Resistance Management

Natural variation in baseline data - when do we call a new sample "resistant"?

Lukas Schaub¹, Sylvain Sardy² and Gorana Capkun³
¹Federal Research Station for Plant Production, Changins, Nyon, Switzerland
²Federal Institute of Technology, Lausanne, Switzerland
³Federal Institute of Public Health, Bern, Switzerland

Abstract: Mortality of pear psylla *Cacopsylla pyri* to amitraz was studied by means of bioassays. Variation between samples, temporal variation within the season in one orchard, and spatial variation between Swiss regions were considered. Variation between samples was large enough to produce different Probit functions and *LC₅₀* values. Temporal and spatial variations were too small to indicate resistance. Prediction intervals of the pooled functions using bootstrapping were calculated to determine if future samples would come from a population with decreased sensitivity. Probabilistic criteria on the population level were proposed for resistance.

Resistance Management

The OP-MD connection in effectively managing codling moth

*CM Resistance in WA in 20 orchards. It revels in 4-6 generations*

Alan Knight
U.S.D.A., A.R.S., Wapato, WA

Abstract: The organophosphate insecticide azinphosmethyl (Guthion) has been the backbone of our management program for codling moth (CM) for more than 40 years. Despite documentation of elevated tolerance to this insecticide in the early 1990s in WA and other western states, this insecticide continues to be widely used. Concurrent with the rapid adoption of sex pheromones for mating disruption (MD) the use of Guthion remained an important supplemental tool to manage CM. More recently as the population density of CM in many of our orchards has dramatically increased, the use of Guthion has remained strong. Use of Guthion has recently increased in Europe following the development of high levels of resistance to synthetic pyrethroids (SP) and some insect growth regulators (IGR). Cross-resistance in CM populations exposed to long-term use of Guthion has been reported to a range of other new and old insecticides that are its possible replacements. Certainly, the legacy of 40 years of Guthion use in WA orchards will be significant in the development of future pest management programs.

WA - 50% pears use MD
2-2½ sprays applied / Acre of Guthion in WA in 2002.