Chemical Control/New Products

A Comparison of the Responses of Peach Twig Borer, San Jose Scale and the Scale Parasitoid Encarsia perniciosi to Dormant Sprays in Almond

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Dormant sprays of oil plus insecticide can be applied to almonds for control of peach twig borer (PTB) and San Jose scale (SJS). Organophosphate insecticides, possibly from dormant spray applications, are being found in local rivers. Dormant sprays possibly can harm beneficials, resulting in increased problems with San Jose scale and web-spinning summer mites. This experiment was conducted to test the control of PTB and SJS with several dormant sprays and to monitor the response of the scale parasitoid, Encarsia perniciosi.

Procedures and Results

The following applications were made to mature almonds in late January 1998 with an air-carrier sprayer at 100 gpa. No other insecticides were applied during 1998.

1. Diazinon 4EC @ 2 qt/ac + supreme oil @ 5 gpa + 8 # Kocide 101
2. Success®* 2SC @ 6 oz/ac + supreme oil @ 5 gpa + 8 # Kocide 101
3. Asana® XL @ 10 oz/ac + supreme oil @ 5 gpa + 8 # Kocide 101
4. Untreated check

* Success® is spinosad derived from the bacterium Saccharopolyspora spinosa.

All treatments reduced PTB catches in pheromone traps by nearly 2/3 in the first flight, but did not affect the second flight catches. PTB damage in the harvest samples from windrowed nuts was 0.9% in the untreated check, 0.6% for diazinon, 0.5% for Success®, and 0.3% for Asana®.

All insecticide treatments reduced SJS male counts in pheromone traps by 80% or more in the first flight in late March and had no apparent effect on the very small August flight. However, San Jose scale is not a problem in this orchard even in the unsprayed check.

Trap counts of Encarsia perniciosi were very sharply reduced by the Asana® spray throughout the trapping period from March to September. Success® and diazinon showed moderate reductions of Encarsia perniciosi as compared to the catches in the unsprayed check.

Conclusions

Dormant treatments reduced PTB catches in the pheromone traps in the first flight, because overwintering larvae were killed and the total population was reduced. Dormant
treatments did not reduce PTB catches in later flights. PTB damage in the harvest samples was reduced significantly by Success® and Asana®. Diazinon was not statistically better than check.

All insecticide treatments reduced SJS male catches in the first flight but had no apparent effect on the August flight. Encarsia seems to be controlling the San Jose scale in the unsprayed check.

Trap counts of the SJS parasitoid Encarsia perniciosi were very sharply reduced by the Asana® spray throughout the trapping period from March to September. This indicates a possible problem with disruption of biological control of SJS in an orchard in which SJS has become a major pest. Growers and PCAs should carefully consider this possible problem when choosing a pesticide for dormant application. Success® and diazinon showed almost identical, moderate reductions of Encarsia perniciosi as compared to the catches in the unsprayed check.

Navel orangeworm is only a minor pest in this orchard at this time and harvest samples showed no significant differences between treatments. Dormant sprays did not seem to be a factor with the web spinning mite populations in 1998. Twospotted mite populations became high in all treatments including the unsprayed check and required treatment.