

Field evaluation of commercial formulations of the codling moth granulovirus

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Abstract: Among the biological control options available for codling moth, the granulovirus of *C. pomonella* (CpGV) offers potential for effective and selective control. In 2003 we assessed the persistence and efficacy of three CpGV products: CydX (Certis), Virosoft (Biotepp), Carpovirusine (Sumitomo) and monitored the season-long performance of Cyd-X used by several commercial organic growers. For the persistence study the products were applied according to label rates (3 oz/acre for Cyd-X and Virosoft and 13.7 oz/ac for Carpovirusine). All three products were also compared at 6 oz/acre. Fruit were exposed to neonate larvae using a standardized laboratory bioassay immediately after spraying and at 1, 3, 7, 10 and 14-day intervals. Ten days after exposure, apples were destructively sampled to quantify fruit damage and larval mortality. Residual activity of all products remained highly effective (>80% larval mortality relative to controls) for 24 hours following application and moderately effective (>70%) after 72 hours. Significant activity in all treatments remained after 14 days, suggesting prolonged survival of the virus in UV-protected locations, such as the calyx of fruit. Fruit damage was also reduced; while overall >97% control larvae formed deep entries, <35% of CpGV-killed larvae's stings were >3mm. The results of grower applications of virus provide strong evidence for the effectiveness of well-timed CpGV applications against codling moth outbreaks. In all cases where 1st generation larvae were targeted, fruit damage was reduced or eliminated in the 2nd generation.