

Pome Fruits—Pesticide Resistance

Pear Psylla on Pear

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Adult, winterform pear psylla were collected from several pear orchards throughout northcentral Washington. Orchards chosen for the study included 2 experimental blocks at the Tree Fruit Research and Extension Center, 8 commercial pear orchards and 1 organic pear orchard. In the laboratory psylla were tested by the slide-dip technique for susceptibility to several pesticides. They were fastened to the sticky surface of strapping tape, which was attached to standard microscope slides by placing them on their backs and pressing their wings onto the tape. Ten adult psylla were thus fastened to each slide. Psyllid loaded slides were dipped in pesticide dilutions for five seconds. Treated psylla were held in refrigerator trays for 24 or 48 hours in 16 L:8 D photoperiod then examined for mortality under magnification by teasing them with a small brush and observing their response. Individuals that failed to either move their legs rapidly or execute typical jumping reflex action were classed as dead. Five serial dilutions (1:1) of each pesticide were tested on 6 replicates. The mid-dilution in the series was equal to the field concentration for dilute sprays at 400 gallons per acre. Compounds tested represented 3 classes of pesticides, organophosphates, chlorinated hydrocarbons and pyrethroids. Specific compounds selected for testing were those still labeled for use on pear and which were originally effective against pear psylla.

None of the materials tested provided sufficient kill of winterform adult pear psylla to be effective as prebloom sprays against this pest. There was some inter-orchard variation in susceptibility of psylla to Asana XL and Baythroid, but neither of these compounds were effective enough against psylla from any of the test orchards to provide adequate control.

The study shows the lack of effectiveness of materials currently labeled for control of this pest and the stability of resistance in materials no longer used for this purpose. Results are summarized in Tables 1 and 2.

Table 1. Susceptibility of winterform adult pear psylla to some pesticides used in pear orchards.

Pesticide	Count	Mean % kill	Std. error
Guthion 35% WP	30	10.3	2.82
Thiodan 50% WP	18	10.0	3.62
Pounce 25% WP	30	7.7	1.57
Pounce 3.2EC	30	38.3	5.83
Asana XL .66EC	288	17.9	0.97
Baythroid 2EC	288	19.7	1.10

Table 2. Susceptibility of winterform adult pear psylla from several orchards to Asana XL and Baythroid.

Orchard and location	Pesticide	Count	Mean % kill	Std. error
TFREC, Wenatchee	Asana XL	30	12.0	2.32
Lanphere, E. Wenatchee	Asana XL	30	20.7	3.55
TFREC, Orondo	Asana XL	30	19.7	2.69
J. Smith, Sunnyslope	Asana XL	15	10.7	2.28
Davies, Orondo	Asana XL	30	20.3	3.09
B&F Farms, Cashmere	Asana XL	30	20.7	3.71
Garrett, Monitor	Asana XL	30	20.7	2.67
W. Smith, Peshastin	Asana XL	30	6.7	1.21
Neff, Pateros	Asana XL	30	14.7	2.83
Gebbers, Brewster	Asana XL	18	30.0	3.88
Moon, Okanogan	Asana XL	22	21.4	4.18
TFREC, Wenatchee	Baythroid	30	16.3	2.82
Lanphere, E. Wenatchee	Baythroid	30	18.0	3.30
TFREC, Orondo	Baythroid	30	22.3	2.70
J. Smith, Sunnyslope	Baythroid	30	17.7	3.48
Davies, Orondo	Baythroid	30	30.3	4.46
B&F Farms, Cashmere	Baythroid	30	27.0	3.22
Garrett, Monitor	Baythroid	30	28.7	4.09
W. Smith, Peshastin	Baythroid	30	6.0	1.63
Neff, Pateros	Baythroid	30	9.7	1.95
Moon, Okanogan	Baythroid	18	22.2	3.58