

1986-KEY RESULTS

OVERWINTERING APHID HOST PLANT SURVEYS—Previously developed maps of Prunus spp. were upgraded by correcting host plant identifications and by adding previously unmapped Prunus plantings. Early season aphid development on the plants was closely observed and established that only plum, peach, and apricot support overwintering green peach aphid populations. Furthermore, aphid production was also greatest on those plants located in the towns of Monte Vista and Del Norte in contrast to Center and rural sites.

Several other species, including some that superficially resemble green peach aphid, were identified on the Prunus. A key to the identification of overwintering aphids on Prunus is being developed.

ESTABLISHMENT OF TIME OF POTATO LEAFROLL SPREAD BY WINGED APHIDS—Greatly expanded use was made of potato leafroll indicator plants to determine when virus spread by winged aphids occurred. Initial infection occurred in early July, when numbers of aphids caught in pan traps remained low. Peak infection occurred in mid-August, before peak aphid flights.

APHID TRAPPING STUDIES—In cooperation with Agro-Engineering, Bob Hammon assisted with aphid identifications for the pan trapping program. To confirm many of the identifications, a trip to Idaho was required to establish a cooperative relationship with potato aphid experts. A key for the identification of aphids in San Luis Valley pan traps is currently being developed.

Observations made during the season indicate changes in the current system should be made to improve its efficiency. The number of traps could be decreased with little loss of information. Potato aphid data should probably be eliminated because of the extremely close appearance of the species with several other commonly caught species.

Continued evaluation of factors involved in trap pan efficiency indicate that several minor changes can greatly effect trap capture with the currently used traps. Minor trap color changes, background color, surfactants and other aspects were involved in these studies. The variability that these minor changes can introduce into trap captures further indicate that the current aphid trapping system needs to be replaced by a more consistent and efficient one.

INSECTICIDE EVALUATIONS-Trials were again conducted in Center to evaluate potato insecticides. Results were generally consistent with the past indicating no obvious deterioration in effectiveness. Asana, an isomer of Pydrin and its probably replacement, appeared equal in effectiveness to Pydrin.

Growth and flowering effects were again seen with Temik, but there was no yield response. Sencor/Thimet combinations showed an increase in herbicide injury to Centennial potatoes.

CULTURAL CONTROL STUDIES-Reduced aphid landing was observed on plots that had large amounts of surface straw around early season potatoes. Also aphid landing increased over patchy green surfaces in contrast to uniform green surfaces suggesting that reduced plant densities may increase aphid landing.

Tuber samples from 4 fields were collected from various locations to determine if edge effects of potato leafroll infection occurred. These are still being analyzed.

1987 PROPOSED STUDIES

OVERWINTERING APHID HOST PLANT SURVEYS-Surveys will be repeated in spring 1987 to determine if patterns of aphid overwintering remain similar to 1986. This mapping will also be directed towards providing information needed to best target 1987 aphid suppression efforts, if any.

* APHID TRAPPING SYSTEM EVALUATIONS-Existing pan trapping systems will be compared to suction trap systems currently employed in the Northwest and in Europe. A single suction trap site is proposed. Experience with the system in 1987 will allow evaluation of suction traps as a possible replacement for the current system. Also, side-by-side comparison will provide information needed to bridge past and future trapping information if trapping systems do change.

LEAFROLL INDICATOR PLANT STUDIES-Continued use and expansion of indicator plants is planned to determine time when potato leafroll is spread by winged aphids. This information will be compared to aphid trapping information to see how well trapping predicts periods of infection.

* INSECTICIDE EVALUATIONS-Ongoing insecticide trials will be continued to develop alternative green peach aphid controls should existing products be banned, restricted or fail to work effectively because of insecticide resistance development.

BUDGET

Labor (primarily wages for Bob Hammon work in spring and in weekly summer visits)

\$4500

\$2250
\$3000

Purchase and placement of a suction trap

750

Travel, reporting costs

1500

Supplies, ELISA testing

* 2100

TOTAL REQUEST

8850

3000