

# Tobacco Budworm Control on Geraniums

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*Heliiothis virescens* (F) feeds on geranium leaf. Photo by Max Clover.

The tobacco budworm, *Heliiothis virescens* (F), is a serious pest of tobacco and cotton in the southeastern United States. In California it is primarily a pest on floral crops; damage results from larvae feeding on flowers, young leaves, and stems, greatest damage occurring when infestations are heavy. High populations of budworms can cause plants to become stunted and distorted, thereby reducing the number of marketable cut flowers.

During 1974 three commercially available insecticides and six experimental compounds were evaluated for control of *H. virescens* on field-grown geraniums in San Diego County. Applications were made with a 25-gallon sprayer powered by a gas engine equipped with a Bean 5 gpm pump at 200 psi to full

coverage. Treatments were replicated three times in a randomized complete block design. The nine chemicals tested were applied to plots 12 feet x 2 rows (40-inch spacing with double planting) at the rates shown in table 1.

In evaluating materials against budworm, all the open flowers from individual plots were removed weekly, and the live larvae on them were recorded. The test was conducted over a 4-week period.

Orthene 75S, Geigy's CGA 15324, and CGA 18809 (the latter two both organophosphates) initially gave the best control (table 1). Methomyl, FMC 33297 (a synthetic pyrethroid), CGA 12223 (an organophosphate), and MF 591 (an organophosphate) were somewhat less effective. CGA 12223 plots showed a

significant reduction of *H. virescens* larvae after 29 days. The ABG 6010 (organophosphate) and Furadan 4 flowable did not provide effective control of the budworm (table 1). Table 2 indicates that the untreated plots had fewer mature flowers, compared with the treated plots, through the first and second sampling weeks because of damaged flower buds caused by budworm larvae feeding.

The present experiment indicates that some of the compounds tested show sufficient promise to warrant additional testing.

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TABLE 1. EFFECTIVENESS OF NINE INSECTICIDES AGAINST *H. VIRESCENS* (F) LARVAE ON GERANIUMS.

Materials	Ai/100 gal. (lb.)	Days following treatment*†			
		7	14	22	29
Mean no. of <i>H. virescens</i> larvae/repl.					
CGA 12223	0.5	0.46 bc	0.30 a	0.59 ab	0.16 b
CGA 15324	0.5	0.21 c	0.78 a	0.63 ab	0.36 ab
CGA 18809	0.5	0.23 c	0.08 a	0.32 b	0.34 ab
Orthene 75S	0.5	0.20 c	0.22 a	0.65 ab	0.36 ab
MF 591	0.7	0.52 bc	0.00 a	0.40 ab	0.45 ab
Lannate L	0.25	0.28 bc	0.29 a	0.46 ab	0.22 ab
FMC 33297	0.5	0.29 bc	0.19 a	0.89 a	0.40 ab
ABG 6010	0.5	0.64 abc	0.17 a	0.76 ab	0.69 ab
Furadan	0.5	0.79 ab	0.47 a	0.39 ab	0.31 ab
Untreated	—	1.05 a	0.47 a	0.53 ab	0.73 a

\*Duncan's Multiple Range Test at 5% Level.

†Values having a letter in common do not differ significantly.

TABLE 2. MATURE FLOWERS ARE AFFECTED BY THE POPULATION OF *H. VIRESCENS*.

Materials	Ai/100 gal. (lb.)	Days following treatment*†			
		7	14	22	29
Mean no. of mature flowers/repl.					
CGA 12223	0.5	25.7 ab	5.3 bcd	15.7 a	14.3 a
CGA 15324	0.5	22.7 abc	12.7 ab	21.3 a	13.0 a
CGA 18809	0.5	29.0 a	11.3 abc	21.0 a	12.7 a
Orthene	0.5	25.0 ab	11.7 abc	16.0 a	13.7 a
MF 591	0.7	25.3 ab	5.0 bcd	20.0 a	12.7 a
Lannate L	0.25	26.0 ab	11.7 abc	20.0 a	16.0 a
FMC 33297	0.5	25.0 ab	18.0 a	19.7 a	10.0 a
ABG 6010	0.5	19.0 bc	3.3 cd	14.0 a	11.0 a
Furadan	0.5	26.0 ab	3.0 cd	19.3 a	14.0 a
Untreated	—	15.3 c	2.3 d	19.0 a	10.7 a

\*Duncan's Multiple Range Test at 5% Level.

†Values having a letter in common do not differ significantly.