

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 over use confinement facilities or over use 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 *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 O157: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 run-off 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, water resources, herd size and requirements and 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 watering 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.

Guidelines for Locating a Sustainable Wintering Site

Avoid areas that are over used.

Over dependence on key areas can result in nutrient build-up, vegetation loss and a decline in production. It can also

Greenhouse Gas Mitigation Program for Canadian Agriculture

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

mean 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. 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 run-off.

Try and choose a site with less than two percent slope to minimize run-off.

The steeper the slope, the more run-off 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 run-off is least likely to flow in the direction of the waterway. Try to select naturally elevated grounds for high traffic areas and bedding sites 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.

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.

You Can Help Reduce Greenhouse Gas

Healthy pastures and riparian areas are better able to sequester carbon. Additionally, evenly distributed manure in the pasture 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: www.agr.gc.ca/progser/ghgm_e.html

Strategies for Maintaining a Sustainable Wintering Site

Try to use more of your farm.

If you increase the size of the wintering area and provide more land to use 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 and feeding sites, and other high-traffic areas.

Be aware of your farm's nutrient budget.

Based on your farm and your crops, the amount of manure that your land can use is your nutrient budget. 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 *Tri-Provincial Manure Application and Use Guidelines* is now available at your MAFRI GO Centre.

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 prevent over use 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 to spread manure as much as possible.

Consider a different approach to winter feeding.

Use 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. Consider storing a portion of your feed supplies in key areas throughout your farm where they can be accessed and livestock can be fed on different feeding grounds than traditionally used.

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.

You’ll help spread manure, plus there are potential savings on labour, fuel 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 run-off or seepage. Don’t overuse alleyways. Provide greater amounts of bedding litter to absorb nutrients, and prevent leaching and run-off.

Increase vegetative cover where at all possible.

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

Create buffers around sensitive areas.

Permanent vegetation around water bodies will help 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 run-off. This type of run-off 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 Manitoba Agriculture, Food & Rural Initiatives GO Centre or PFRA office.

Consider wildlife habitat.

While most producers respect 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 Manitoba Agriculture, Food & Rural Initiatives GO Centre or PFRA office.

For More Information

- Your local Manitoba Agriculture, Food and Rural Initiatives Growing Opportunities Centre.
- Manitoba Agriculture, Food and Rural Initiatives website: www.manitoba.ca/agriculture.
- Forage Beef website: www.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.
- Manitoba Forage Council website: www.mbforagecouncil.mb.ca.

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"/> Moderate 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

The following agencies worked collaboratively and provided funding for this publication:

- Manitoba Agriculture, Food and Rural Initiatives
- Agriculture and Agri-Food Canada
- Manitoba Forage Council

Partial funding for this publication was provided by the Greencover Canada Program, a five-year, \$110-million Government of Canada initiative to help producers improve grassland-management practices, protect water quality, reduce greenhouse gas emissions and enhance biodiversity. For more information please visit www.agr.gc.ca/env/greencover-verdir or phone 1-866-844-5620.