

III. Stone Fruits

a. Pesticide resistance

1. *Grapholita molesta*, Peaches

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We have been monitoring Oriental fruit moth for azinphosmethyl resistance for the past 3 seasons. Tests were conducted on adult male moths using the toxicant laced adhesive technique developed by Tom Miller at UCR with a diagnostic dose of 100 micrograms azinphosmethyl per gram of adhesive. All tests, except the 1991 Butte County bioassays were conducted against the 1st summer (May) generation, between 300 and 500 degree days after the beginning of the flight. The 91 Butte County bioassays were conducted on the 2nd summer generation, in late June.

Insecticide laced trap bottoms and tops were assembled and placed in the field just prior to dusk. Traps were collected early the following morning, placed in ice chests with enough wet paper towels in the bottom to keep humidity above 90%. Traps were incubated at room temperature (approx. 73 degrees F) and moths checked 24 hours later by probing with a pencil to detect any movement. Data were transformed using Abbott's formula and percent mortality calculated.

Data from 1990 indicate OFM resistance was limited to the Lomo area north of Yuba City in Sutter County and across the Feather River in Yuba County. Five orchards in the area were surveyed with mortality ranging from 30 to 50%. This compares to 98% mortality in an assumed susceptible strain in the San Joaquin Valley, Table 1. Three orchards in Butte County, that had reported control failures with azinphosmethyl, were tested in 1991 and there are indications all three orchards were resistant.

Sixteen peach and nectarine orchards throughout California were bioassayed in 1992 in cooperation with county based farm advisors. All 3 Butte County orchards appeared to be resistant or are becoming resistant but 2 Sutter County orchards located south of Yuba City still seem to be susceptible. Three orchards in Stanislaus County were bioassayed with 2 of the 3 orchards indicating resistant populations. This is the first time resistance has been detected in the San Joaquin Valley. All orchards tested south of Modesto were still susceptible.

Table 1

Survey of OFM resistance in California using azinphosmethyl
mixed with adhesive in pheromone traps. -1

County	Grower	1990	1991	1992
		% mort.	% mort.	% mort.
<u>Butte</u>	Carlin (Peterson Rd.)			594
	Badashi (Little Rd.)			577
	Singh (Ord Ranch)			309
	Palma (Larkin Rd.)	61.9		
	MC		43.3	
	Peek		35.5	
	Stowe		48.6	
<u>Sutter</u>	Singh (Lincoln Rd.)			863
	Johl (Reed Rd.)			733
	Johl (Eager Rd.)	34.5		
	Poole (Eager Rd.)	57.2		
	Levee (Lomo)	41.0		
	De-Valentine (Rio Oso)	73.5		
	Vertrees (Rio Oso)	81.1		
<u>Yuba</u>	Tierra (Dist. 10)	30.6		
<u>San Joaquin</u>	Zeider (Lockford)	94.5		
	Linden (Baker/Duman Rd)	77.5		
<u>Stanis- laus</u>	"L"			562
	"S"			460
	"D"			893
	Britton (Salida) -- Almonds	94.0		
<u>Merced</u>	Fiorini (Livingston)	54.5		795
	S & J (Chowchilla) -- Almonds	78.9		
<u>Fresno</u>	Chandler (Selma)	92.3		926
	KAC (Parlier)	89.4		706
	Ballantine (Kingsburg)	98.1		
<u>Kings</u>	Palm Ave. (Kingsburg)			788
	Meyer			868
	9th Ave. (Hanford)			931
<u>Kern</u>	Sandrini			634
	Vallos Rd.			826

-1 Diagnostic dose 100 micrograms/gram adhesive

* Mortality corrected using Abbot's Formula