

Title Effect of organophosphates on *Acarophenax lacunatus* (Prostigmata: Acarophenacidae) parasitising *Rhyzopertha dominica* (Coleoptera: Bostrichidae).

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### Abstract

The interaction between the organophosphate insecticides fenitrothion and pirimiphos-methyl with *A. lacunatus*, an egg parasite of the stored grain pest *R. dominica*, was evaluated. Petri dishes containing 25 g of whole wheat grains (13% moisture content) were treated with insecticides (0.9, 1.8, 2.5, 5.0 or 10.0 ppm for fenitrothion, and 0.5, 1.0, 2.0, 3.0, 4.0 or 8.0 ppm for pirimiphos-methyl) and infested with 25 adults of *R. dominica*. Seven days after insect infestation, mites were released at different densities per experimental unit. The number of physogastric females of *A. lacunatus* and egg parasitism increased with the decrease in insecticide rate and increase in mite density for both organophosphates. Lower insecticide rates for and mite densities resulted in higher instantaneous rates of increase in mite population. In general, lower instantaneous rates of increase in *A. lacunatus* population were obtained with pirimiphos-methyl. The sustained presence of the mite species at all insecticide rates suggests that this biological control agent may be used together with insecticidal applications for controlling *R. dominica*, although higher insecticide rates, especially of pirimiphos-methyl, retard the growth of the mite population.