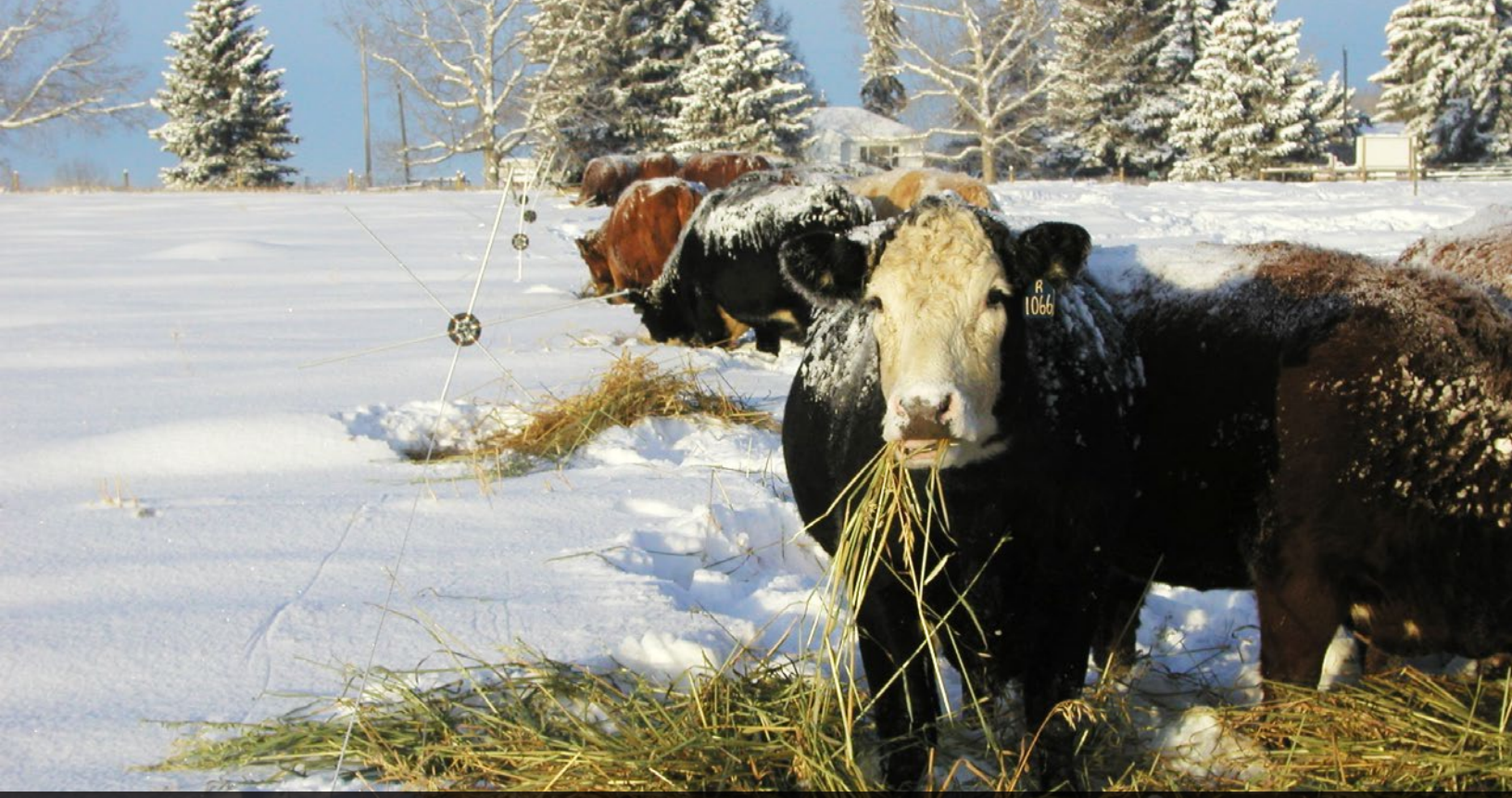

CHAPTER 45

Extending the Grazing Season: Swath Grazing by Beef Cows

Duane McCartney and Vern Baron

Beef cows can be successfully wintered outside in western Canada, as the climate is cold and dry. Traditionally, pregnant cows have grazed on the open grasslands in the dry southern areas of Saskatchewan and Alberta, while in the transitional Aspen Parkland Ecozone, where snow cover is greater, cows are confined over winter and fed hay, cereal silage, or straw supplemented with grain or hay. Sometimes the cows are fed from bunkers in feedlots which have high-porosity windbreak fences and bedded mounds, or on small fields where cows have access to trees for shelter from winter storms. Feeding accounts for the majority of the costs of wintering beef cows and producers are looking for ways of reducing these costs.

Forage yield, quality and the local environment are the three major considerations in developing strategies for reducing wintering costs. The goal of extending the grazing season is to reduce feeding costs, hauling costs, harvesting costs and losses and manure removal costs. In recent years, extensive research on swath grazing has been carried out across the Aspen Parkland of western Canada to optimize the swath grazing system.

We have found that grazing cereals that have been cut in fall and left in the swath for winter grazing is the cheapest way to winter beef cows in western Canada. In fact, this method is much cheaper than feeding stored feed in a confinement facility. This is the most significant cost saving measure adopted by the beef industry in recent years; the system may reduce wintering costs by up to 45–50% compared to traditional winter feeding system (McCartney et al. 2004). In order to swath graze, the cereal crops are seeded in late May or early June and swathed in the soft dough stage just before the first killing frost, which usually occurs in mid-September in the Aspen Parkland (Baron et al. 2008).

Forage yield

High forage yield of the annual cereal is essential for successful swath grazing. Beef producers need to seed the annual cereal crop that will give them the greatest yield at the lowest cost per cow grazing day. During the winter, cows naturally require more feed and sometimes in the southern, dryer areas of the prairies or in dry seasons there simply isn't enough swathed forage so more acres are required for the stock. The more days that the cows are grazing in winter the more money is saved; the number of grazing days is more important than the number of cows grazing on an acre of land.

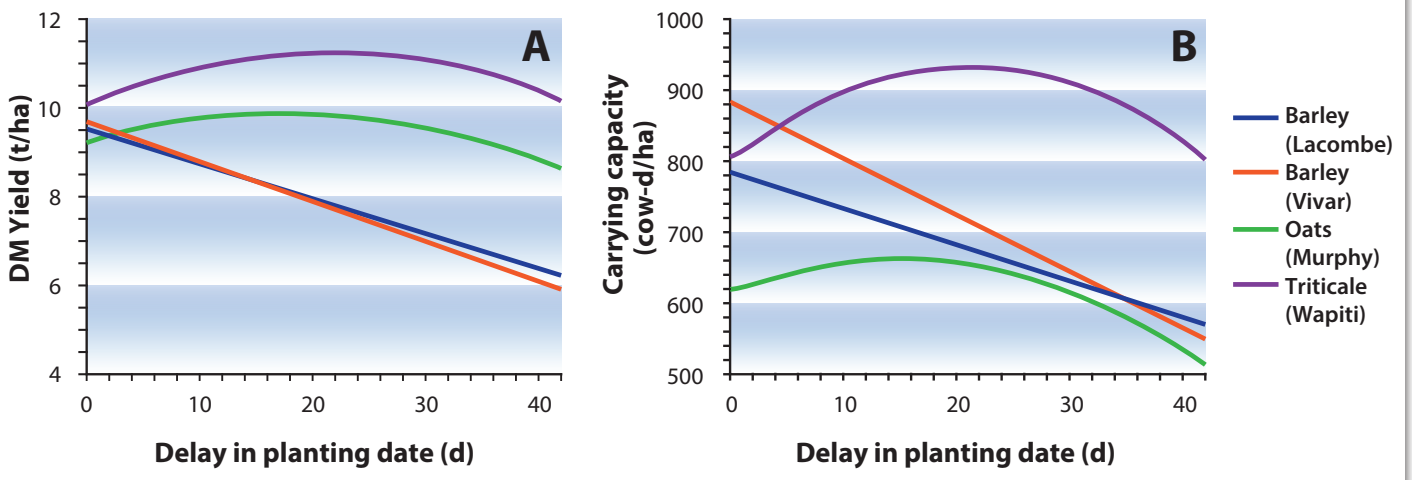

Figure1. Effect of delayed planting after 12-14 May on (A) dry matter (DM) yield and (B) estimated carrying capacity of 'Lacombe" barley, 'Vivar' barley, 'Murphy' oats, and 'Wapiti' triticale in central Alberta in2005-2007 (Baron et al. 2012).

Cereal species and seeding dates

Yield is determined largely by the number of growing days it takes to reach the soft dough stage for harvest (Fig. 1). For example, later planted barley (*Hordeum vulgare* L.) quickly reaches the soft dough stage but the yield is substantially reduced compared to early seeded barley. The growth rate of oats (*Avena sativa* L.) is slower but oats takes longer to mature. Since triticale (*Triticale hexaploide* Lart.) takes more growing days to reach the soft dough stage, it potentially produces more than other cereals. Since triticale stems have low cell wall digestibility, triticale crops need to have ample grain development to obtain the most nutritional benefit; thus more growing degree days are needed for triticale before harvest. Therefore, triticale can then be planted earlier in the growing season and harvested later at a date, closer to killing frost.

In central Alberta, whole plant yield of both standard and semi-dwarf barley was highest when seeded between mid-May and the first week in June, averaging 9.4 t/ha (4.2 T/ac) of dry matter (Baron et al. 2012). Oats and triticale planted between the last week in May and mid-June produced 10.6 and 12.1 t/ha (4.8 and 5.4 T/ac), respectively. Corn needs to be seeded by the second week of May to get high yields.

In southeastern Saskatchewan, oats and barley should be seeded May 20-25 to exploit spring moisture and cool temperatures. However, when seeded this early, the cereals are ready for swathing in early August. Swaths left in the field from early August to freeze-up are subject to significant weathering due to rain. It may be advantageous to exploit the higher yields of early-seeded spring cereals by grazing swaths in August and September, and utilizing the regrowth of perennial forage for late fall and early winter grazing. Research at the Agriculture and Agri-Food Canada Research centre in Brandon showed that grazing swaths in August and September gave the perennial bromegrass/alfalfa (*Bromus inermis and Medicago sativa*) pastures a chance to rest and re-grow for later grazing in the fall.

For the northern prairie region of western Canada, triticale provided more flexibility and higher carrying capacity across a range of relatively late planting dates compared to oats and barley. Forage yield and nutritive value for triticale remained relatively high as planting date was delayed, allowing attainment of the dough stage in concert with start of grazing in fall, and providing for a high carrying capacity (Baron et al. 2012). Delaying planting for barley until late June reduced time until maturity and resulted in lower yield and a 33% loss in carrying capacity. Late planted oats had higher yield and lower nutrient value than barley resulting in similar carrying capacity for the two crops.

Mixtures of annual crops

Mixtures of spring cereals do not have a consistent yield advantage over mono crops, but barley-oat mixtures tend to offer more yield stability. Spring and winter cereals grown in mixtures (spring-planted) have higher protein concentrations and digestibility, lower fiber concentration, but lower yield. Producers that graze livestock requiring more protein than required by pregnant beef cows, such as calves, can use mixtures of spring cereals with peas or with winter cereals.

Fertility

High yielding cereal crops used for swath grazing take up a lot of nutrients so inputs are required. The grazing cows return nutrients to the field so these fields may require less chemical fertilizer, especially after several years of grazing. It is important to monitor soil nutrient status by yearly soil testing. It is advisable to select fields for swath grazing that are relatively flat and away from water runs to prevent nutrient runoff from snow melt.

Grazing management

Swath grazing usually starts in November and continues in to the late winter or early spring depending on when the cows are moved to the calving area, usually a couple of weeks before calving begins. It should be noted that cows will normally lose some body condition and weight during swath grazing. Therefore, it is important that cows be on a rising plain of nutrition after calving so that they can be bred early in the breeding season and calve sufficiently early the next calving season.

Swaths should be cut as wide as possible to reduce the amount of exposed surface area. By reducing the number of swaths in the field, the amount of wastage will be reduced. Portable electric fence should be used to allocate 3–4 days of swaths so that the cows will consume all the feed. It is essential to monitor cows every 3–4 days to identify and remove individuals that perform poorly on swath grazing. To discourage cows from bedding and dunging on swaths, sheltered bedding areas should be provided. Wind protection such as trees or permanent or portable windbreak fences is needed. It is best to avoid grazing when the fields are muddy.

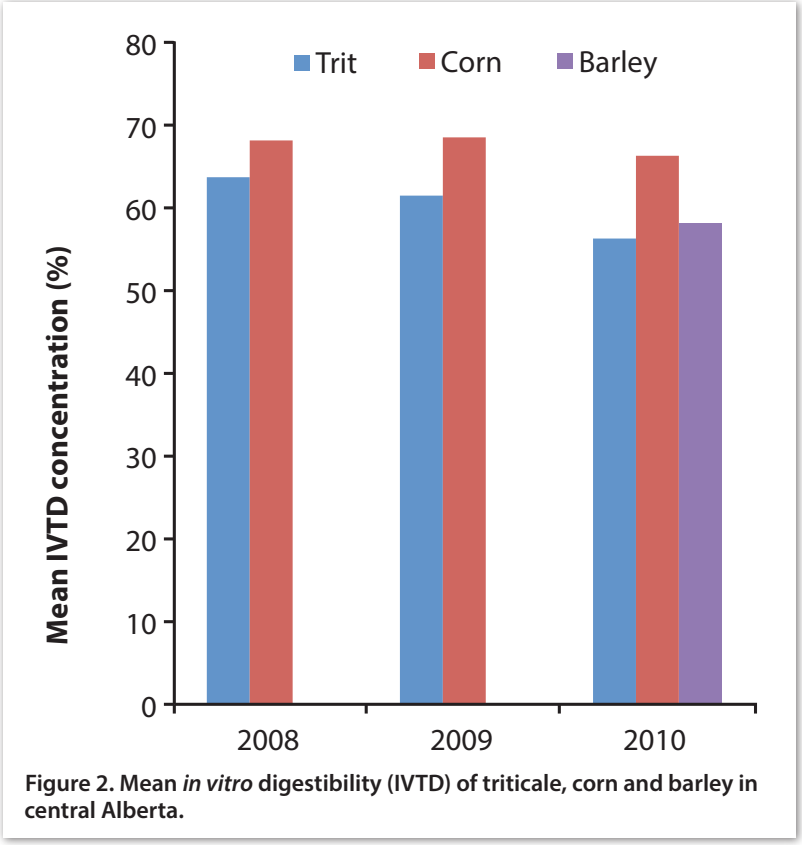

Figure 2. Mean *in vitro* digestibility (IVTD) of triticale, corn and barley in central Alberta.

The carrying capacity for swath grazing depends on the forage yield and quality, on the amount of snow and ice cover, and on the degree that the cows clean up the area before they are moved. If cows have access to a large area, they will first graze the seed heads, leaving the stalk portion for later. If they then graze the stalks for an extended period, nutritional problems may result. In central Alberta, the carrying capacity measured over a number of years and crops ranged from 382–1705 cow-days/ha (155–690 cow-days/ac) (Table 1).

Corn and triticale often have comparable forage yields but corn has about twice the cost of production. The cost of digestible dry matter was greatest for corn and lowest for triticale. Triticale also had the highest carrying capacity for winter swath grazing which resulted in the lowest daily swath grazing cost per cow regardless of planting date (Fig. 1).

Corn needs to be planted early and use the entire growing season to justify the high production costs. In central Alberta, the nutritional content of the corn was higher than barley or triticale (Fig. 2). Over the winter grazing period, cows swath grazing corn were in better body condition and lost less weight that the cows on triticale or barley. Note that corn should be swathed in strips just prior to grazing as this helps with moving electric fences for allocating grazing areas.

Table 1. Carrying capacity of various forages for winter-grazing in central Alberta.

	cow-days/ha
Corn	611–1705
Triticale	886–1283
Barley	415–765
Oat	382–636

Other management issues

Dry cows can use snow for their water source; however, when there is insufficient snow cows need access to water so alternative water supplies are always required.

Damage and feeding by large wildlife can make swath grazing impossible for some producers. The use of a double electric fence spaced about 1–1.5 m (3–4 ft) apart will help prevent wildlife from entering the swath grazing area (Peace River Forage Assoc.).

References available online at www.farmwest.com

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