

*IPFP Satellite Project***Controlling Prune Aphids Using ZnSO<sub>4</sub> to Defoliate Trees Early in the Fall - 2002**

Bill Olson, Carolyn Pickel and Jed Walton,

The objective of this trial was to confirm our previous work that indicated that by removing the leaves from the prune trees before the Mealy Plum and/or Leaf Curl Plum aphids (MPA and LCPA respectively) returned from their alternate hosts to lay their over-wintering eggs provided adequate aphid control. This idea is based on much earlier research that showed that with no leaves for the returning aphids to feed on, no eggs would be laid. The trial was done in a Sutter County orchard that had a high population of aphids for the past few years. The treatments were: 1) defoliated trees with Zinc Sulfate (36 % Zinc) and 2) non-defoliated trees (untreated check). A five-acre block was treated by air blast sprayer with 20 pounds of Zinc Sulfate per acre applied with 100 gallons water per acre on October 15, 2001. This was three weeks later than planned but the earliest the grower had time to make the application. Treated trees were mostly defoliated within three weeks (November 6) of treatment and completely defoliated within one month, while the untreated trees still had many of their leaves. The goal was to have most of the leaves off by October 15, but since the treatment was not applied until October 15 this goal could not be realized. Treatments were evaluated on May 7<sup>th</sup>, 2002 by examining 96 trees per treatment for the presence of MPA and/or LCPA. Each tree with MPA was further categorized as having a low, medium, or high population of aphids.

In the untreated five acres 99 % of the trees had MPA present while only 12.5 % of the trees had LCPA present. The defoliated treatment had 74 % fewer trees with MPA and 5.2 % fewer trees with LCPA than the non-defoliated treatment, (Table 1). Most Zinc Sulfate treated trees that had MPA had low populations of aphids while in the untreated area the trees with MPA had high populations of aphids, (Table 1). No phytotoxic effects were observed on the treated trees or on their fruit. The keys to using this method of control are timing, rate of Zinc Sulfate (36% Zinc) and proper application. In this trial defoliation occurred during and after the MPA and LCPA returned to the orchard. As a result only partial, but adequate, control was achieved. Additionally, the rate of 20 pounds per acre of Zinc sulfate appears too low to get a quick defoliation response when applied by air blast sprayer at 100 gallons of water per acre. It is believed that 30 pounds of Zinc sulfate applied by October 1<sup>st</sup> would be a more appropriate rate and timing to get the desired results. Several growers are trying this rate and timing this year. There is ongoing research to determine exactly when the two species of prune aphids return to lay their over-wintering eggs.

**Table 1.**

<b>Controlling Prune Aphids Using 20lbs of ZnSO<sub>4</sub>/100 Gallons of water in an air blast spray application applied 10-15-01 to Defoliate Trees</b>				
<b>Evaluated 5-7-02</b>				
<b>% of Trees With MPA</b>		<b>Low-Med-High**</b>	<b>% of Trees With LCPA</b>	
<b>Defoliated</b>	<b>25</b>	<b>21-0-3</b>	<b>Defoliated</b>	<b>7.3</b>
<b>Non-Defoliated</b>	<b>99</b>	<b>19-19-57</b>	<b>Non-Defoliated</b>	<b>12.5</b>

\*\*Total number of trees with MPA

Low = Less than 25% of the tree with aphids

Med = Less than 50 % of the tree with aphids

High = More than 50 % of the tree with aphids