

Pome Fruits—Chemical Control

Apple Ermine Moth on Apple

Ernest C. Bay¹ and Win McLane²

¹WSU Puyallup Research and Extension Center, Puyallup, WA

²USDA, APHIS, ANGB, MA

Keywords: apple ermine moth, *Yponomeuta malinellus*, Guthion, Asana, oil, Pageant, Dursban Turf, apple

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, WA, 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% 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% apparent morbidity in the field. A repeat spray of remaining AEM hibernacula then left afield for an additional 33 days gave 100% control. Topical swab treatments of individual hibernacula and, eventually, single and dual commercial leaf drop spray applications made at Buckley, WA, gave similar results (Table 1). Mistblower sprays of 4% 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% mortality for all treatments except Asana, 94%, and Pageant DF, 87% (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			% batch mortality
	w/live	dead larvae	empty	
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/100 gal.

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

Treatment	Hibernacula		Neonates		% mortality
	laid	recovered	alive	dead	
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	19	8	0	8	100
Turf/oil					
Check	87	48	37	9	18

*Single tree accounted for 37 hibernacula.