

## EVALUATION OF INSECTICIDES TO CONTROL PHYTOPHAGOUS MIRIDAE 2004

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We have determined, through various experiments over a number of years, that the most effective insecticide application timing for control of mullein plant bug and apple brown bug is at the pink stage of blossom development. Tests were set up in 2004 to compare the effectiveness of Lorsban 4EC, Actara 25WDG, and Assail 70WP, all applied once, at pink. Insecticides were applied at 3 sites in Wayne Co., NY. Despite preliminary sampling that indicated each site would have sufficient numbers of insects to provide a good test, hatch was adequate in only one site, on the Simpelaar farm. Treatments were applied to 8 'Red Delicious' trees (4 trees x 2 rows) per plot and were replicated 4 times. All were applied with a handgun using a Rears Nifty-Pul-Tank sprayer operating at 300 psi. Limb-tap samples were taken every 1–4 days starting at Full Bloom and ending at Petal Fall, at which time the grower applied another insecticide, according to normal practice. Fruit damage was assessed on 2 June (after "June drop"). Ten fruits on each of 5 limbs (50 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 arcsine square root and analyzed using Fisher's Protected LSD test.

Egg hatch was somewhat later, in relation to Full Bloom, than is considered "normal". Generally, peak hatch would occur between Full Bloom and about 50% Bloom. Damage is lower in seasons when hatch is late. Little or no damage was incurred in 2002 and 2003 due to cool weather during the bloom period that led to a very late hatch. In 2004, hatch began prior to Full Bloom (as indicated by monitoring in the Untreated Check plots) but numbers were not particularly high until about 90 % Petal Fall, one day before the grower applied another insecticide. Nymph numbers are given in Table 1. As a result, damage in 2004 was only low to moderate (approx. 7% in the Untreated Check). Percent damage that would be considered high, according to past experience, would be greater than 15%. We have observed damage as high as 60%. While the percentage of clean fruit was significantly higher in the Assail treatment than in the Untreated Check (Table 2), the percentage of fruit in the Assail treatment that would have been downgraded (No. 1, Cull, or No. 1 + Cull) was not significantly different from that in the Check.

Table 1. Numbers of *Campylomma verbasici* nymphs per limb tapped. Simpelaar, Wayne Co., NY. 2004

Treatment/ Formulation	Rate (form./100gal)	Stage/Date		
		Bloom 13 May	90%PF 17 May	PF 18 May
Lorsban 4EC	1.0 pt	0.03 a	0.09 a	0.22 a
Actara 25 WDG	5.5 oz	0.06 a	0.53 b	0.95 b
Assail 70WP	0.5 oz	0.09 a	0.50 b	0.88 b
Untreated check		0.06 a	1.23 c	1.69 c

Values within a column followed by the same letter not significantly different ( $P=0.05$ , Fisher's lsd.)

Table 2. Damage caused by *Campylomma verbasici* to Red Delicious fruit. Simpelaar, Wayne Co., NY. 2004

Treatment/ Formulation	Rate (form./ 100gal)	Timing	% in category <sup>a</sup>				
			Clean	Fancy	No.1	Cull	No.1 + cull
Lorsban 4EC	1.0 pt	Pink	99.9 a	0.1 a	0.0 a	0.0 a	0.0 a
Actara 25 WDG	5.5 oz	Pink	97.0 b	0.9 a	0.3 ab	1.9 ab	2.2 ab
Assail 70WP	0.5 oz	Pink	95.5 b	1.4 a	1.3 bc	1.9 bc	3.2 bc
Untreated check			93.1 c	2.1 b	1.8 c	3.0 c	4.8 c

<sup>a</sup> 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. Values within a column followed by the same letter not significantly different ( $P=0.05$ , Fisher's lsd.)