Implementation

Sampling Leafrollers in Apple Orchards: Effect of Sample Frequency and Number of Samples

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Abstract: During 3 consecutive field seasons, Pandemis and obliquebanded leafroller (PLR and OBLR) larvae were collected at regular intervals from two orchards. Samples were taken using a grid system and GPS units were used to document exact locations of samples. Geostatistical analysis of the data showed that population level spatial structure was present in 80% of the orchards sampled. The analysis suggested that samples be spaced more than 50 meters apart, which was confirmed by sampling simulations run on the data. We also found that if the orchard block is divided into 1 acre “zones,” collecting multiple samples from within a zone was inefficient compared to collecting a single sample in each zone. Using larval density maps generated from data taken in small plots at 2-week intervals showed that we need to standardize the time of sampling because the variation from sample to sample caused by larval phenology is excessive and may compromise IPM decision making.