Chemical Control/New Products

Impacts of Weathered GF-120 Residues on Olive Fly Mortality in the San Joaquin Valley, California

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Abstract: GF-120 NF Naturalyte Fruit Fly Bait (Dow AgroSciences LLC) is the only approved chemical control for olive fly, *Bactrocera oleae* (Gmelin), in California. Because high summer temperatures may negatively impact GF-120 residue efficacy, field studies were conducted to quantify reductions in toxicity. To determine impacts, two concentrations of GF-120 mixed in water were examined: a 1.5:1 mixture (water to GF-120) and a 4:1 mixture (water to GF-120). These were compared to a 4:1 mixture of water to a “blank” formulation of GF-120 without Spinosad®. October 2003 tests showed that 21 days after treatment (DAT), mean adult mortality in the 1.5:1 solution residue held at 77.9%, but flies exposed to the 4:1 solution exhibited a mortality of only 17.7%. In August 2004 tests, mean mortalities of flies exposed to the 1.5:1 residues from 4 to 21 DAT ranged from 99.2 to 90.6%. During the same time period, mortality at 72 hours post-exposure in the 4:1 ratio residue dropped from 96.5% on Day 4 to 67.5% on Day 21. In September 2004 tests, mean mortalities of flies exposed to the 1.5:1 ratio residues from 4 to 21 DAT ranged from 83.4 to 97.5%. All studies indicate that the dilution of 1.5:1 (water to GF-120) will kill a greater percentage of the test population for 21 days than will the 4:1 dilution, with the latter losing significant impact between 7 to 14 days.