

KATYDID, A DEVELOPING PEST IN STONE FRUIT ORCHARDS

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Katydid belongs to the insect order that also contains grasshoppers. They are sometimes termed long-horned grasshoppers. In most instances they are arboreal but can feed on weeds growing in the orchard floor. There are two common species found in the San Joaquin Valley, the angular winged katydid, *Microcentrum Retinerve*, and the forked-tailed bush katydid, *Scudderia Furcata*. The biology of both species is quite similar in that they winter as eggs which have been laid in leaves or woody tissue of trees and they each are reported to have one generation per year. Recent field observations seem to indicate that the forked-tailed bush katydid actually has two generations per year. Katydid are relatively large (3 inches or more in length). Both species are commonly found in citrus and less so in stone fruits.

During 1999 and 2000 many farmers reported feeding on peaches and nectarines which was caused by the forked-tailed bush katydid. On immature fruit, damage appears as a rough scrape that later forms a brown scar. Feeding on a more mature fruit, by adult katydids, results in small scallops in the fruit, much like a miniature ice cream scoop would cause. Immature stages, which look like wingless forms of the adult, were found during late April an early May in the Tos Pest Management Alliance orchard near Hanford. Interestingly, these first and second stage nymphs were captured feeding on cheeseweed growing between tree row. Rearing of the immature stages showed the species to be the forked-tailed bush katydid. This species oviposits inside the peach leaf. Unlike more commonly seen katydid eggs which are inserted on the tops of a small twig or along the outer edge of the leaf, forked-tailed bush katydid eggs are not easily seen. These eggs appear as beans in a pod, the outer tissue of the peach leaf forming such a pod. Speculation is that these leaves, with eggs in them, drop to the ground and remain there until warm spring weather when eggs hatch and nymphs move to orchard weeds. This would occur in April and May. The primary spring food for the forked-tailed bush katydid appears to be weeds on the orchard floor. Some feeding may occur on leaves near the crotch of trees, but until adults develop wings, movement into the tree will not occur.

Sampling for katydids is best done in the spring with a sweep net. By vigorously sweeping the net across orchard weeds, immatures can be easily captured. Although the nymphs do little damage while feeding on weeds, once the adult stage is reached they fly into the trees where feeding occurs on ripening fruit.

Chemical control was achieved in the Tos orchard with sinosad (success) aimed at the immature stage. Once the adult stage is reached, spinosad is not as effective as organophosphate materials.

Further work will be conducted on the life history, monitoring methods, and control of forked-tailed bush katydid found in local orchards. Both farmers and their pest control advisers should be aware of how to monitor for this pest. Substantial damage can occur in a very short period of time if the pest goes undetected.

ALMOND NUT DROP, HERBICIDE RELATED? (Hendricks)

There has recently been some very heavy nut drop in a few isolated almond orchards. The nuts have developed a brownish sunken area on the flower end of the nuts. These spots have a dehydrated appearance and no gumming. The nuts stopped growing and dropped even though the kernel often was fully developed. Nut drop has occurred from May through June. This is not a normal type of "June drop", but a severe drop of nuts with obviously shrunken, dehydrated spots on the hulls. In most cases some scorching of leaves can be found on terminals of watersprouts and on vigorous shoot growth. This has been reported to me from Kern, Fresno and Madera Counties, as well as what I have seen in Merced.

The common conditions we seem to find are 1. Sandy soils and in some cases there was moisture stress, 2. A new herbicide for nutgrass control had been used, and 3. The orchards were irrigated soon after application of the herbicide. I can't say for certain that the herbicide is responsible, but the circumstantial evidence points in that direction.

My purpose with this note is to ask for help. If you have seen similar symptoms in your orchard, please let me know. I am especially interested if you have these symptoms and have not used any new herbicide.