

Managing flea beetles with integrated practices

Traditionally, canola growers have tried to reduce the damage caused by flea beetles with seed and foliar insecticide treatments. However, a recent research study looked at how integrated pest management could reduce the reliance on insecticides.

Field experiments were conducted by University of Alberta researchers at Vegreville, Fort Saskatchewan and Lethbridge, Alberta to determine the effect of fall versus spring seeding of canola on feeding damage caused by flea beetles. Interactions with seeding rate and seed treatment were also investigated.

Damage less for Argentine-type and fall seeded

Flea beetle damage was greater on plants of Polish-type (*B. rapa*) than Argentine-type (*B. napus*) canola. Damage was also greater on spring-seeded canola than on canola that was seeded in the fall. Seeding in the fall helped plants to progress beyond the vulnerable cotyledon stage by the time most flea beetle injury occurred. In the studies, fall-seeded canola was in the three to four true-leaf stage when flea beetles invaded the plots in large numbers, but spring-seeded canola was still in the cotyledon stage and more susceptible to feeding damage.

Early spring seeding recommended

No difference in flea beetle damage was found between canola seeded in early spring or late spring. However, the researchers expected that better crop development with early seeded canola should have helped reduce flea beetle damage. Additional research may help to resolve this apparent discrepancy.

High seeding rates, less damage

Flea beetle damage per plant also declined with an increase in seeding rate. The researchers found that seeding canola in the spring at 12.5 kg/ha (11 lb/ac) without an insecticidal treatment reduced flea beetle damage to levels comparable to those achieved by seeding with an insecticidal seed treatment at 7.5 or 10 kg/ha (7 to 9 lb/ac).

Minimal yield impact

The effect of flea beetle feeding on yield, across all treatments, were minimal, indicating that canola often compensated for the level of flea beetle damage in this study. However, the feeding damage in this study was lower than is often observed in some other areas of the Prairies.

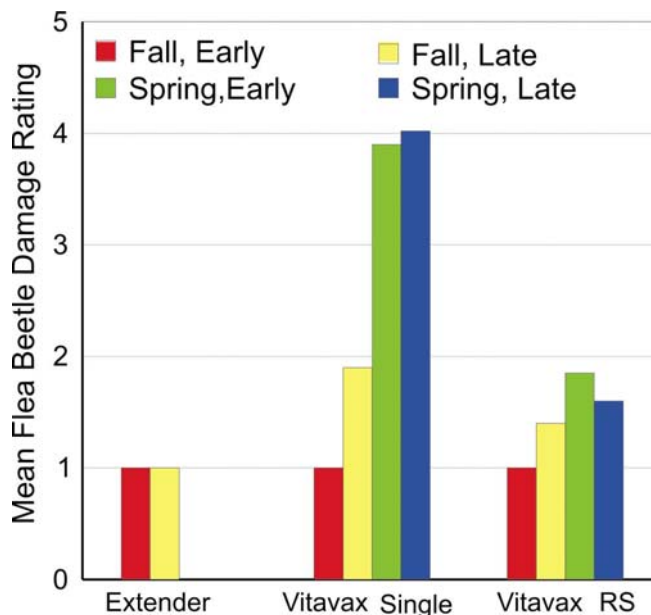


Fig 1. Mean flea beetle damage ratings per canola plant seeded in the fall and spring at Lethbridge (1999-2000) and Vegreville, AB (1998-1999), with different seed treatments for the late damage assessment date. (0=no damage, 10=100% damage)

Source: Dossdall, L., and Stevenson, C. 2005. Managing flea beetles in canola with seeding date, plant density and seed treatment. *Agron. J.* 97:1570 - 1578. 0 = no damage; 10 = 100 % damage.

Integrated system

The research shows that several cultural strategies can be combined to minimize the need for insecticides. Seeding in the fall enables canola seedlings to escape severe flea beetle injury. However, in order for fall seeding to be widely adopted by growers as part of an integrated strategy, technologies will need to be developed to help reduce the risk of crop failure with fall seeded canola. Increasing seeding rates may reduce flea beetle damage per plant, and planting Argentine-type canola resulted in less crop damage. Other effective strategies from previous studies include growing canola in a zero-till system, and planting large, rather than small seeds at wide row spacings. Combining such cultural strategies may not completely eliminate the need for insecticides, but implementing such integrated strategies should enable growers to substantially reduce insecticide use.