EXCELLENT! | X CAUSE FOR CONCERN | X NEEDS ATTENTION |
|-----------------------------------|---|---|--|
| Shelters | <input type="radio"/> Portable and fixed – animals kept over large area | <input type="radio"/> Portable and fixed – animals kept somewhat confined | <input type="radio"/> Fixed – animals confined in one location |
| Animal Density | <input type="radio"/> Less than 4 animal units/acre | <input type="radio"/> 4 to 6 animal units/acre | <input type="radio"/> More than 6 animal units/acre |
| Watering/Feeding/Bedding | <input type="radio"/> Locations moved often | <input type="radio"/> Locations moved occasionally | <input type="radio"/> Locations remain fixed |
| Manure Concentration | <input type="radio"/> None | <input type="radio"/> Some | <input type="radio"/> Heavy |
| Animal Access to Water Bodies | <input type="radio"/> None | <input type="radio"/> Controlled | <input type="radio"/> Uncontrolled |
| Slope | <input type="radio"/> Flat (less than 2%) | <input type="radio"/> 2 – 15 % slope | <input type="radio"/> Over 15 % slope |
| Land Drainage | <input type="radio"/> None into waterway | <input type="radio"/> Indirect into waterway | <input type="radio"/> Direct into waterway |
| Vegetative Buffer Around Waterway | <input type="radio"/> Well treed, high undergrowth | <input type="radio"/> Grass | <input type="radio"/> None |
| Water Flow Into Site | <input type="radio"/> No off-site water drains through wintering site | <input type="radio"/> Off-site water diverted around wintering site | <input type="radio"/> Off-site water flows directly through site |
| Amount Ground Cover | <input type="radio"/> High | <input type="radio"/> Medium | <input type="radio"/> None |
| Flooding | <input type="radio"/> None | <input type="radio"/> Every 10 years | <input type="radio"/> Every 3 years or more |
| Well Location | <input type="radio"/> None on site (includes abandoned) | | <input type="radio"/> In-use or abandoned located on site |
| Well Head on Site | <input type="radio"/> Isolated | <input type="radio"/> Minimal isolation | <input type="radio"/> Not isolated |
| Well Head on Site | <input type="radio"/> Good construction | <input type="radio"/> Adequate construction | <input type="radio"/> Poor construction |
| Well Head on Site | <input type="radio"/> Good drainage away from head | <input type="radio"/> Adequate drainage away from head | <input type="radio"/> Water ponds at head |
| Soil Type | <input type="radio"/> Clay | <input type="radio"/> Silty | <input type="radio"/> Sandy or bedrock exposure |
| Water Table | <input type="radio"/> Low | | <input type="radio"/> High |
| Manure Spreading | <input type="radio"/> After spring thaw | | <input type="radio"/> None spread at all |
| Site Movement | <input type="radio"/> Alternate between several sites each year | <input type="radio"/> Move to new site every year | <input type="radio"/> Same site always |