

Feed Quality of Stockpiled Forage

What is stockpiled forage?

Stockpiling forage is a method of extending the grazing season beyond the growing season. It saves pasture and hay fields for fall and winter grazing, after forage growth has stopped. Stockpiled forage can be used from October to early December, or until weather and snow conditions prevent grazing. Stockpiled forage can also be used in early spring, before new growth pasture is available.

Why use stockpiled forage?

On the Canadian Prairies, winter feed is typically the major expense for cow herds. Stored feed is about double the cost of grazing forage. Using stockpiled forage to lengthen the grazing season can greatly reduce winter feeding costs.



How is stockpiled forage produced?

To produce quality, stockpiled forage, the field must be grazed or hayed in mid-summer and then allowed to regrow for winter or fall grazing. This method provides higher nutritional quality than forage that is not harvested at all during the growing season. The more mature the forage, the poorer the quality. Fully mature forage is too low in nutritional quality to maintain a dry cow.

What class of livestock benefits from stockpiled forage?

Stockpiled forage is primarily for mature, dry cows in early to mid-gestation. Stockpiled forage rarely meets the nutritional requirements of young, growing stock, early lactation or thin cows. This is particularly true as the season progresses or when there's inclement weather.

Is stockpiled forage quality adequate?

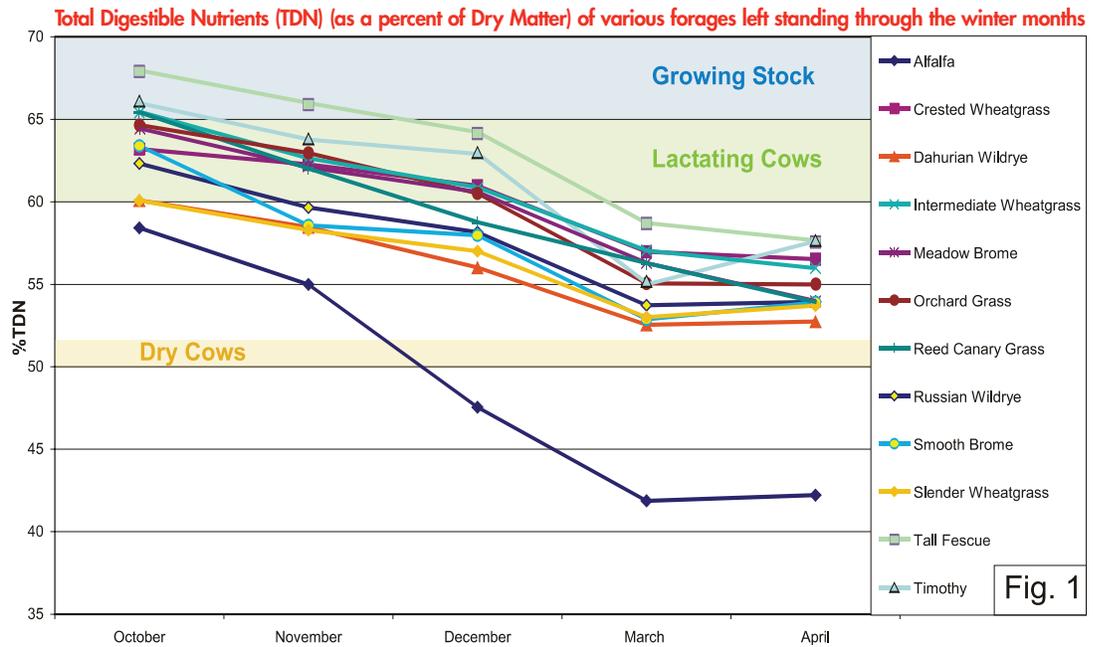
Three years of forage testing in southwestern Manitoba has shown that stockpiled grass has adequate nutritional quality from October to December for dry, mature cows in early- to mid-gestation. Stockpiled alfalfa has adequate nutritional quality from October until the end of November. Alfalfa quality depends on leaf retention. Once alfalfa sheds its leaves, forage quality declines rapidly. The nutritional value of stockpiled forage used in March and April does not meet the nutritional needs of all classes of cattle. Supplements are required if stockpiled forage is used in early spring.



Total Digestible Nutrients

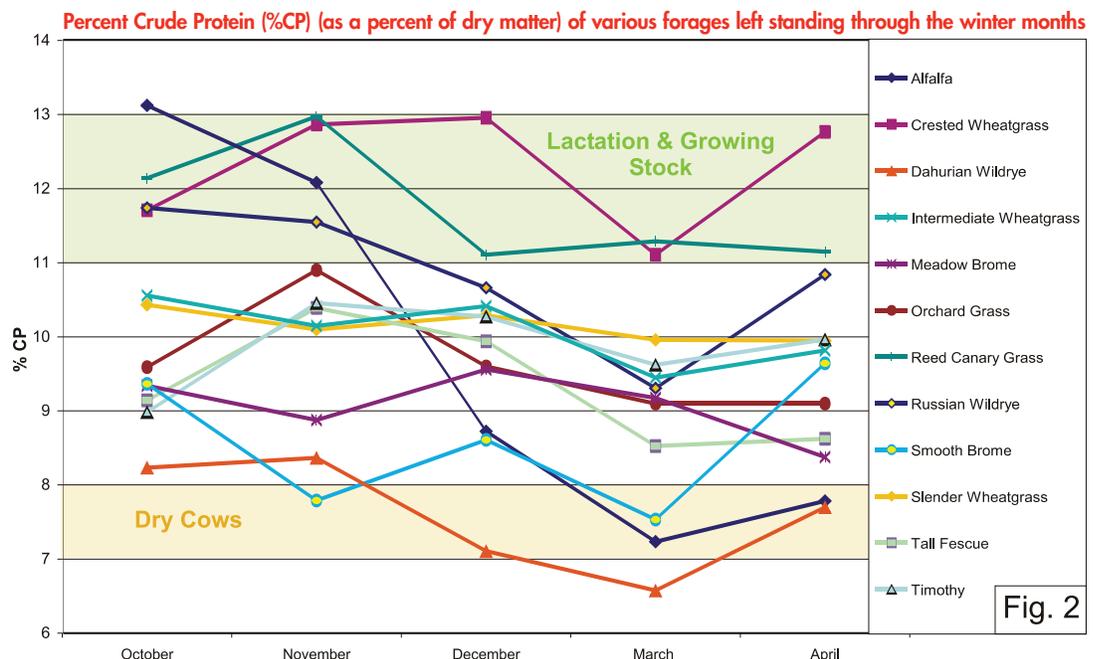
Total digestible nutrients (TDN) in stockpiled forage decline over winter (Figure 1). Fifty per cent TDN is sufficient to feed a dry cow in early to mid gestation. All of the stockpiled grasses tested retained more than 50 per cent TDN over winter and spring. However, energy levels in stockpiled alfalfa dropped significantly between October and December. By early December, testing showed alfalfa did not have adequate TDN to maintain a dry cow.

Lactating cows require 60 per cent to 65 per cent TDN to maintain milk production and young, growing stock need 65 per cent to 70 per cent TDN to gain 2 pounds per day. Figure 1 shows some stockpiled grasses contain adequate energy to support lactating cows into December. By mid-October, most stockpiled forage doesn't have enough nutrients for young growing stock.



Crude Protein

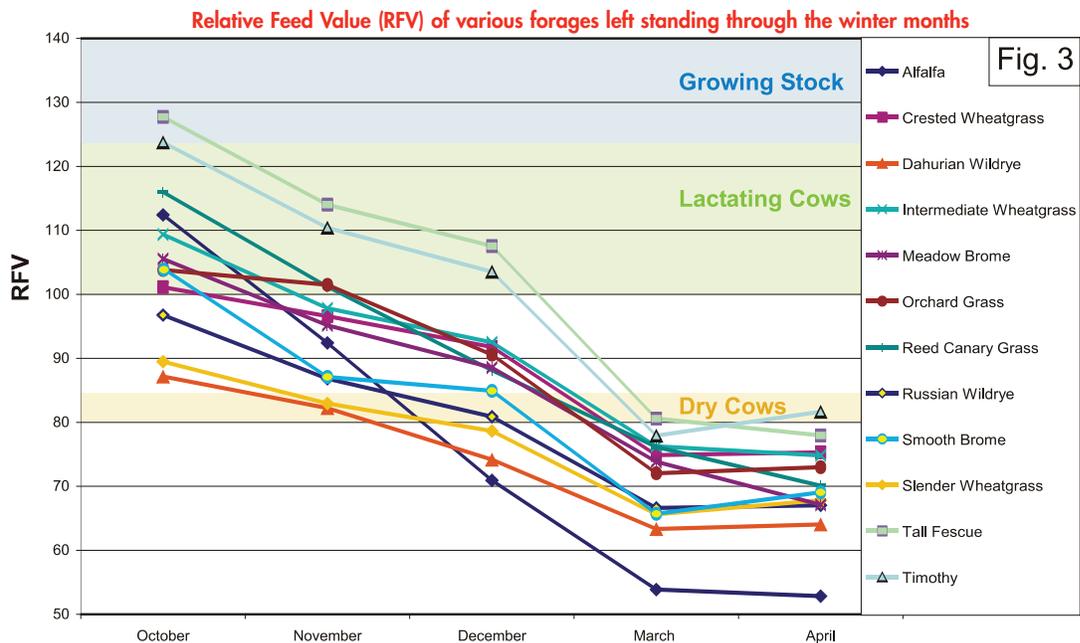
A dry cow in early to mid-gestation requires 7 per cent to 8 per cent crude protein (CP) for maintenance. Regrowth in stockpiled forages has good levels of protein for dry cows and cows in late lactation. However, young growing stock and early lactation cows require 11 per cent to 13 per cent crude protein. By mid-October most forage has insufficient CP for growing stock and early lactation cows. While the CP of grasses drops slowly over the winter, CP in stockpiled alfalfa drops rapidly between October and December, due to leaf drop.



Relative Feed Value

Dry cows in early to mid-gestation require a relative feed value (RFV) of 80. Lactating cows require values between 100 to 123, and growing stock require values between 124 to 140. Figure 3 shows all the forage tested is adequate for dry cows until the end of November.

Some forage is adequate for late lactation cows but, by late October, none are adequate for growing stock. In March and April, no forage had adequate RFV for any class of cattle.



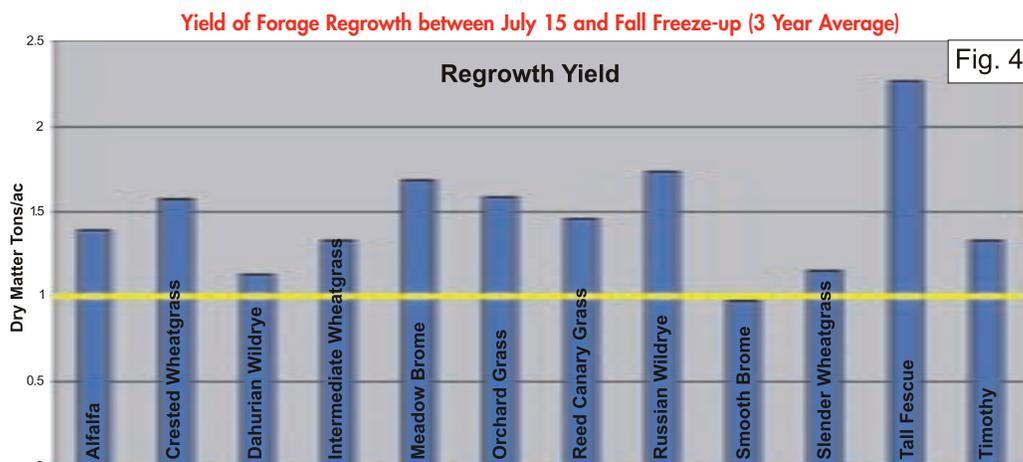
How much stockpiled forage is enough?

Cows will be working harder for their feed in fall and winter because inclement weather and snow can affect intake levels. At least one ton of stockpiled forage per acre should be present.

When producing stockpiled forage, there is a trade-off between yield and quality. Harvesting forage in early summer will provide more regrowth for grazing in the fall, but it will be poorer quality. Harvesting in late summer will provide regrowth with excellent forage quality, but there will be too little regrowth for efficient grazing. In most areas of Manitoba,

harvesting near July 15 will produce the best balance between quality and yield.

Stockpiled forage yield is highly variable between years. Figure 4 shows the average yields over three years of samples. All forage tested produced over one ton per acre in some years; however, in other years, some species yielded below one ton per acre. Forage with good regrowth potential, such as meadow brome, orchard grass, alfalfa and tall fescue, consistently gave better regrowth yields than those with poor regrowth potential (ex: smooth brome).



Choosing Forage

In addition to yield, plant structure is important to consider if livestock are expected to graze through some snow cover. Soft grasses like meadow brome and orchard grass tend to lay down under the weight of snow. Forages like tall fescue and Russian wildrye stand up and are more easily found by livestock. Grazing the soft grasses earlier in the fall will reduce the risk of forage being buried and lost under snow cover.



Tall Fescue 4050 lb/ac

How much forage should be left behind after stockpile grazing?

In general, about 1,000 pounds per acre should remain after grazing the stockpiled forage. This is about three to four inches of forage. Regardless of quality, grazing beyond this point will limit daily dry matter intake. Overgrazing weakens the stand, reducing plant longevity and vigor. Avoiding overgrazing will also help protect the soil from erosion, conserve soil moisture and increased nutrient cycling.



Meadow Brome 3250 lb/ac

Conclusions

Stockpiled forage has adequate nutritional value for dry cows in early to mid gestation. In some years, quality will be sufficient for cows in late lactation, but it will rarely be adequate for young growing stock or early lactation cows. In Manitoba, stockpiled forage may extend the grazing season into November and early December most of the time. The ideal time to use stockpiled alfalfa is between October and the end of November, as its quality declines rapidly between October and December. The nutritional value of stockpiled forage in March and April is below the requirements of all classes of cattle. Therefore, if stockpiled forages are used during this period, supplementation is required.

Figures presented are averages over three years of sampling. It should be remembered that nutritional quality and yield can vary significantly between years. Feed testing of your own stockpiled forages is recommended.

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.mbforgecouncil.mb.ca

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

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