

Bt Resistant Rootworm Mitigation Measures for Continuous Corn Growers in Ontario for 2021 and 2022

Field failures in 2020 suggest rootworm are likely resistant to all Bt rootworm traits in Ontario. If left unmanaged, Bt corn will no longer provide protection against rootworm injury. Yields will be significantly impacted, resulting in silage, grain and feed shortages for continuous corn producers.

High risk fields: 3+ years of continuous corn with history of repeated use of Bt rootworm traits. Areas in Ontario with heavy continuous corn production can be found in this map: <https://www.arcgis.com/home/webmap/viewer.html?webmap=1e604c6642de46aea495124d381b4fa0>

Crop Rotation Away From Corn – To mitigate resistant populations. Must control all volunteer corn in these rotated fields. Go to [Field Crop News](#) for alternative crop details.

Silage alternatives:
winter cereal + sorghum

Grain feed alternatives:
barley, wheat and others

Cash crop alternatives:
any non-corn crop

Land swap with local growers who follow a 3 year crop rotation

If Crop Rotation Away From Corn Not Possible in 2021 - Will Not Mitigate Resistant Population

Use Pyramid Rootworm Hybrid: Expect injury in 2021 and report any injury cases. **Do not** use seed or soil insecticides. Use biocontrol nematodes to reduce resistant survivors. Rotate out of corn in 2022.

Use Non-Rootworm Bt Hybrid (above ground lep protection only + Additional Root Protection Tools (below)). Rotate out of corn in 2022.

Additional Root Protection Tools

Biocontrol nematodes can protect roots and will reduce resistant rootworm populations.

Soil applied insecticides: Need insecticide boxes. Won't reduce populations.

High rate neonic seed trt: Won't reduce population. Need pest risk assessment.

Long-Term Responsible Use of Bt Hybrids for Rootworm Management Strategy to Maintain the Durability of Bt Technology

Rootworm Risk

Recommended Cropping Practice

No to Low Risk in
1st Year Corn

Year 1 – Non-Rootworm Bt Hybrid (above ground Bt traits only). Scout for rootworm beetle activity in August. Apply biocontrol nematodes to suppress rootworm population.

Low to Moderate Risk in
2nd Year Corn

Year 2 – Non-Rootworm Bt Hybrid (above ground Bt traits only) **plus** additional root protection tools if Year 1 corn reaches adult threshold in August. Apply biocontrol nematodes to suppress rootworm population if not already applied in Year 1.

Moderate to High Risk in
3rd Year Corn.

Year 3 – Pyramid Bt Rootworm Hybrid (biocontrol nematodes can be used; soil insecticides and high rate neonicotinoid seed treatment not recommended). Scout and report any unexpected root injury.

Rotate out of corn to remove
rootworm from fields.

Year 4 – Plant a non-corn crop to remove rootworm population. Effectively manage any volunteer corn in these fields to ensure proper rotation from host.