

## II. Pome Fruits

### e. Pesticide resistance

#### 1. *Tetranychus urticae*, *Panonychus ulmi*; Apple and pear

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The residual life of Agri-Mek was bioassayed for two mite species on apple and pear in 1987-88. Two trees of each species in adjacent blocks were tagged. One was sprayed with Agri-Mek (0.025 lb (AI)/acre) plus 1 gal/acre superior spray oil; the other was untreated. Treatments were applied on 31 July in 1987 and 8 August in 1988. Trees were sprayed to the point of drip with a handgun operating at 300 psi. Both blocks were watered with undertree sprinklers, and no measurable precipitation fell during the posttreatment period. The experimental design was a 2 mites spp. X 2 tree spp. factorial treatment arrangement\*.

Ten leaves from the tagged trees were collected at 0 (after the spray had dried), 1, 3, 7, and 14 days posttreatment. European red mites (ERM) were collected from a field population on apple trees. Twospotted spider mites (TSM) were collected originally from a field population on apple, and then reared on lima beans. Ten adult female mites were placed on 2.2 cm disks punched from the collected leaves. The leaves were floated on water in plastic cups and held at 21-24°C for 72 hours, at which time mortality was assessed.

Mean check mortalities (over the five bioassay dates) in the two years were as follows: 1987: ERM=12.87%; TSM=2.06%. 1988: ERM=11.18%; TSM=2.48%. In both years the mortality on day 0 (both mite and tree species) was ca. 80-100%, indicating that surface residues were equally active regardless of mite or crop species. There was no consistent effect due to mite species over the posttreatment period, but a very strong effect due to tree species. At the end of 14 days mortality on pear leaves had dropped to 59.45% (1987) and 69.80% (1988), whereas mortality on apple leaves had dropped only to 4.45% (1987) and 20.51% (1988). These data indicate that poor or inconsistent performance of Agri-Mek on apple may be due to shorter residual life in the leaves of this species.

\*Data were analyzed using analysis of variance.



# ABAMECTIN RESIDUE BIOASSAY

