

# Pesticide applications on Java potato fields are ineffective in controlling leafminers, and have antagonistic effects on natural enemies of leafminers

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## Abstract

In Indonesia a range of insecticides is routinely applied to control agromyzid leafminers. Insecticide applications can reduce parasitism by indigenous parasitoid wasps and also decrease numbers of the predatory muscid fly, *Coenosia humilis*, and these effects reduce control of leafminers. In replicated field trials, repeated applications of Profenofos were ineffective in controlling *L. huidobrensis* numbers on potatoes. Applications of Profenofos and Carbosulfan decreased rates of parasitism by *Hemiptarsenus varicornis* and *Opius chromatomyiae*, and reduced numbers of *C. humilis*. These detrimental effects of the pesticides observed may have contributed to the increased damage and decreased yield in the pesticide-treated fields. An alternative control strategy involving the applications of Abamectin led to a reduction in leafminers without harmful effects on parasitoids and predators. Abamectin applications provide one potential component of an effective *Liriomyza* control strategy for Indonesian potato farmers.

**Keywords:** Leafminer; Abamectin; parasitoid; predator; *Liriomyza huidobrensis*; Agromyzidae; Indonesia; Profenofos; Carbosulfan