

Crop Options to Replace Grain Corn in Poultry 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.

Cereal grains, such as wheat and barley, can be used in poultry diets. Corn is mainly used because it is energy dense, highly digestible, high in starch and is usually very stable in its composition. Many countries and other parts of Canada use wheat and barley as the main energy sources for poultry rations. Wheat and Barley can be used to replace part or total corn replacement, so long as diets are balanced properly for energy, amino acids and feeding enzymes, etc. without negatively impacting the growth or quality of the meat. It should be noted that there may be some challenges to feeding grains with yolk and skin pigmentation and high soluble fibre associated with gut health issues and wetter litter.

Cereal grains vary in the feeding value depending on the variety. Typically, cereals are higher in crude protein, lysine and phosphorus than corn. This can reduce the need for supplemental nutrients.. **Work closely with your nutritionist to formulate properly balanced rations for your flock needs.**

Grain	Crude Protein (%)	Crude Fat (%)	Starch (%)	Fibre (%)	GE (kcal/kg)	AME (kcal/kg)	GE digestibility (%)
Corn	7.64	3.7	64.6	10.6	3830	3090	80.7
Wheat	14.3	1.8	56.3	13.9	3880	2890	74.5
Barley	10.5	2.5	52.4	17.7	3820	2740	71.7

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.

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>