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Evaluating New Products for Root Maggot Control

Root maggots (*Delia sp*) attack the root systems of a range of cruciferous vegetable crops (cabbage, radish and rutabaga). Maggot damage is of importance if: a) it impairs the function of the root system or b) if the damage mars the appearance of the marketed portion of the crop (ie; damage to rutabaga and radish roots). Traditionally, Saskatchewan’s vegetable growers have utilized a range of pesticides to minimize losses to the root maggot. However, growers are finding it increasingly difficult to control damage by root maggots utilizing presently registered pesticides or accepted production practices. This may reflect higher maggot populations as a result of extensive cultivation of canola and/or increasing resistance to pesticides.

**Admire (imidacloprid)** is a new systemic pesticide which can be applied through either the foliage or via soil application. Admire is presently registered in Canada for the control of Colorado Potato beetles and aphids in potatoes. In this trial, Admire was applied as either an in-furrow treatment at planting or as a foliar treatment to rutabagas. Lorsban (chlorpyrifos) was selected as the chemical check treatment. The trial was conducted in Saskatoon and Outlook. Both sites have a long history of vegetable crop production and have heavy maggot pressure.

The in-furrow Admire treatment was applied at seeding in a band at the rate of 0.1 g a.i/m of row. The foliar Admire treatment was applied at 0.08 L/a in the first week of July. Lorsban 10 G was applied as an in-furrow granular treatment at seeding (0.8 kg/1000 m of row) followed by foliar application of Lorsban 4E (84 ml/a) in the first week of July and again in early September. The foliar treatments were timed to coincide with the larval stage of the pest. Maggot damage was evaluated at three times during the growing season by harvesting 10 plants from each treatment row. Roots with more than 25% of the root surface damaged were considered non-marketable.

**Results** - The intensity of root damage increased with time at both sites, although maggot pressure was consistently more severe in Saskatoon than in Outlook. The Admire treatments provided little protection from the maggots at either site. Lorsban provided quite effective control early in the season, but as time passed damage began to accumulate even in this treatment. By the final harvest, none of the rutabagas at the Saskatoon site were marketable. However, in Outlook over 60% of the roots in the Lorsban treatments were marketable at the final harvest - this compares to less than 10% marketable in the control treatments.

*NB- Admire is not presently registered for use for maggot control in vegetable crops.*

![Figure 1 & 2. Influence of several insecticides on marketable yields of rutabagas in Saskatoon and Outlook.](image-url)