

Biological Control

Optimizing the Use of the Codling Moth Granulovirus: Effects of Application Rate and Frequency of Spraying on Control of Codling Moth Larvae in Pacific Northwest Apple Orchards

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Abstract: Granulovirus targets larvae before or during initial entry into fruit and provides growers with an option for CM control that is safe to humans and natural enemies. Our objectives for the 2004 field season were to assess full-season virus programs adopting different application rates (1, 3, or 6 oz/acre) and spray intervals (7, 10, or 14 days) in an experimental orchard and to compare different rates of virus (1, 2, or 3 oz/acre) applied weekly to Guthion in a conventionally managed orchard heavily infested with CM. Virus applications did not reduce fruit damaged by CM, but there were significantly fewer deep entries and surviving larvae among virus-treated fruit. The vast majority of damage was in the form of shallow stings and larval mortality was consistently high. Higher doses and shorter application intervals resulted in consistently fewer deep entries and higher mortality rates. In the half-acre commercial plots treated with virus, there was less CM damage compared with untreated areas, but more compared with Guthion-treated areas. Rates of CM mortality in virus-treated plots were similar to those observed in individual trees sprayed with equivalent rates of virus in the previous study. Data from interception traps showed far fewer moths in virus-treated and Guthion-treated plots compared with untreated areas. The dosage and application frequency of virus that provide acceptable control will depend largely on the localized pressure of codling moth.