ESPS Satellite Project

Testing Oblique Banded Leafroller Pheromone Load Rates for Monitoring

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OBJECTIVE

Two experimental load rates will be compared to the commercial lure to determine if lower load rates can be used as a better indicator of population levels for monitoring.
This will help us determine if trap catches can be used to predict when to sample for the larvae and used to predict population levels.

PROCEDURE

Set traps out in late April to find the biofix. Monitor the traps for several months or to the end of the flight. In the Sacramento Valley the typical biofix is the first week of May. This may be earlier in the San Joaquin Valley. The procedure for this was outlined in protocol no. 12.

The 8253P, a low amplitude lure, was placed in the check, reduced risk (PMA), and grower standard blocks to compare treatments. The commercial lure 3223 and the lowest load rate 8709 were placed in the reduced risk treatment to compare traps catches. Traps were placed at least 10 trees from each other. The trap catches from the 3 traps were compared to the worm sampling in protocol no. 3 and the damage at harvest to see which low rate is the best indicator of population density. Record the number of moths caught in each trap weekly.

In each site records were kept following protocols no. 3 on the number of in-season leafroller larvae and damage found. The harvest sample outlined in protocol no. 10 included recording the oblique-banded leafroller damage.

RESULTS

Only the sites that followed both the trapping procedure and recorded leafroller damage on the data sheet in-season and at harvest could be used for the analysis. While many of the sites followed the trapping procedure there were only 11 sites that recorded the number of leafroller worms found and leafroller damage in-season and at harvest. Sites that recorded damage and did not identify the type of damage could not be used in this analysis. The sites used were from Tulare, Butte, Tehama, Sutter, Yolo and Fresno counties. Correlations were run between the trap load rates including the commercial 3223, the low amplitude 8253P, and the ultra low amplitude and the mean number in-season larvae. These results can be seen in the Figure 1 – 3. Correlations were also run between trap catches with the three lure rates and the damage at harvest as seen in Figure 4 - 6. The correlation between in-season larvae (R^2=0.42) and damage at harvest (R^2=0.50) was considerable better with the ultra low load lure (8709) than the other two load rates. The correlations between in-season larvae and the other commercial (3223) and the low load (8253P) were all less than R^2=0.18. The

correlation for the 8709 lure shows that if you catch more than 80 moths you will have more than 1% damage at harvest. Correlations were also done to help us determine the best monitoring program. A correlation between mean in-season larvae and damage at harvest (R^2= 0.81) shown in Figure 7. This shows a high reliability of having damage at harvest when more than one larva is found. The correlation shown in Figure 8 shows a very poor correlation between fruit damage found in season and harvest.

Figure 1. Correlation (R^2 = 0.17) between the commercial lure 3223 and mean in-season larvae.

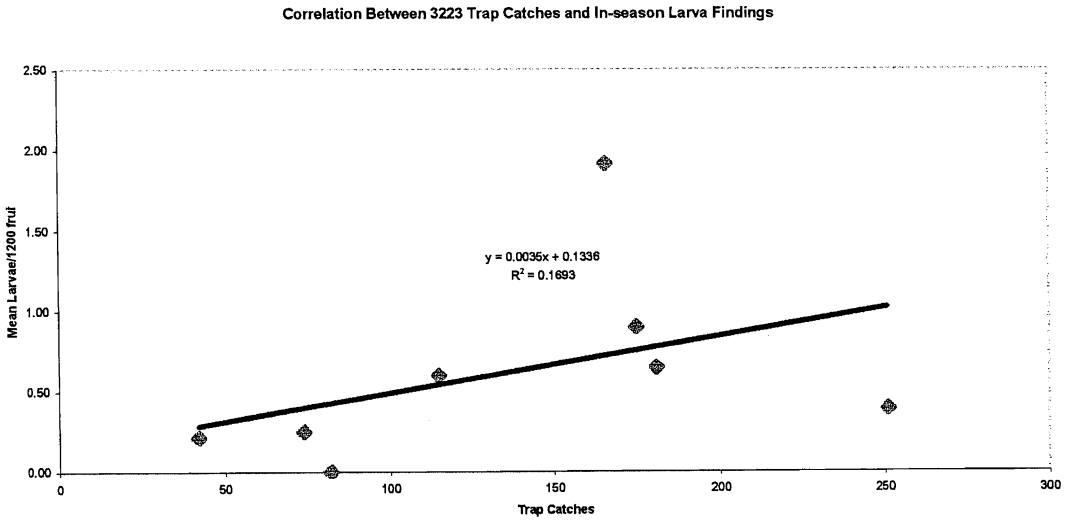

Figure 2. Correlation (R^2 = 0.16) between the low amplitude lure 8253P and mean in-season larvae.

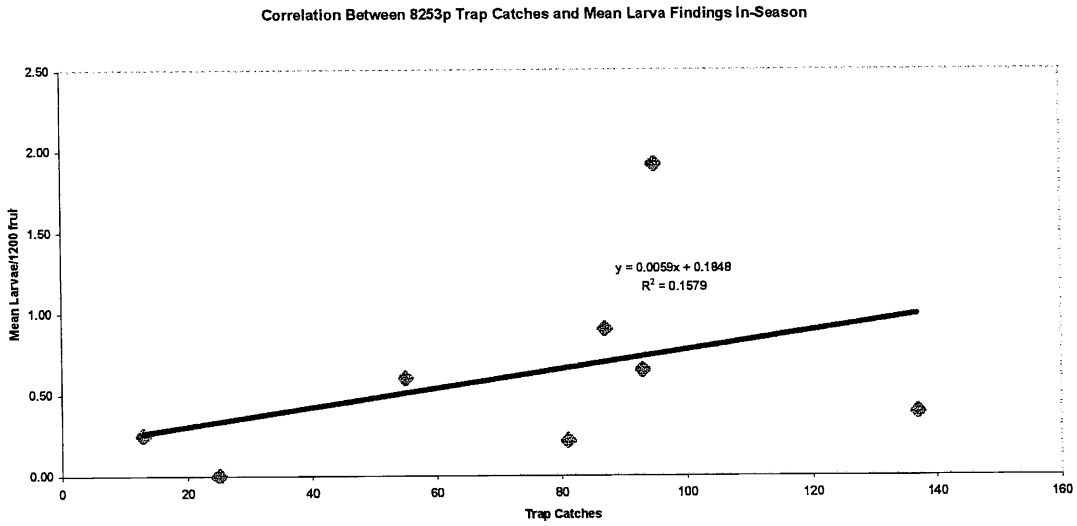

Figure 3. Correlation ($R^2 = 0.42$) between the ultra low amplitude lure 8709 and mean in-season larvae.

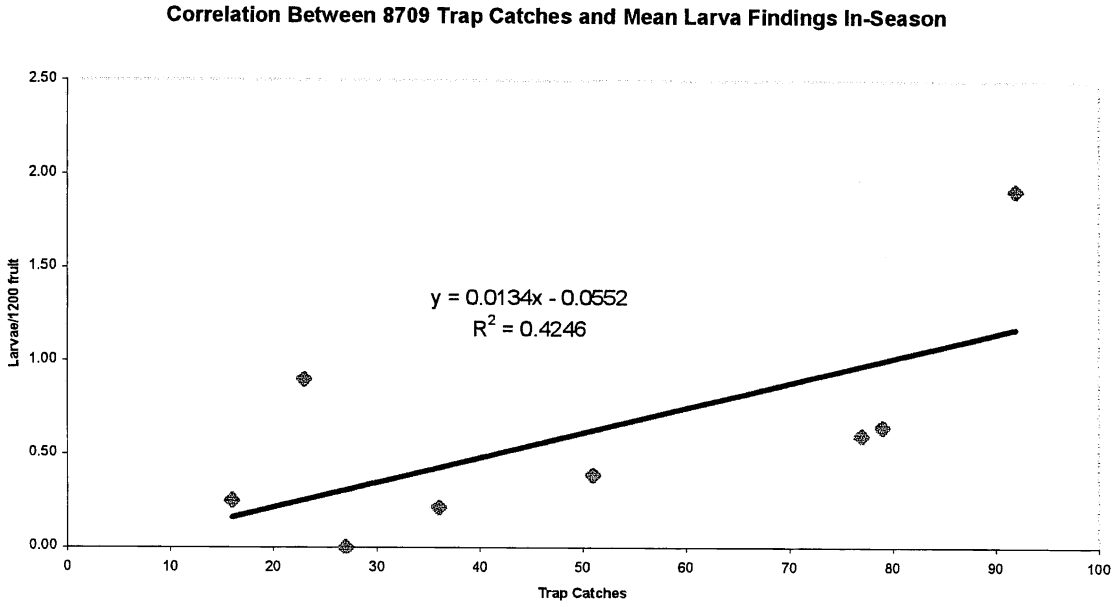

Figure 4. Correlation (R^2=0.11) between the commercial lure 3223 and the damage at harvest

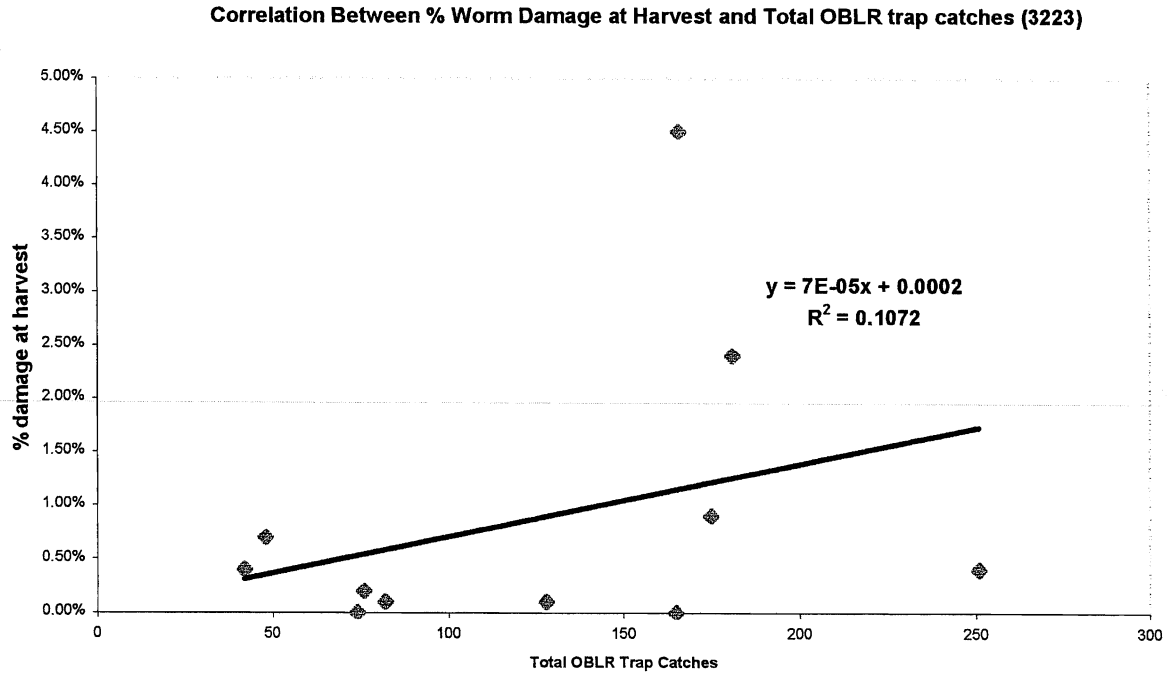

Figure 5. Correlation (R^2=0.19) between the low load lure 8253P and the damage at harvest.

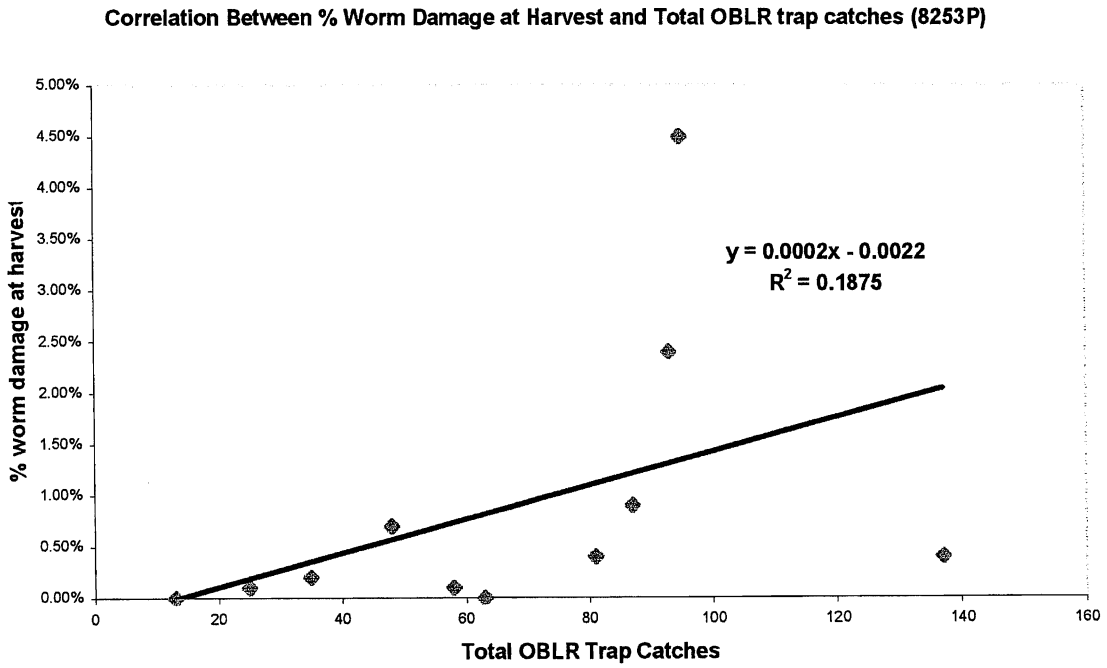

Figure 6. Correlation (R^2=0.19) between the ultra low lure 8709 and the damage at harvest.

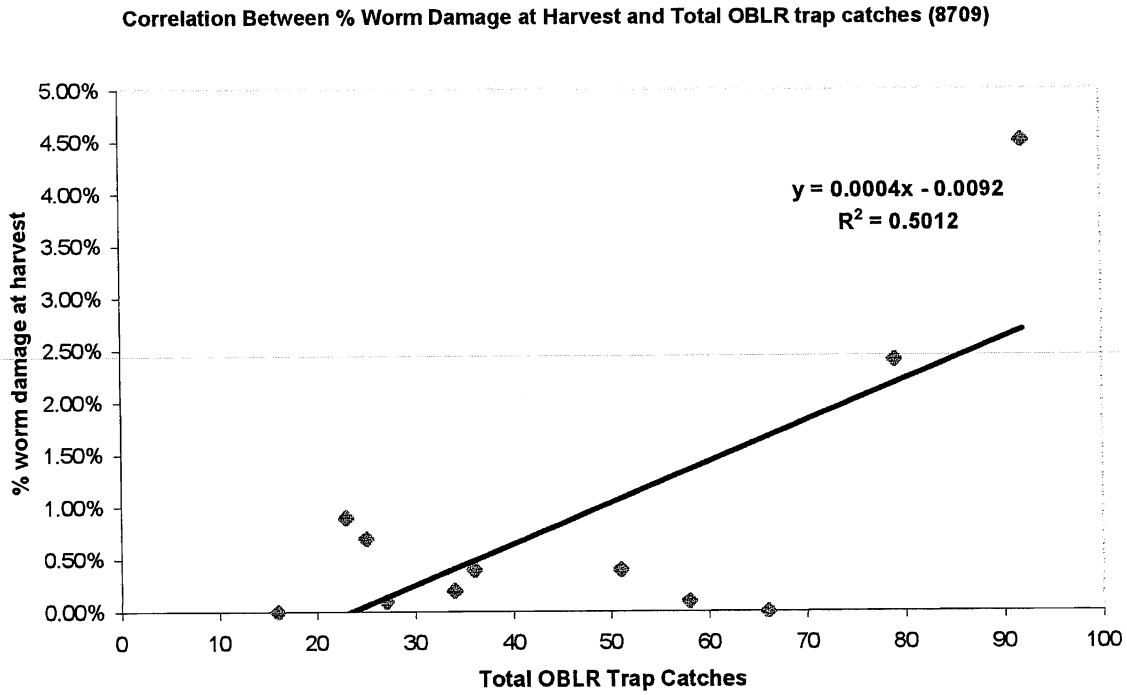

Figure 7. Correlation (R^2=0.81) Mean Oblique Banded Leafroller in-season larvae and % damaged fruit at harvest.

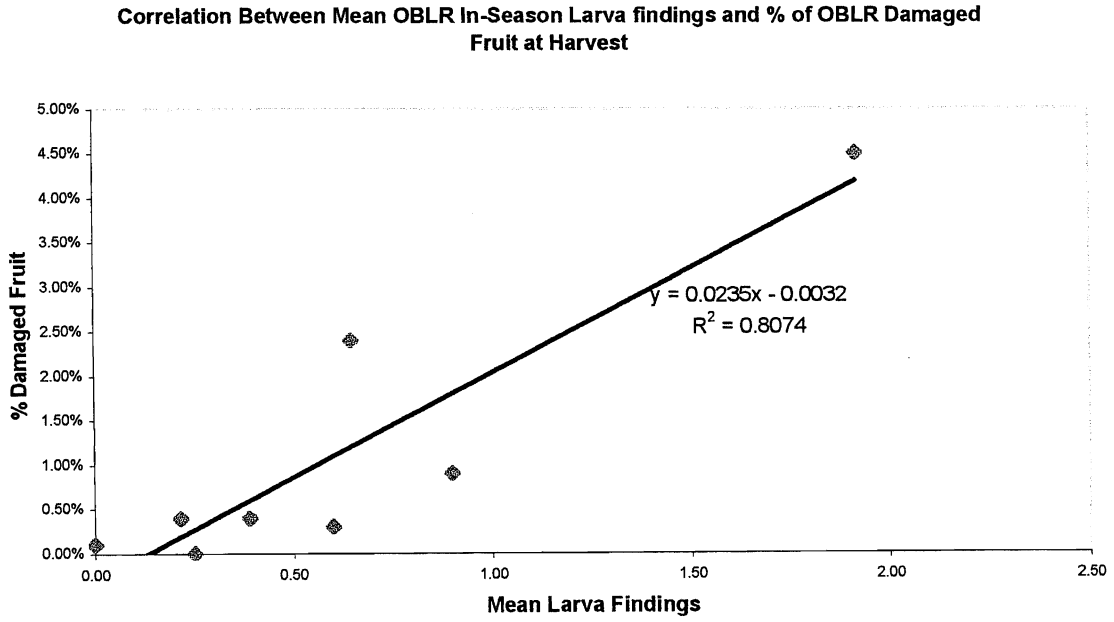

Figure 8. Correlation (R^2=O.15) Oblique Banded Leafroller In-season damage and % fruit damage at Harvest.