ABAMECTIN CARIBBEAN FRUIT FLY BAIT

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Toxic bait cover spray is an option to used instead of methyl bromide fumigation in the Caribbean fruit fly-free protocol for citrus production in Florida. Of 186,000 acres under protocol, about 66,000 were qualified by bait spray in the 1994-95 season. An option of the protocol calls for malathion in bait at 182,000 ppm. Concerns over environmental hazards attributable to malathion (Kinney 1993) prompted screening of alternative bait toxicants.

Abamectin is a contact and stomach toxin derived from a soil fungus (Lasota and Dybas 1991). It is currently used in Florida citrus to control citrus rust mite (McCoy et al. 1994). Abamectin, as Avid® .15 EC, in sugar-yeast hydrolysate enzymatic bait was tested in the laboratory. The effective concentration (EC) was that which caused irreversible knockdown followed rapidly by death. Twelve-day-old males and females from a laboratory colony were bioassayed.

Ten bait concentrations were tested: 0, 0.1, 0.5, 1, 2, 5, 10, 25, 50, and 100 ppm. The bait carrier was sugar:yeast hydrolysate enzymatic, 3:1 to which water was added to form a slurry. The toxic bait was administered into the cages as 20-30 droplets (2-3 mm diam.) that had been dried for 24 h on glass petri dishes. EC_{99}s were predicted using probit analysis.

Adults fed readily on the droplets and no repellency was observed. The EC_{99} at 48 h was predicted to be 12.2 ppm for females and 19.6 ppm for males. The 19.6 ppm amount is only 0.01% the concentration of malathion now used in the field. If used instead of malathion, it would represent a significant reduction in the amount of insecticide placed into the groves under protocol. Field screening tests are underway.

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