

A Quick Guide to Extended Grazing

More Efficiencies, More Flexibility

Many producers are leaving their herds or flocks on pasture long into the fall and on into the winter, using perennial pastures held in reserve, annual crops, crop residues and bales left in the field. In early spring, they turn again to perennial pastures that have been held in reserve for this purpose, or to fall-seeded annuals.

By extending the grazing season in this manner, instead of confining animals and using stored feed, you can gain significant economic returns and environmental advantages. For every day you keep the animals on pasture, you can cut your feed costs approximately in half. In addition, you will be returning nutrients back to your land base, instead of concentrating them in one area where they cannot all be used by growing crops.

Extended grazing, because it usually involves a lower feed quality, is ideal for mature animals. Calves/lambs, younger or thinner animals, or cows with calves need to be monitored closely for body condition, since they need more energy

(higher forage quality). If body condition starts to deteriorate, you may have to consider supplemental feed and shelter.

While extended grazing requires increased management on your part, it allows for fewer inputs of labour and time, and provides more flexibility in your entire operation. It also allows you to use more of your farm. Many Manitoba producers who are enthusiastic about extended grazing, have been able to keep their animals on pasture all winter long.

Stockpiled Perennial Forage

Perennial pasture that is grazed early in the season, and then saved for late-season or early spring grazing, is referred to as stockpiled forage. Typically, the first cut is used for grazing or is cut as hay. Then, the stand is left so that sufficient re-growth takes place before dormancy. The pasture is then left to rest until it is needed in the fall or in the spring. Depending on forage characteristics, it can be grazed as a standing crop, or swathed and grazed from the swath.

Economic Benefits

- Cost of maintaining animals is significantly reduced because animals harvest their own food.
- Costs associated with hauling manure are reduced, and can be eliminated if animals are kept on pasture all year round.
- Nutrients (manure and urine), are returned to the land base to be utilized by growing plants, instead of concentrating in one area and being lost to runoff or leaching.
- Labour costs are not only lower, but labour is distributed over the whole year instead of being concentrated in the high season.
- Animals benefit from the cleaner environment that pasturing provides. Disease and infections are greatly reduced.

Environmental Benefits

- Manure is spread out over the entire pasture, minimizing the environmental effects of concentration in one area.
- Natural fertilization can occur over the entire pasture, at rates that are environmentally beneficial.

Grazing Tips and Production Information

- Fertilize pastures in July (50 pounds nitrogen per acre) for optimum forage for fall grazing. Some Manitoba trials increased dry matter by 75-100 per cent and TDN by as much as six per cent.
- Use stockpiled pastures in the fall until November for growing animals, and until December or later for maintenance animals. Because forage quality is often low due to deterioration as it is weathered, dry pregnant cows or ewes are most often grazed because of their lower nutritional requirements.
- Use forages that grow late into the fall for maximum palatability and quality, selecting species that remain upright and shatter resistant. (Some legumes are subject to shattering leaf loss.)
- Grass/legume mixtures are more suited than pure grass or legume stands.
- Prior to frost, alfalfa can be grazed moderately (only the tops) and suffer less stress than when it is cut to the ground for hay.
- Stockpiled forage can also be carried over the winter and used in the early spring to supply nutrition for newly calved cows or grasser yearlings during the first six weeks following snow melt. Supplemental feeding to meet nutritional requirements may be necessary.

Greenhouse Gas Mitigation Program for Canadian Agriculture

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

- Allow forage sufficient recovery time after spring or fall grazing to ensure the stand remains healthy.
- Use strip grazing and temporary electric fencing to increase feed use and reduce feed waste.
- Please see factsheet titled *Feed Quality of Stockpiled Forages* for more information on late season grazing of perennial forages.

Species to Choose

Tall fescue, Russian wildrye, meadow brome, reed canary, cicer milk vetch, and some native grasses (hard varieties)

Avoid

Soft grasses such as orchard grass

Annuals as Forage

Both spring and winter annuals are a good option for extending the grazing season. Spring-seeded cereals such as oats or barley will provide grazing six weeks after seeding or when growth is six to eight inches high, as well as later in the season, depending on the crop. Another way to provide early spring grazing is to fall seed winter annuals the previous fall.

The best option, however, is to combine spring-seeded annuals with spring-seeded winter varieties. This intercropping will give you season-long grazing of high yielding, high quality forage until late fall.

Annual crops can also be swathed in the fall and swath grazed even under the snow.

Season-Long Grazing

- Fall rye, winter wheat and winter triticale seeded in the spring are excellent when intercropped with wheat, oats or barley for maximum forage production all season.
- The spring cereal crop will provide early summer grazing, and if grazed at the six inch to pre-boot stage, will re-grow for another grazing. After this, the winter annuals will be established and can be grazed well into the fall.
- Seed spring crops at 20 to 25 pounds per acre (oats or barley), with 100 to 110 pounds per acre of winter cereal.
- Maintain grazing four inches up the stalk so that the growing point is not cut off.
- See the factsheet on annuals *Annual Crops: An Excellent Way to Increase Your Feeding Flexibility* for more information on annuals used for forage.

Early Spring Grazing

- Fall rye (the earliest emerging crop), winter wheat and winter triticale seeded in mid-August of the previous year are very good choices.
- Grazing can begin once the plants reach six to eight inches, and plants can be kept in a vegetative state by resting them and allowing re-growth before re-grazing. Once the plants head out, quality and palatability will drop quickly.

Fall Grazing

- Annual ryegrass, such as the Italian ryegrasses, can be grazed late into the fall, long after other cool-season forages have become dormant. It will provide some of the highest energy levels compared to other grasses.
- There are now some dwarf corn hybrids that are specifically for grazing – although good productivity and stock strength is also possible with a number of regular hybrids. Those with good stock strength can be grazed in deep snow, and will also provide shelter to the animals.
- Strip grazing of corn is extremely important to minimize waste and prevent over-feeding.
- Brassicas such as turnips, rape, kale and swedes provide late fall grazing, and kale can be grazed under wet conditions. In the case of turnips both tops and tubers can be grazed.
- Because brassicas are high in protein and energy (TDN), and low in fibre, they are very similar to a concentrate. As a result, they must be strip grazed on a very controlled basis, and supplemented with high fiber roughage.

Swath Grazing

- Annual crops can be swathed in the late summer or early fall (mid-September), and animals can graze right from the swath for cost savings of up to 50 per cent over traditional feeding methods.
- Spring crops should be seeded mid to late June or early July, to ensure they are at the right stage at harvest.
- Most annuals should be cut at the early dough stage for highest quality. Oats should be cut at or just before the milk stage, and barley at or just before the soft dough stage, for maximum results. Even though the late dough stage would provide more nutrition, excess seed shattering will occur and there is little nutrition in the leaves.
- Crops should be cut prior to frost to prevent nitrate toxicity (which occurs when a fertilized, growing plant suffers an environmental stress), but late enough so that temperatures are cool enough to prevent mould.
- Control access by strip grazing mature cereal crops because of the potential for grain overloading by the animals.
- Swaths should be as narrow and deep as possible to protect against weathering and wastage.
- Late spring/summer seeding will reduce yield; however timing harvest stage with late summer conditions is more important to create a high quality swath grazing crop. Plant late maturing varieties when planning for early seeding dates.
- Use a portable electric fence laid out across the swaths to ration out daily requirements and ensure complete clean-up.
- Estimate animal intake at four to five per cent of body weight to account for waste and cold weather.
- Feed testing is important to ensure proper nutrition and checking for nitrate levels.
- When applying herbicides, check labels for grazing/feeding restrictions.
- Caution: crops cut for swath grazing are prone to wildlife feeding damage, especially in areas adjacent to the Parkland boundaries

Crops to Choose for Swath Grazing

High-yielding, late-maturing varieties of oats and barley are the best mixtures. Adding fall rye (spring seeded) will increase nutrient value and the length of the grazing period. Peas, ryegrass, and millets can also be used.

Sorghum-Sudangrass hybrids are also suitable, especially for dry areas and for coarse soils. However, if stressed due to frost, they are susceptible to high nitrate and prussic acid concentrations.

and other forested lands where large ruminant wildlife are known to inhabit. Damage from wildlife predation is not eligible for coverage by the Wildlife Damage Compensation Program; as a result, this practice is not recommended where high populations of wildlife (e.g. deer and elk) are known to exist.

Crop Residues

Crop residues are another very useful feed for maintenance animals such as dry, pregnant cows and ewes. However, it is important to provide a balanced ration to meet nutritional requirements.

When you are estimating the potential dry matter and feed value of a residue field, take into account feed waste and the extra energy needed for cold conditions, then check periodically for animal condition.

Toxins are a concern with crop residues, and monitoring is necessary. Nitrates can sometimes be found in immature crops that have frozen. Prussic acid is a possibility in some fast-growing, warm-season crops. Ergot is possible in cereals – particularly rye. Also, endophytes (a type of fungus) are often found in residues from grass seed crops (fescues and ryegrasses), and can be toxic to beef cattle and pregnant mares.

Corn Stover

- Energy can be met for most maintenance animals with good quality stover (with leaves and grain), but you will need to balance rations, usually with additional protein supplements.
- The cob and stalk have the lowest feed value, the husk and leaves have moderate value, and the grain has the highest energy value. Ideally, forage stover should contain a high proportion of leaves and husks, as well as any grain left after harvest.
- If there are only stalks and cobs, animals will need supplemental energy to meet their requirements for maintenance and cold weather.
- If there is excessive grain in the stover, it may be possible to graze yearlings or growing animals first, followed by cows and ewes.
- Prevent animals from overeating any excess grain. This can be done by strip grazing or reducing the field size to limit selective grazing.
- If there is considerable rain and cool weather following harvest, stover will deteriorate and drop in nutrient value.

Cereal Straw

- Cereal straws, often a lost feed source, are an excellent source of feed for dry, pregnant cows and ewes.
- Animals will clean up the crop residue, as well as unharvested grain and any grass that grows in low spots or at the edge of the

field. New, portable, electronic fencing technology makes it easier to control and direct animal feeding.

- Do not allow the animals to eat too much straw without a protein supplement to help digestion, or compaction will occur.
- Use feed testing, and see your Farm Production Advisor or your feed consultant to balance the rations to meet the animals' requirements.

Chaff and Grain

- Chaff, surplus grain and weed seeds, the most nutritious part of the cereal residue, are a byproduct of harvesting. Equipment is available for most combines that will collect the chaff and place it on top of the straw swath for baling, or it can be blown on to a wagon. Chaff can then be placed in piles on the field for early winter feeding.
- Supplemental nutrients will be required to balance the ration.

Average Nutritional Value of Cereal Straw and Chaff (Manitoba)							
FEED	% DRY MATTER	% PROTEIN	% CALCIUM	% PHOS.	% MAG.	% ADF*	% TDN**
WHEAT CHAFF	91	4.6	0.24	0.08	0.12	51.5	43.6
WHEAT CHAFF & STRAW	86	4.0	0.25	0.12	0.12	51.5	39.7
BARLEY CHAFF	89	6.5	0.52	0.13	0.17	42.8	53.0
BARLEY CHAFF & STRAW	89	5.0	0.45	0.11	0.15	49.6	45.6
OAT CHAFF	87	7.2	0.71	0.14	0.23	42.6	53.1
OAT CHAFF & STRAW	84	5.1	0.39	0.10	0.15	50.1	45.1
CANOLA CHAFF	89	5.9	1.45	0.12	0.33	56.0	38.5
CORN STOVER (GOOD QUALITY)	80	6.5	0.57	0.10	0.22	39.0	50-60

* ADF = Acid detergent fiber, an indication of potential digestibility of the forage

** TDN = Total digestible nutrients, an indication of the potential energy value of a forage

Approximate Nutrient Requirements of Maintenance Animals In the Winter				
TYPE OF ANIMAL	% PROTEIN	% TDN	% CALCIUM	% PHOS.
CATTLE (1,200 LB COW)	7.5	47	0.50	0.40
SHEEP (150 LB EWE)	9.4	55-59	0.36	0.26

Note: These are average requirements that will vary with stage of pregnancy/ fleshing/lactation, as well as with cold weather.

Bale Grazing

Bale grazing involves harvesting forage as round bales and moving them to winter feeding sites on pasture. Generally, you would select pastures where you can use the manure for crop fertilization. Bale grazing requires some planning in the fall to place the bales where they can be easily accessed by the livestock, and to ensure that excess nutrients are not being applied. See MAFRI's *Bale Grazing* factsheet for more details.

Grazing Tips

- Use bales in a separate feeding area, or as part of a larger pasture that is being swath grazed. They can be used on their own, or as an alternate feed source to swaths or stockpiled pasture when snow is deep or during a snowstorm.

- Ideally, bales should be spaced a minimum of 20-25 feet apart to allow access by the feeding animals.
- High-tensile electric wire is essential to control feeding and minimize waste, and should be used to separate out a three to four day feed supply.
- If sisal twine is used, leave the bales on their sides and let the twine rot. It does not have to be removed. However, if plastic twine is used, bales should be placed on their ends so that the twine can be removed prior to feeding.
- Contact your local your local MAFRI GO office to discuss any soil nutrient regulations that may apply.

Special Considerations for Grazing in the Snow

- Cattle and sheep can easily graze stockpiled pastures covered in up to five inches of soft snow, although quite often snow depth can be more – especially for cattle.
- If animals know there is forage under the snow, they will root down to it. Don't be in too much of a hurry to provide supplemental feed after a heavy snow, or they will become lazy and stop grazing.
- Swaths can be grazed in up to two feet of snow.
- Snow must be soft. If it is icy or crusted over, animals will wear the skin off their noses and the hair off their lower legs.
- If swaths are ice covered, you can try and open them up by driving a tractor up and down.
- Stockpiled forage or swaths in low-lying or other areas of the pasture that accumulate snow should be used early in the winter, before the snow builds up.
- Under certain conditions, snow can be used as a water source for livestock.

Infrastructure Requirements for Extended Grazing

Shelter

Portable wind fences provide movable, affordable on-pasture shelter. Place slats so that some wind gets through. Porosity of 25 to 30 per cent will reduce wind speed by 71 per cent. Solid construction, on the other hand, will force wind over the top, resulting in gusting and drifting on the animal side of the fence. (See the factsheet *Sustainable Livestock Wintering: How Can It Work for You?* for a diagram on portable fencing.)

Bedding

Fresh snow is an excellent insulator. If animals are moved often, so it does not become packed, snow can be used for much of the winter. Avoid frozen ground, manure packs and frozen snow.

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Animals can lose up to 60 per cent of their body heat into this frozen material, draining body fat reserves.

Fencing

Portable fencing is essential to control feed consumption, and to prevent cattle from trampling and manuring in favourite spots. Electrical fencing is recommended, but because snow serves as an insulator, two-wire fence (charged and ground wire) may be necessary. Plan post placement and drill post holes in the fall, although a cordless drill with an extension bit works well on frozen ground in the winter.

Water

Snow can be used as a water source as long as there is enough and it is not in the form of ice; animals cannot lick enough ice to fulfill their water requirements. For a more permanent and dependable water supply, there are many low-cost options – including new technology that can keep water from freezing in troughs without electric power. Solar, wind-powered, self-starting, or nose pumps are good solutions for remote pastures. See the factsheet *Winter Watering Systems* for diagrams on winter watering systems.

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: www.agr.gc.ca/progser/ghgm_e.html

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.
- 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.
- Manitoba Forage Council website: www.mbforagecouncil.mb.ca.