

Pome Fruits

a. Chemical control

Apple ermine moth Yponomeuta malinellus on apple

Ernest C. Bay
WSU Puyallup REC, Puyallup, WA

and

Win McLane
USDA, APHIS. ANGB, MA

The apple ermine moth, Yponomeuta malinellus has been a serious regulatory problem for the pacific northwest apple nursery industry since it was first discovered established in Bellingham, Washington, in 1985. Until now, overwintering, hibernacula-protected, neonate, larvae have resisted all control attempts. Recent series of experiments have demonstrated that both repeated cover sprays, and single, selected superior oil-insecticide combinations, can provide 100 percent regulatory control of overwintering larvae. Earlier results using these methods were misleading due to the extraordinary, 30 plus days, post treatment evaluation period required to establish mortality..

The first indication of need for delayed mortality readings came in January, 1991, when common sprayed AEM hibernacula held in a protected environment were compared with others left in the field. One hundred percent AEM mortality occurred within 16 days on asana-oil sprayed branches, kept under dry, cool, cover, compared with no mortality, and only 64 percent apparant morbidity, in the field. A repeat spray of remaining AEM hibernacula then left afield for an additional 33 days gave 100 percent control. Topical swab treatments of individual hibernacula and, eventually, single and dual commercial leaf drop spray applications made at Buckley, Washington, gave similar results (Table 1). Mistblower sprays of 4 percent oil, combined with 2 oz per 100 g asana, were made 5 weeks apart, and results were determined 7 weeks after the initial spray.

During the summer, 1992, replicated, caged tree experiments were made with repeated 14-day interval cover sprays between June, 19, and August, 28. Materials included Guthion, Asana, Asana with oil, Pageant DF, and Dursban Turf with oil. Results, on September 10, were 100 percent mortality for all treatments except Asana, 94 percent, and Pageant DF, 87 percent (Table 2). As 1991 studies demonstrated neither Guthion nor Asana to have an effective single spray residue beyond 7 days, it would appear that repeated cover sprays of these materials may eventually penetrate hibernacula with delayed mortality.

Table 1. Neonate larval mortality within oil/Asana* sprayed apple ermine moth hibernacula 7 weeks post spray. Sumner, WA, 1992.

Sprays	No. Hibernacula w/live, dead larvae, empty			% Batch Mortality
Single spray 92/10/30	0	23	7	100%
Dual Spray 92/10/30 + 92/12/05	0	31	9	100%
Check	28	6	5	17%

*Superior oil 4%, Asana 2 oz/100gal

Table 2. Apple ermine moth hibernacula recovery and neonate mortality following successive cover sprays. Puyallup, WA, 1992.

Treatment	Hbncula laid	Hbncula recovered	Neonates alive	Neonates dead	% Mort.
Guthion	6	6	0	6	100%
Asana	52*	31	2	29	94%
Asana/oil	17	12	0	12	100%
Pageant DF	19	15	2	13	87%
Dursban Turf/oil	19	8	0	8	100%
Check	87	48	37	9	18%

* Single tree accounted for 37 hibernacula