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Survival of 10 stored product insects on canola

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ABSTRACT

Canola production is important to the Canadian economy, contributing \$27 billion each year. Approximately 20 million tonnes are harvested annually in Canada, with 90% destined for export. Insects often attack stored cereals and pulses but we do not know if insects can also attack stored canola. The purpose of this study was to assess whether ten stored product pest species, commonly found on cereal products, are able to develop from egg to adult (one generation) on canola at 25°C. Two tests were conducted. The first test assessed the ability of 10 stored product insects to develop onto seven treatments: (1) wheat flour with 5% brewer's yeast (control), (2) whole canola at 8% m.c. (moisture content), (3) canola with 10% broken seed at 8% m.c., (4) whole canola at 12% m.c., (5) canola with 10% broken seed at 12% m.c., (6) pure dockage and (7) dockage with broken canola seed. The second test (ongoing) has assessed so far the ability of four species to develop onto three treatments at 8% m.c.: (1) whole canola seeds, (2) broken canola seeds, and (3) control (same as previous). Preliminary results show that *Tribolium confusum* Jacquelin du Val, *Tribolium castaneum* (Herbst), *Oryzaephilus surinamensis* (L.), *Oryzaephilus Mercator* (Fauvel), *Stegobium paniceum* (L.), and *Lasioderma serricornis* (Fabricius) are able to develop on canola seeds. Presence of dockage, broken seeds, and different moisture contents had little or no effects, except for *Lasioderma serricornis*, which produced more offspring when dockage was present. *Oryzaephilus mercator* was the only species to produce significantly more offspring on canola than on the control diet. *Lasioderma serricornis*, *Stegobium paniceum*, *Oryzaephilus surinamensis*, and *Cryptolestes ferrugineus* (Stephens) displayed longer development time on canola than on control diet. *Cryptolestes ferrugineus* produced very few offspring on the canola treatments. *Dermestes maculatus* De Geer, *Ephestia kuehniella* Zeller, and *Trogoderma variabile* Ballion, all did not appear to be able to develop on canola.

Keywords: Insect fitness, Canola storage, Oilseeds, Canola pests