

Pepper weevil, *Anthonomus eugenii* (Cano)

Introduction

Anthonomus eugenii Cano (Coleoptera: Curculioninae) originates from Mexico from where it has spread through Central America, the Caribbean, French Polynesia and Hawaii. The main hosts of *Anthonomus eugenii* are cultivated *Capsicum* spp., including *C. annuum* and *C. frutescens* and some wild *Capsicum* spp. (EPPO, 2014). Capinera (2017) reports that tomatillo, *Physalis philadelphica*, is a moderately susceptible host. Other Solanaceae are also attacked, including aubergines (*Solanum melongena*) and many wild *Solanum* spp. Adults have been reported to feed on potato (*Solanum tuberosum*), but no oviposition has been observed on potato. The most important damage to *Capsicum* spp. is the destruction of blossom buds and immature fruits, which turn yellow and fall. In Puerto Rico, the theoretical economic injury level was calculated at 0.01 adults per plant, and fruit abortion was the main cause of yield loss (Segarra-Carmona & Pantoja, 1988). There appears to be a direct relationship between pepper weevil damage and internal mould due to *Alternaria alternata* (Bruton *et al.*, 1989). In the USA the average crop loss due to *A. eugenii* is of 10%, but 50-100% losses have also been reported (Elmore, 1934; Riley & King, 1994). Fruit loss can reach 30% to 90% of the yield if treatment is not implemented (Riley & Sparks, 1995). Costello & Gillespie (1993) reported serious damage by *A. eugenii* to glasshouse peppers in British Columbia (Canada), but the outbreak was subsequently eradicated. EPPO (2012) reports the first outbreak in the EPPO region which occurred in 2012 in the Netherlands where the pest was found in several glasshouses producing *Capsicum annuum*. This outbreak was eradicated in 2013 (EPPO, 2014).

History of classical biological control against *Anthonomus eugenii*

No classical control against this pest has been performed yet.

Most promising natural enemies

Several Hymenoptera parasitoids have been found in *A. eugenii* infested pepper fruits in Mexico and Canada.

Catolaccus hunteri is also common in the US and elsewhere, and is seen as a potential candidate for biological control. This parasitoid generally prefers mature larvae, though it can also feed and lay eggs on young pupae, but is unable to lay its eggs in larger fruit and so is restricted to flower buds and the smallest fruits.

Because of their abundance in Mexico, Rodriguez-Leyva *et al.* (2007) also considered *T. eugenii* and *Urosigalphus* sp. to be potential candidates for biological control. These two species have the benefit of being egg parasitoids and are therefore not restricted in where they can lay their eggs, as pepper weevil eggs are generally laid near the surface of the fruit. Parasitism rates of 18-40% have been recorded for *T. eugenii* in the field (Mariscal *et al.*, 1998).

Other natural enemies

Preparedness in biological control of priority biosecurity threats

Several parasitoids have so far been found to be associated with the weevil in Mexico, including *Catolaccus hunteri*, *Triaspis eugenii*, *Urosigalphus* sp., *Aliolus* sp., *Bracon mellitor*, *Bracon* sp., *Euderus* sp., *Sympiesis* sp., *Ceratoneura* sp., *Eupelma* sp., *Eupelmus* sp., *Pteromalus hunteri*, *Telenomus* sp. and *Baryscapus hunteri* (Rodriguez-Leyva et al., 2007, Perez-Perez et al., 2013).

References

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