APPLE: Malus domestica Borkhausen, 'McIntosh'

GREEN PUG MOTH MANAGEMENT, 2002

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Green pug moth (GPM): Chloroclystis rectangulata (L.)

The GPM had not been previously observed in Vermont. However, in 2002 the insect was prevalent in a 1.5-acre orchard on 'McIntosh' trees on M.26 rootstock planted in single-tree plots at the University of Vermont Horticulture Research Center, South Burlington, VT. Trees were 8.8 ft in height and 9.4 ft in width and were planted in 1988 at a spacing of 12 ft within rows by 20 ft between rows. Although these trees were part of an ongoing, larger experiment to examine the potential nontarget, horticultural impacts of Surround, they provided an excellent opportunity to study the effects of Surround, Imidan, and Manzate on GPM. A completely randomized experimental design of five treatments, (Table 1) replicated six times, was used. Treatments were applied with a Rears Pak-Tank 50 gallon handgun sprayer at 100 psi to the single-tree plots. The spray interval between the first and second application (16, 18 Apr) of Surround was very short because rain and rapid growth from record high temperatures during this period affected residue coverage, which is extremely important for Surround's effectiveness. Applications of Imidan were based on standard integrated pest management monitoring for various insect pests. Treatments were evaluated on 22 May by examining the two to three youngest leaves for GPM larval damage on 20 randomly selected terminals within arms length (2.5 ft) of the canopy perimeter and within 3--8 ft from the ground on each single-tree plot. The proportion of damaged terminals were transformed by the arcsine square-root and analyzed with Fisher's protected LSD test.

All treatments were significantly different from the nontreated check. The most effective treatments were Imidan + Manzate and Surround + Manzate; these two treatments were not significantly different from each other. The treatment which included only Surround was not

statistically different from the treatment that included only Manzate. The treatment of Manzate without any insecticides was statistically effective against GPM compared to the nontreated check.

Table 1:

Treatment/formulation	Rate amt form./100 gal	Application dates ^a	% terminals with GPM damage
Surround WP	25 lb	16, 18, 24 Apr	
	50 lb	30 Apr, 8, 16 May	
+ Manzate 75DF	2 lb	16, 24, 30 Apr, 8, 16 May	0.8c
Surround WP	25 lb	16, 18, 24 Apr	
	50 lb	30 Apr, 8, 16 May	1.7bc
Manzate 75WP	2 lb	16, 24, 30 Apr, 8, 16 May	4.7b
Imidan 70W	1 lb	24, 30 Apr, 8 May	
+ Manzate 75DF	2 lb	16, 24, 30 Apr, 8, 16 May	0.3c
Nontreated check			9.5a

Means within a column followed by the same letter are not significantly different (Fisher's protected LSD, P = 0.05) "Green tip (16 Apr), tight cluster (18 Apr), early pink (24, 30 Apr), late pink (8 May), full bloom

(16 May).