

Chemical Control/New Products

DEVELOPING INSECTICIDE TREATMENT GUIDELINES FOR OBLIQUEBANDED
LEAFROLLER, *CHORISTONEURA ROSACEANA*, IN PISTACHIO

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Summary

The two objectives of the 2000 study were to develop information on timing insecticides for controlling obliquebanded leafroller (OBLR) and predicting the need to treat them. A producing 10-year-old pistachio orchard in Madera was the study site. Monitoring of moths was begun in late April and the first moth catch was recorded on May 8, using Trécé 1C traps baited with the western strain of the OBLR pheromone. The pheromone cap was changed monthly. Degree Day (dd) was calculated from that date. Treatments of phosmet (Imidan®) were made using the equivalent of 3.5 lbs active ingredient per acre. Treatments were made with an Air-O-Fan air carrier sprayer driven at 2 mph and delivering 100 gallons of mixture per acre. These treatments were begun on 5/25 (400 dd), 6/2 (600 dd), 6/9 (800 dd, not treated due to rain), 6/16 (1000 dd), 6/22 (1200 dd), and 6/28 (1400 dd). In addition to the timing trial, an efficacy trial was done on August 2 where either esfenvalerate (10 oz of Asana® XL), tebufenozide (16 oz of Confrim®), phosmet (5 lb of Imidan® 70WP), and spinosad (4 oz and 6 oz of Success®) were applied. Evaluation of the timing trial was done July 24 (counting live larvae found on 30 trees, each for a minute), and the efficacy trial on August 31 (counting live larvae on a single tree for a minute).

The threshold trial was accomplished by sampling two orchards during July by counting the larval feeding sites on leaves for a minute per tree. Ten nut clusters from the same tree were then counted and examined for those aborted by OBLR feeding. The number of leaves damaged (per minute count) was then correlated to the number of damaged nuts found in ten clusters.

Results

The timing trial resulted in the 1000 and 1200 dd timings giving equally the most effective control based on the one-minute larval counts made on July 24 (Figure 1). The 1000 dd timing resulted in an average of 5 live larvae found per minute of search and the 1200 dd timing resulted in an average of 4.5 larvae per minute of search. These two treatments were significantly ($P < 0.05$, Fisher's Protected LSD) better than the untreated checks and the 400 dd timing. They were not significantly different from the 600 dd (15.75 larvae per minute of search) and the 1400 dd treatment (11.75 larvae per minute of search). The established untreated control averaged 35.5 larvae per minute of search and was the worst treatment. The established 800 dd timing (not treated because of rain) resulted in 21 larvae per minute of search and this was the next worst treatment. If timing Imidan to control OBLR, 1000 to 1200 dd after the first male of the season provided the most effective control.

The insecticide efficacy trial resulted in all four materials providing equally effective control of OBLR. The 4 oz rate of Success was as effective as the 6 oz rate.

There was a direct relationship between the number of OBLR damaged leaves counted per minute and the number of damaged nuts. This study is still in the preliminary phase, but indications are that well over 20 damaged leaves counted per minute in July are needed before nut damage is found.

Conclusions and Practical Application

The use of Imidan in the timed trials resulted in effective control if timed between 600 to 1200 dd after the first male is trapped in the spring. However, the most effective timing was 1000 and 1200 dd after treatment.

To use this technique of timing application, trapping of male moths must begin before the first males are trapped. This means placing the pheromone traps by mid-April in the southern San Joaquin Valley and by May 1 in the northern San Joaquin Valley.

When registered, the biological insecticides such as spinosad and tebufenozide appear to be equal to the standard organophosphate and pyrethroid in controlling OBLR.

Finally, preliminary results show a good relationship between leaf feeding and nut damage by OBLR. The number of leaves damaged, measured in July by visual count for one minute, can be used to measure nut loss. However, considerable leaf damage is required before economic loss is found. This implies a relatively high treatment threshold for OBLR in pistachio.

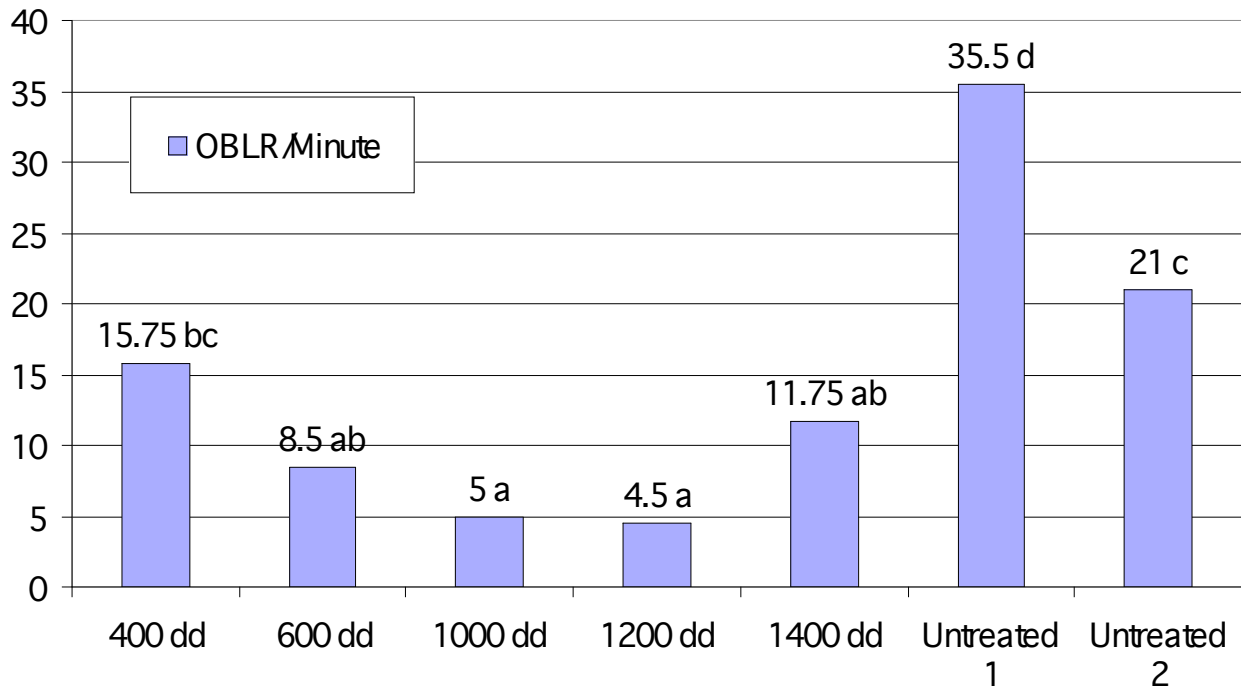


Figure 1. Live obliquebanded leafroller found on July 25, after various timed insecticide applications.