

Long-Term Responsible Use of Bt Hybrids for Rootworm Management Recommendations from OMAFRA and the Canadian Corn Pest Coalition

Once selected for, Bt resistance genes will always be present in a corn rootworm (CRW) population. At best, we can keep the ratio of resistant individuals at a level that allows us to use Bt-RW hybrids when needed most. Using Bt-RW hybrids in first- and second-year corn is unnecessary use of the technology. Typically, CRW populations will not reach damaging levels until three or more years of corn have been continuously grown in a field. Bt-RW hybrids should never be used for more than three continuous years in one field. Rotating out of corn in year four ensures that the Bt-RW selection pressure is removed from the CRW population before resistance develops and that the population is managed through host crop (i.e. corn) removal. Corn production can be resumed with minimal CRW control for the following two years. This long-term approach can only be successful if measures have been taken to mitigate the resistant rootworm populations. Refer to the [Mitigation Measures to Manage Bt Resistant Corn Rootworm in Ontario](#) document for information on what is required in 2021 and 2022 to mitigate the resistant rootworm populations in Ontario.

Year 1 – No to Low Rootworm Risk - Non-rootworm Bt hybrid. Use above ground only Bt hybrids for protection from western bean cutworm (WBC), European corn borer (ECB) etc. Insecticide seed treatments or soil insecticides for root protection are not required nor recommended. Scout these field for beetle activity in August in order to understand levels of pest pressure that will be expected in year two. Apply biocontrol nematodes to suppress rootworm population; these nematodes are persistent and won't need to be applied again in this field.

Year 2 – Low to Moderate Rootworm Risk - Non-rootworm Bt hybrid. Use above ground only Bt hybrids for protection from WBC, ECB etc. **plus** root protection through high rate neonicotinoid seed treatment or soil insecticides if late summer Year 1 corn meets or exceed adult threshold (1 beetle per plant observed in August). Apply biocontrol nematodes if not applied in Year 1 to suppress rootworm population.

Year 3 – Moderate to High Rootworm Risk - Pyramid Bt-RW hybrids. Insecticide seed treatments or soil insecticides not recommended. Scout and report any unexpected root injury.

Year 4 – ROTATE Out of Corn. Plant a non-corn crop to remove corn rootworm populations from field. Effectively manage any volunteer corn to ensure no CRW survival.