

Crop Options to Replace Grain and High Moisture Corn in Dairy 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.

Dairy farmers looking for alternatives to dry corn or high moisture corn as their concentrate source usually look to small grains like barley and wheat as their primary options, but barley is probably the more common option in Canada. Dairy cattle in the prairie provinces routinely consume barley-based diets and it is a common energy source for dairy cattle in northern regions of Ontario. Results from nutrition studies have shown that it is possible to achieve similar production results from cows consuming corn or barley-based diets

Different barley varieties can be quite variable. Work with your seed provider and your nutritionist to select a barley variety that will best suit your needs. The differences between barley and dry corn in nutrient profile and starch degradation rate in the rumen can affect dry matter intake and milk composition for fat and protein, unless rations and feeding programs are properly balanced and implemented. Milking cow response to barley grains also depends upon the physical processing of the grain. Talk to your feed advisor or nutritionist about the desired grain processing. Barley grain diets can have a higher risk for lactic acidosis and sub-acute ruminal acidosis (SARA), but these risks can be managed in balanced diets with optimal physical characteristics, like particle size. 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 degrades quickly in the rumen compared to other grains, putting cattle at greater risk of digestive upsets (bloat, ruminal acidosis, etc.). The amount of wheat in rations should be limited, and wheat should be fed in combination with other grains that are more slowly fermented.

Regardless of what is being fed, producers should test feed and consult their 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.

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>