

Chemical Control/New Products

Spider Fauna in Apple Ecosystem of Western Oregon and Its Field Susceptibility to Chemical and Microbial Insecticides

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During 1990-1993, twelve families, thirty-three genera and twenty-nine identifiable spider species were found in two apple orchards of western Oregon. The most common spider species were: different Salticid (33.5%) *Metaphidippus aeneolus* (21.5%) and *Eris marginata* (5.9%), Linyphiid (21.3%) *Spirembolus mundus* (14.3%) and Micryphantinae (5.6%), Clubionid (13.4%) *Cheiracanthium inclusum* (13.4%), Philodromid (9.4%) *Philodromus spectabilis* (8.04%), and Theridiid (7.9%) *Theridion lawrencei* (4.5%). Individuals of these species were collected in 50-60% of the samples. Bacterial insecticides Dipel and MVP (0.5-1.5X rates), summer oil (0.5-1.0X), and diflubenzuron (0.25X-1.0X) were generally harmless (0 to <25% mortality) to the spider species. Full rates of azinphosmethyl, phosmet, and carbaryl were slightly to moderately harmful (25 to 75% mortality) to these predators. These insecticides at reduced rates (0.1-0.2X), were selective. Full rates of esfenvalerate and permethrin were harmful (>75% mortality) and their reduced rates (0.1 and 0.20/0.25X) were selective to the spiders. Both pyrethroids at 0.1X applied 4 times/season alone or in combination with bacterial insecticides acted moderately, allowing spiders to survive/continue their activities on the treated trees. Generally at this rate and frequency of application, field toxicity of both pyrethroids to spiders was comparable to that of full field rates of organophosphate azinphosmethyl and phosmet and carbamate carbaryl.