Research Note

INSECTICIDE EVALUATION FOR THE CONTROL OF CARPOPHILUS HUMERALIS F. IN PINEAPPLE FIELDS OF PUERTO RICO[1,2]

High populations of *C. humeralis* F. in pineapple (260 insects per fruit) cause 30% reduction in yield. Presence of lavae in the ripe fruit decreases quality and accelerates rotting. *Carpophilus humeralis* F. has been controlled in several crops by radiation, fumigation, and mechanical methods[4, 5, 6, 7, 8, 9] but there is no information available regarding chemical control of this insect in pineapple.

Two experiments were conducted in the pineapple fields of the Land Authority of Puerto Rico in Manatí to select insecticides for the control of *C. humeralis*. Diazinon AG-500 (1.87 ml) was the best treatment, but malathion 57 C.E. (2.50 ml and 1.25 ml) also provided good control.

The insecticides used were malathion 57 C.E. (2.50 ml and 5.00 ml)[3]; diazinon AG-500 (1.25 ml); toxaphene 6 C.E. (3.75 ml); orthene 75 S (0.29 g); thiodan 3 C.E. (0.62 ml); methomyl 90 S (0.60 g); lindane 25 W.P. (0.60 g); disulfuton C.E. (3.75 ml); and oxamyl L. (2.11 ml). Treatments were applied to the fruits with knapsack sprayers 150 days after flower induction. Every treatment was replicated 4 times with 48 plants per plot, and arranged in a partially-balanced incomplete-block design. To evaluate the treatment performance, the living adults in each plot were counted every 7 to 10 days after application.

In reducing the number of living insects, methomyl 90 S (0.60 g),

[1] Manuscript submitted to Editorial Board on October 21, 1981.

[2] This contribution is based on a thesis by the senior author in the Graduate College of the University of Puerto Rico—Mayagüez Campus, in partial fulfillment of the requirements for the Master of Science degree Faculty of Agronomy—1980.

[3] In a laboratory screening, this insecticide was one of the best; that is the reason for use X and 2 X.

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[5] Connell, W. A., 1956. Control of larvae infesting sweet corn ears, J. Econ. Entomol. 49: 539–42.

[6] Foot, W. H., 1976. Use of fluorescent powders to monitor flight activities of adult *Glisedrochilus quadrisignatus* (Coleoptera: Nitidulidae), Can. Entomol. 108 (10): 1041–44.

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[8] Rajagopal, D. and Channabasavanna, G. P., 1977. Preliminary studies on the chemical control of maize insects, Mysore J. Agric. Sci. 11 (1): 73–6.

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TABLE 1.—*First experiment for the control of* C. humeralis *F. in pineapples, October, 1979*

Treatment	Dosage	Number of living insects	
		Mean	(Abbot) % control
Malathion 57 C.E.	2.50 ml/l	178	28.68
Diazinon AG-500	1.25 ml/l	44*[1]	82.24
Disyston 6 C.E.	3.75 ml/l	209	16.32
Toxaphene 6 C.E.	3.75 ml/l	276	0.00
Thiodan 3 C.E.	0.62 ml/l	314	0.00
Orthene 75 S	0.29 gr/l	202	18.97
Methomyl 90 S	0.60 gr/l	50**[1]	99.99
Lindane 25 p.H.	0.60 gr/l	368	0.00
Malathion 57 C.E.	5.02 ml/l	44*	82.32
Check	—	250	—

[1] Coefficient of variation, 97.99. Better than the chek: ** at the 1%; * at the 5% level of significance.

TABLE 2.—*Second experiment for the control of* C. humeralis *F. in pineapple, March, 1980*

Treatment	Dosage	Number of living insects	
		Mean	(Abbot) % Control
Methomyl 90 S	0.30 g/l	84*[1]	35.46
Methomyl 90 S	0.60 g/l	65*	49.94
Methomyl 90 S	0.90 g/l	18*	86.08
Malathion 57 C.E.	1.25 ml/l	14**	89.12
Malathion 57 C.E.	2.50 ml/l	14**[1]	89.31
Malathion 57 C.E.	3.75 ml/l	27*	78.65
Diazinon AG-500	0.62 ml/l	35*	72.85
Diazinon AG-500	1.25 ml/l	34*	73.50
Diazinon AG-500	1.87 ml/l	22**	99.99
Check	—	131	—

[1] Coefficient of variation, 108.54. Better than the check: ** at the 1%; * at the 5% level of significance.

malathion 57 C.E. (2.50 ml) and diazinon AG-500 (1.25 ml) were significantly more effective (1, 5, and 5%, respectively) than all the other insecticides used in the first experiment (table 1).

These three insecticides were selected for a second experiment, which was similar to the first. Diazinon AG-500 (1.87 ml) and malathion 57 C.E. (1.25 ml and 2.50 ml) were more effective at the 1% confidence interval in the second experiment (table 2).

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