

## Crop Options to Replace Grain and High Moisture Corn in Swine 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, are commonly used in swine diets throughout western Canada and around the world. So long as diets are balanced properly for energy and amino acids, wheat and barley can both be used as a total replacement for corn in grow/finish pig diets without negatively impacting growth or meat quality. Other small grains such as rye, triticale and oats can be used for swine rations, but generally at lower inclusion rates.

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 each production stage in your herd.**

<b>Grain</b>	<b>Starter Pigs</b>	<b>Grow-Finish Pigs</b>	<b>Gestation</b>	<b>Lactation</b>	<b>Comparative Value vs. Corn</b>
<b>Wheat</b>	45%	95%	90%	40%	100-110
<b>Barley</b>	25%	95%	90%	85%	95-100
<b>Rye</b>	25%	35%	20%	10%	100-105
<b>Triticale</b>	25%	95%	25%	40%	95-105
<b>Oats*</b>	0-5%	40%	90%	0-15%	80-85

*\*high fibre content of oats means they have lower energy density. Small pigs and lactating sows already struggle to consume enough energy for their needs, so oat inclusion should be limited in these rations. If high test weight oats are used (greater than 36 lb/bu), inclusion rates of 5% for weaner pigs and 15% for lactating sows can be used*

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 and feeding cereal grains:

- 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>
- Comparative Feed Values for Swine. OMAFRA Factsheet 03-003. <http://www.omafra.gov.on.ca/english/livestock/swine/facts/03-003.htm>
- Feeding Small Grains to Swine. Iowa State University. <https://store.extension.iastate.edu/Product/Feeding-Small-Grains-to-Swine-PDF>
- Tri-State Swine Nutrition Guide. Purdue University, The Ohio State University & Michigan State University. <https://archive.lib.msu.edu/DMC/Ag.%20Ext.%202007-Chelsie/PDF/tristate869.pdf>
- Small Grains for Livestock: A Meta-Analysis. University of Wisconsin-Platteville. [https://sustainablefoodlab.org/wp-content/uploads/2018/08/Attachment-14-Small-Grains-For-Livestock\\_A-Meta-Analysis.pdf](https://sustainablefoodlab.org/wp-content/uploads/2018/08/Attachment-14-Small-Grains-For-Livestock_A-Meta-Analysis.pdf)