SOIL-BUILDING WITH COVERCROPS IN ALMOND ORCHARDS. Lonnie Hendricks, U.C. Farm Advisor in Merced County.

A covercrop trial comparing ten covercrop mixes replicated twice was planted in November 1992. The covercrops are 2 annual grasses, 6 vetches and clovers, and 2 blends of plants designed to provide habitat for beneficial insects.

Measurements were made monthly for organic matter content and leaf samples for nutrient analysis were collected on June 16. The covercrop and trees were surveyed periodically for insect, mite and spider activity. Both PTB and NOW traps were maintained to monitor these pests. Covercrop height was measured periodically, and number of mowings and timing were recorded for each cover. Earthworm activity has been measured periodically to estimate soil health and viability. Three tours were held in April and May. Since this plot was established only one year ago, it is still too early to make valid comparisons or recommendations about these covercrops.

EFFECT OF TRUNK DAMAGE ON HULL SPLIT AND PRODUCTIVITY OF NONPAREIL ALMOND. Mario Viveros, U.C. Farm Advisor in Kern County, and Peggy Schrader, Laboratory Assistant.

Ten trees each showing four different amounts of trunk damage were selected along with 10 undamaged trees as a control. The damage was determined by measuring the trunk circumference and then measuring the damage area. This was expressed as a percent. The following were the treatments, based on the percent of trunk damage: (A) 7% - 15%, (B) 16% - 30%, (C) 31% - 45%, (D) more than 45% and (E) no damage. Samples of 50 nuts were taken from each tree at weekly intervals. The starting date was 7/23/93 (onset of hull split) and the last sample was taken 8/20/93 (harvest time). The 50 nuts from injured trees were divided into 25 nuts taken from a limb above the injured area of the trunk and 25 nuts from a limb above a healthy area of the trunk.

The results showed that trunk injury influences (advances) hull split. In fact, limbs above an injured area significantly advanced hull split. Furthermore, for trunk injury to be a factor in hull split, it must be greater than 16% of the trunk circumference. Trunk injury also influenced yields. Trees with more than 31% of the trunk injured had significantly reduced yields.

In conclusion, trunk injury makes the management of an orchard more difficult. Trunk injured trees will have advanced hull split as compared to noninjured trees. This makes the N.O.W. spray at the onset of hull split impossible to time properly. Trunk injury also decreases yields and may influence the productive life of an orchard.

INVESTIGATION AND CONTROL OF APPLE LEAFHOPPER. Mark Freeman and Rich Coviello, U.C. Farm Advisors in Fresno County.

This study included charting the life cycle of the apple leafhopper on almonds and evaluating several control measures. Unfortunately, the grower oversprayed the test plot, so no data were obtained in 1993. We plan to repeat the study in early 1994.

CONTROL OF RING NEMATODE/BACTERIAL CANKER IN ALMOND ORCHARDS WITH THE FUMIGANT ENZONE APPLIED THROUGH A MICRO-SPRINKLER SYSTEM. Paul Verdegaal, U.C. Farm Advisor in San Joaquin County.

The objective of this trial is to evaluate a post plant treatment to control ring nematode and reduce or eliminate tree losses due to Bacterial Canker. A young almond orchard (1983) of Carmel and Monterey on Nemaguard was selected for evaluation. Ring nematode populations had built up considerably since replanting and several trees were lost due to Bacterial Canker. The orchard is micro-sprinkler irrigated.

After initial treatment in 1991, ring nematode numbers were reduced by 40%. Average counts for 500 cc of soil were 660 for the untreated control versus 392 for treated plots. Trunk circumferences on nontreated trees increased from an average of 46.5 cm to 57.6 cm. For treated trees, average circumferences increased from 45.4 cm to 59.7 cm. This was not a significant difference, but the trend was for slightly larger trunks with treatment of Enzone. Harvest yields were not different in 1992, averaging approximately 34 meat pounds per tree, for both treated and untreated trees.

Enzone can reduce nematode populations and does not adversely affect tree growth, but yields were not increased in the first two years. This trial will be conducted one more year to monitor any delayed response in yield.