

Crop Options to Replace Grain and High Moisture Corn in Beef Rations

In fields where Bt rootworm corn hybrids have been used for more than three consecutive years, resistance among corn rootworm populations is suspected. Growers can no longer rely solely on Bt rootworm hybrids for protection against rootworm injury. The best management practice to reduce the resistant rootworm population is to rotate out of corn for at least one year. Growers are encouraged to replace corn for a minimum of one year, but ideally for the next two to three years.

Barley is the most common grain used in finishing rations for cattle in western Canada. It has higher fibre, more protein, and lower energy than corn. Processing helps to improve the digestibility of barley, but the goal is to avoid excessive fines, as these increase the risk of digestive upsets (bloat, ruminal acidosis, etc.). There are differences in the feed values of different varieties of barley. Research out of the University of Guelph demonstrated little impact on growth performance, carcass traits and beef quality between feeding barley and corn.

Wheat needs to be fed with caution. Compared to other grains, it is low in fibre and has a high starch content, which makes it similar in energy level to corn. Wheat has more protein than corn, but the class of wheat affects protein content. Wheat class also impacts dry matter intake and feed conversion. Wheat degrades quickly in the rumen compared to other grains, putting cattle at greater risk of digestive upsets. The amount of wheat in cattle rations should be limited, and wheat should be fed in combination with other grains that are more slowly fermented. A step-up approach is recommended to allow cattle to adapt to increasing levels of inclusion. Processing wheat improves digestibility, however, wheat should be rolled coarsely or cracked rather than finely ground to improve performance and reduce risk of digestive upsets.

Cereal rye is another grain substitution option for grain corn. A similar approach to feeding wheat, with similar cautions, should be taken when feeding cereal rye. Rye tends to be less palatable than wheat and typically has less energy and protein.

Producers should test feed and consult a livestock nutritionist to ensure rations are properly balanced.

Spring barley can be sown as soon as soil conditions are fit to carry equipment in the spring. Where available and conditions permit, apply manure ahead of seeding. Seed at a rate of 1.0 to 1.4 million seeds/acre and target 1.25 to 1.5-inch depth. For fertility guidelines, see [Chapter 4 of OMAFRA Publication 811: *Agronomy Guide for Field*](#)

Crops. Remember to account for nutrients from manure when calculating fertility requirements.

When barley is grown in areas that receive more than 2800 CHUs, apply 45-60 kg/ha (40-54 lbs/acre) nitrogen; in areas that receive less than 2800 CHUs, apply 70-90 kg/ha (63-81 lbs/acre) nitrogen. Alternatively, soil nitrate-nitrogen tests can be used to fine-tune the nitrogen rate applied to spring barley.

Seed winter wheat during the optimum seeding dates for the area (<https://fieldcropnews.com/2019/08/optimum-planting-dates-for-winter-wheat-in-ontario/>). Where available and conditions permit, apply manure ahead of seeding. Seed at a rate of 1.4 to 1.6 million seeds/acre and target 1.25 to 1.5-inch depth. If seeding is delayed beyond the optimum timing, rates should be increased by 200,000 seeds/week to a maximum of 2.2 million seeds/acre. For fertility guidelines, see [Chapter 4 of OMAFRA Publication 811: Agronomy Guide for Field Crops](#). Remember to account for nutrients from manure when calculating fertility requirements.

In general, nitrogen rates can be pushed to 120-150 lbs/ac total for soft red winter wheat when using a fungicide application. If no fungicide application is planned, rates should not exceed 90-100 lbs/ac to manage disease and lodging risk.

The most important cereal disease to watch for is fusarium head blight (FHB), which can cause DON (vomitoxin). Choose varieties with tolerance to FHB. A fungicide can be applied when head emergence is complete (called T3 timing) to further protect the crop.

For more information on growing cereals as feed grain:

- Chapter 4 of OMAFRA Publication 811: Agronomy Guide for Field Crops: <http://www.omafra.gov.on.ca/english/crops/pub811/pub811.pdf>
- Managing Fusarium Head Blight in the 2019 Winter Wheat Crop: <https://fieldcropnews.com/2019/06/managing-fusarium-head-blight-in-the-2019-winter-wheat-crop/>
- Disease Management in Winter and Spring Cereal Crops: <https://fieldcropnews.com/2020/06/disease-management-in-winter-and-spring-cereal-crops/>
- For more information on fungicide selection please check out Publication 812, Field Crop Protection Guide, 2020-2021: <http://www.omafra.gov.on.ca/english/crops/pub812/pub812.pdf>