

APPLE: *Malus domestica* Borkhauser
Mullein plant bug (MPB), *Campylomma verbasci*
Apple brown bug (ABB); *Atractotomus mali*

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APPLE, EVALUATION OF INSECTICIDES TO CONTROL PHYTOPHAGOUS MIRIDAE, 2001: We have determined, through various experiments over a number of years, that the most effective insecticide application timing to control of mullein plant bug and apple brown bug is at the pink stage of blossom development. Tests were set up in 2001 to compare the effectiveness of Lorsban 4 EC, Actara 25 WDG, and Avaunt 30 WG, all applied once, at pink. A formulation of sugar esters, which is neither phytotoxic nor toxic to honeybees and provides no residual control, was applied once, at the full bloom stage, when peak hatch occurs. Treatments were applied randomly to single 'Red Delicious' trees and were replicated 8 times. All were applied with a handgun using a Rears Nifty-Pul-Tank sprayer operating at 300 psi. Fruit damage was assessed on 8-June (after "June drop"). Ten fruits on each of 10 limbs (100 fruits per tree) were examined for damage which was classified as follows: Clean = no damage, Fancy = 1 or 2 superficial blemishes, No. 1 = 2 or 3 superficial blemishes or 1 large blemish, cull = > 3 superficial blemishes or >1 large blemish or distorted fruit. Data (proportion damaged fruit) were transformed by arcsin squareroot and analyzed using Fisher's Protected LSD test.

Results

Lorsban 4EC and Actara controlled mirids, Avaunt appeared to be somewhat effective (though one replicate, in which there was 90% cull fruit, was removed from the analysis as an outlier) and the sugar esters formulation had no effect. However, the weather at the time of bloom this season was such that bloom in Geneva was considerably shorter than in the major apple growing region nearer to Lake Ontario. We did not determine, therefore, whether residues will last throughout the generally longer bloom period in that region. The sugar esters formulation can be applied safely during bloom, but provides no residual activity. It was not effective when applied only once. Although nymphs were present in large numbers at the time of application, many of the nymphs observed after application in this treatment may have hatched after the time of application and were, therefore, not subject to control. The efficacy of a greater number of applications of the sugar esters formulation was not tested.

Treatment/ Formulation	Rate (form./100gal)	Timing	Clean	Fancy	% in category ¹		
					No.1	Cull	No.1 + cull
Lorsban 4EC	1.0 pt	Pink	99.4 a	0.3 a	0.3 a	0.1 a	0.4 a
Actara 25 WDG	5.5 oz	Pink	97.4 ab	1.4 a	0.6 a	0.6 a	1.3 a
Avaunt 30WG	2.0 oz	Pink	91.7 b	4.0 b	1.2 ab	3.2 ab	4.3 ab
Sugar esters	0.8 gal	Full bloom	71.6 c	6.0 b	3.3 c	19.1 c	22.4 c
Untreated check			73.1 c	6.3 b	2.6 bc	16.8 bc	19.4 bc

¹ Clean = no damage, Fancy = 1 or 2 superficial blemishes, No. 1 = 2 or 3 superficial blemishes or 1 large blemish, cull = > 3 superficial blemishes or > 1 large blemish or distorted fruit, No. 1 + cull = downgraded fruit.