



## Root maggot impacts on canola were minor

CATEGORY [insects](#) | February 25, 2021

Research showed no reduction of seed yield for *Brassica napus* canola at any infestation level of flies or eggs. Root maggots may be more of a perceived than real threat to Prairie canola producers.

Recent wet field seasons across much of the Prairie provinces have renewed interest in root maggot pests, or the several *Delia* species, in canola. Researchers re-examined results from investigations conducted two decades ago to see whether the relationships recorded may be similar or different from those in present and future production.

In a four-year study from 1997 to 2000, field cage trials were conducted at the AAFC Saskatoon Research and Development Centre to investigate the relationships between numbers of *Delia* species flies or eggs and the levels of root injury and canola seed yields. Field cages were placed in canola plots of *Brassica napus* 'AC Excel' and *B. rapa* cultivar 'AC Boreal' in early June prior to any sign of wild *Delia* fly emergence. The cage bottom flaps were buried in the soil to prevent *Delia* larvae from burrowing into the cages from surrounding soil. Wild-collected *Delia* flies or laboratory reared *D. radicum* eggs were introduced into the cages when the canola plants were in the bolting to bud stages.

Delia larvae and root damage assessments were conducted at the end of the first larval generation around the end of July. Root damage ratings were also conducted at canola maturity, and seed yields in each cage were determined at harvest.

The study results showed that for Delia flies and *D. radicum* eggs, the degree of root injury was strongly associated with the level of infestation. Root damage increased with increasing levels of infestation for flies; however, at high egg infestation levels, root damage levelled off in both Brassica species.

However, researchers did not find any relationship between canola seed yield and fly or egg infestation rate. With *B. napus* 'AC Excel', there was no consistent seed yield relationship to any of the levels of root damage in the study, indicating the response of *B. napus* to root maggot feeding appeared to be compensatory in nature rather than negative. Although, the seed yields of *B. rapa* cultivar 'AC Boreal' did decrease with heavy root injury, the yields tended to increase above uninfested controls when feeding damage was light.

### **Considerations for present and future canola production**

The researchers suggest that considering the results did not show any reduction of seed yield for *B. napus* at any infestation level of flies or eggs, it may be that root maggots are more of a perceived than real threat to Prairie canola producers today. This is especially so in Manitoba and Saskatchewan where *D. radicum* is the principal root maggot species in canola.

Current canola production growth in areas suitable for root maggot development and a trend to shorter rotations, along with future changes in climate, land use patterns and cropping systems could influence the economic impact of the root maggot complex in the future. Therefore, the importance of Delia in canola production must be considered in view of these current and potential future changes. Understanding the capacity of crops such as canola to compensate for insect herbivory will be important to improve future integrated pest management strategies.

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J.J. Soroka, R.M. Weiss, L.F. Grenkow, and O.O. Olfert (2020). Relationships among root maggot (*Delia* spp., Diptera: Anthomyiidae) infestation, root injury, and seed yields of canola *Brassica napus* L. and *Brassica rapa* L. Canadian Journal of Plant Science, <https://dx.doi.org/10.1139/cjps-2019-0278>