

Biological Control

Biological Control of Codling Moth: Parasitoid Releases in Walnuts, Apples, Pears

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*Abstract:* *Mastrus ridibundus*, a codling moth parasitoid from central Asia which attacks the overwintering stage of codling moth, were released in 16 apple, pear or walnut orchards over a 6-year period (1998-2003). Both tree band and pheromone trap counts indicate a suppression of the overwintering codling moth populations for 2 or more years following the releases into walnut orchards. Parasitism rates varied from 0-34% over the 6-year study and were affected by the codling moth population in the orchard as well as the band trap collection dates. The overwintering codling moth flight was suppressed in walnuts for two to three seasons after the initial release. Codling moth damage in walnuts was reduced in the two seasons following releases and increased again following seasons with no or very small releases; the degree of damage varied by variety. This work suggests that *Mastrus* may be able to “naturalize” and provide satisfactory codling moth control in some of the less susceptible walnut varieties but may require annual or bi-annual augmentation in more susceptible varieties. *Mastrus* was not able to provide an acceptable level of control in apple or pear orchards.