

TERMINATION REPORT

PROJECT NO: 8842

TITLE: Validation of Aphid Sampling Schemes in the Yakima Valley

PERSONNEL:

Project Leader: D.F. Mayer, Entomologist, WSU-Prosser

Cooperator: M.J. Willett, Extension Agent, WSU-Yakima

REPORTING PERIOD: 1993-96

ACCOMPLISHMENTS:

A survey for spirea aphid was conducted and 331 strains of apple were evaluated for aphid resistance. We have begun to obtain some reliable data on monitoring methods on apple for aphids and aphid predators. A number of chemicals were evaluated for aphid control and control of other insect pests of apple.

RESULTS:

Adult aphids were collected from 43 different apple orchards in southcentral Washington and were identified as apple aphid or spirea aphid based on length of ultimate rostral segments. Most (77%) were spirea aphid and there were no trends within species with regard to location.

Three hundred thirty-one different apple strains were evaluated for aphid resistance at the NRSP5/IR-2 collection. We randomly selected five shoots for each tree, measured shoot length, determined if shoot growth was terminated, and recorded the number of aphids on the most infested leaf. Trees with 0 to 20% shoot termination and low aphid populations were of interest. Data clearly show shoot termination does not account for the low aphid populations, and those trees may be resistant to aphids. It may be possible to breed for aphid resistance in apple trees using some of the varieties we evaluated.

Two different tests were done with different insecticides for their effect on spirea and wooly aphid populations. In all tests, a Rears Pak-Blast air-blast sprayer was used applying 100 to 115 gal/water/A.

In test #1, Sterling™ gave good control of aphids and with little difference between the rates. M-95 gave good control of aphids. Pirimor™ gave

good control of aphids with little difference between the rates. Provado™ gave good control of aphids and the higher rate gave better control than the lower rate.

In test #2, Lorsban™ gave good control of wooly apple aphid. Pirimor (2 ozs/A) gave good control of wooly apple aphid. Pirimor (4 ozs/A) gave good control of wooly apple aphid. Pirimor (6 ozs/A) gave good control of wooly apple aphid. There was a dosage response with Pirimor with the highest rate giving the best control.

The length of time Provado residues remain toxic to apple aphids when applied to apples was determined in two different tests. Results suggest that after about 24 hours residues of Provado no longer are sufficient to kill aphids.

Ladybug Lures™ were evaluated for their effects on predators and aphid populations when applied to apples. Ladybug Lures' kairomone attractant stimulates the scent of aphids, luring lady bugs, lacewings, and other beneficial insects with the scent of their favorite food. The Ladybug Lure comes in a controlled-release membrane and you just hang it out. We found no significant increases in the number of predators on shoots treated with Ladybug Lures over time or as compared to the untreated check.

PUBLICATIONS:

Bradley, S.J., D. Mayer, J. Lunden, and M. Jasso. 1994. Apple aphid control. Proc. WA St. Hort. Assoc. 90:93-95.

Mayer, D.F. and S.J. Bradley. 1995. Apple aphid control on apples. 1994. Arthropod Mgmt. Tests 20:30.

Bradley, S.J. and D.F. Mayer. 1995. Apple aphid control on apples. 1994. Arthropod Mgmt. Tests 20:4.

Bradley, S.J. and D.F. Mayer. 1995. European earwig control on apricots. Arthropod Mgmt. Tests 20:43.

Mayer, D.F., S.J. Bradley, and J.D. Lunden. 1995. Apple aphid and spirea aphid. Res. Rept. West. Orchard Pest & Disease Mgmt. Conf. 69:75-76.

Bradley, S.J. and D.F. Mayer. 1995. Pear psylla. Res. Rept. West. Orchard Pest & Disease Mgmt. Conf. 69:25-26.

Mayer, D.F., S.J. Bradley, and J.D. Lunden. 1995. Apple aphid control. Res. Rept. Western Orchard Pest & Disease Mgmt. Conf. 69:13-14.

Lunden, J.D., Mayer, D.F. and S.J. Bradley. 1995. White apple leafhopper control. Res. Rept. West. Orchard Pest & Disease Mgmt. Conf. 69:17-18.

I used data generated from this project in ten different presentations to growers, consultants, beekeepers and others.