

#### IV. Chemical Control/New Products

- a. Chemical control: Applaud (buprofezin)
  1. San Jose scale

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Applaud (buprofezin) was field tested at the Kearney Agricultural Center in 1995 for control of San Jose scale (SJS). This chemical is not yet registered in the U. S. It has shown high levels of activity against homopterans such as leafhoppers, whiteflies, and scales in other areas of the world. It is highly selective for Homoptera and has shown no activity on Lepidoptera (moths), Diptera (flies), or Hymenoptera (wasps). It has shown some effect on coccinellid beetles and some species of mites.

Applaud was applied on May 4, 1995 by handgun to mature Fairlane nectarines at 1.0 lb. ai and 1.5 lb. ai per acre, using six single tree replicates per treatment. Three gallons of mixed spray at 200 psi were applied to each tree (replicate) which was equivalent to 360 gpa. This spray volume provided total wetting of leaves, twigs, and bark. Six Fairlane trees in the same orchard were left as untreated checks. Application was to be timed against first generation crawlers at ca. 500 D° after male biofix, and just prior to or at expected peak crawler emergence. The material was actually applied at 532 D° after biofix, about three days later than desired. Treatment efficacy was determined in three ways: percent scale infested fruit at maturity; collection of SJS crawlers on sticky tapes (two/rep); and collection of male scale on pheromone traps (one/rep).

Mature nectarines were harvested on August 14 from all treatments. The results of the treatments on fruit infestation were: untreated check, 53.0%; 1.0 lb. ai/acre, 9.7%; and 1.5 lb. ai/acre, 14.1% infested. Damage reduction (control) with the 1.0 and 1.5 lb. rates were 81.7% and 73.4% respectively, which is considered very good given the high scale population pressure on these trees. Collections of SJS crawlers on sticky tapes showed excellent reductions in crawler populations for the season (second, third, fourth generations) through October 30, 1995. Total post-treatment crawler counts from May 8 through October 30 were 5,903, 379, and 211 in the check, 1.0 lb., and 1.5 lb. treatments, respectively. Differences in crawler counts were particularly noted during the third generation in August and September.

Collections of flying male scale collected on the pheromone traps showed no significant differences between trees or treatments from May 4 to October 30, probably due to males flying from outside the single treated trees in response to the pheromone in traps. This method of evaluating efficacy of scale controls should not be used unless larger blocks (replicates) of contiguous treated trees are used.