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1973 Sweet Corn Control Report

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INTRODUCTION

All tests were conducted in Ulster County, New York. Growing conditions in the spring of 1973 were characterized by exceedingly heavy rainfall; cold, wet soils; and cool temperatures. Due to these conditions, all plantings which were to be utilized for first brood borer tests yielded very poor stands and had to be replanted. Therefore, all tests were directed at second brood borer, corn earworm, and fall armyworm.

European corn borer populations were present in considerably higher numbers than in 1972. The same fact is true for both the corn earworm and fall armyworm, although most of the sweet corn had been harvested prior to the period of maximum earworm stress. Therefore, all tests reflect corn borer populations, although the other two species were present in all plots in comparatively low numbers.

PROCEDURE

All ground spray applications were applied with a Hahn Hi-boy high clearance sprayer. Application was through 5 nozzles/row, 30 gal/Acre at 40 psi. Granular applications were made with an applicator modified at this laboratory to drop granules into the whorl. Aerial applications were conducted in cooperation with Robinson's Aero Spray Service, Accord, New York.

RESULTS

TEST 1. Effectiveness and residual activity of four compounds applied at 3- and 5-day intervals.

Variety: Seneca 225

Planting date: June 18

Location: New Paltz, N. Y.

Plot size: 2.8 acres; 36" rows

Replications: 4

Design: Split-plot

Soil type: Tioga silt loam

Evaluation date: August 29

Evaluation: Ear infestation at harvest stage: 200 ears sampled from the center 2 rows of each 4-row plot.

Data are shown in Tables 1 and 2. The whole plot analysis (Table 1) shows that only Furadan gave significantly better control than Sevimol which was considered to be the standard. The sub-plot analysis (Table 2) reveals clear-cut differences among the compounds with respect to residual activity. Lannate on Schedule 1 (every 3 days; five total applications) gave the best control, but gave significantly less control on Schedule 2 (every 5 days; three total applications). Furadan gave almost equal control on both schedules. Sevimol gave significantly better control on Schedule 1 than on Schedule 2.

TEST 2. Comparison of granular and liquid treatments for second brood borer control.

Variety: Seneca Scout

Planting date: June 11

Location: New Paltz, N. Y.

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Table 1.—Whole-plot analysis of four compounds compared for effectiveness and residual activity. New Paltz, New York. 1973.

	Rate	% Clean
Furadan 4F	1# ai/A	94.55a
Orthene SP75	1# ai/A	93.05ab
Lannate 1.8L	.25# ai/A	92.65ab
Sevimol 4L	1.5# ai/A	90.90 b
Check	—	64.30 c

^a Across both schedules.

Table 2.—Sub-plot analysis of four compounds compared for effectiveness and residual activity. New Paltz, New York. 1973.

Compound	Schedule	% Clean ^{ab}
Lannate	1	96.3a
Furadan	1	94.8ab
Furadan	2	94.3ab
Orthene	1	93.8ab
Sevimol	1	93.3ab
Orthene	2	92.3 bc
Lannate	2	89.0 cd
Sevimol	2	88.5 d
Check	—	64.3 c

^a 79.3 per cent ECB; 20.7 per cent CEW, FAW.

^b Schedule 1—Applications Aug 14, 17, 20, 23, 26.
Schedule 2—Applications Aug 14, 20, 24.

Plot Size: 2.5 acres; 36" rows

Replications: 4

Design: Split-plot

Soil type: Tioga silt loam

Evaluation date: August 31

Evaluation: Ear infestation at harvest stage; 100 ears sampled from each 2-row plot.

In the split-plot experiment, one sub-plot received a granular application at mid-whorl stage, and two sprays, one each at first silk and at mid-silk. The other sub-plot received two sprays only, one at first silk and another at mid-silk. Any difference between the sub-plots indicates differential treatment effectiveness. The sub-plot analysis showed no differences between the two treatments, indicating that, on the average, the granular treatment yielded no significant increase in control. Table 3 does show, however, that granular treatments of EPN and Furadan increased the degree of control to a certain extent. The overall analysis shows that both Furadan and Orthene gave significantly better control than the standard (Sevimol). It is felt that granular applications may be more effective against first brood borer.

TEST 3. Evaluation of seven compounds for insect control utilizing a minimal schedule.

Variety: Seneca Scout

Planting date: June 12

Location: New Paltz, N.Y.

Plot size: 1.75 acres; 36" rows

Replications: 4

Design: Random complete block

Soil type: Tioga silt loam

Evaluation date: September 4

Evaluation: Ear infestation at harvest; 100 ears sampled from center 2 rows of each 4-row plot.

Table 3.—Evaluation of granular and liquid treatments for second brood borer control. New Paltz, New York. 1973.

Compound ^a	Treatment (% Clean)		DIFF	\bar{x} ^b
	(G+S)	(S)		
Furadan 4F, 10G	93.5	90.0	+3.5%	91.8a
Orthene SP75, 10G	90.5	91.0	-0.5%	90.8a
EPN WP25, 2G	89.5	81.0	+8.5%	85.3ab
Standard ^c 4L	—	84.0	—	84.0 b
Diazinon AG500, 14G	76.0	75.0	+1.0%	75.5 b
Check	—	51.0	—	51.0 c

^a All applied at 1 lb ai/A, except standard at 1.5 lb ai/A.

^b ECB—58.6 per cent, CEW—35.7 per cent, FAW—5.7 per cent.

^c Sevimol.

The insect populations were observed to be very low prior to treatment. When such instances arise, it is desirable to have minimal schedule performance data.

With reference to Parathion 4F, only one application was made, to comply with the harvest interval; Sevimol was substituted for the last application. Data for this test are presented in Table 4. All compounds and combinations of compounds gave significantly better control than did Sevimol, which was considered the standard. It can be observed from the check that insect populations were very low.

Table 4.—Evaluation of seven compounds for insect control utilizing a minimal schedule. New Paltz, New York—1973.

Compound	Formulation	Rate (AI/A)	% Clean ^a
Orthene	SP75	1 lb	97.5a
Lannate	1.8L	.5 lb	95.8a
Phosvel	45WP	1 lb	95.5a
Diazinon	AG500	1 lb	93.0a
EPN	WP25	.75 lb	92.0a
Para., Sevimol	4F, 4L	1, 1.5	92.0a
Sevimol	4L	1.5 lb	88.5 b
Check	—	—	72.0 c

^a Applications—August 16, 20.

TEST 4. Comparison of effectiveness of three compounds as aerial applications.

Variety: Asgrow 358 and Seneca Scout

Planting date: June 21

Location: Davenport Farms, Accord, N.Y.

Plot size: 30 acres; 30" rows

Replications: 3

Design: Non-random block

Soil type: Barbour silt loam

Evaluation date: September 5

Evaluation: Ear infestation at harvest; 200 ears sampled at random within each treatment replicate.

Each treatment was applied to a long narrow 10-acre plot. Each such plot was divided into three equal replicates for the purpose of statistical analysis. The soil variation was parallel to the treatments and each set of replicates was across such variation. Due to probable economic loss to the cooperator, no check was included. However, four separate fields of non-treated dent corn of approximately the same stage of maturity, which were situated in the immediate area, were sampled for ear infestation. The check as shown in Table 5 reflects the average population in these four fields. The check was not included in the analysis. After five applications, Sevimol was substituted for EPN to comply with the pre-harvest interval. Parathion was added to the first three 'standard' applications for the purpose of aphid control. The major

insect infesting this test was the European corn borer.

Analysis (Table 5) reveals that both Lannate (.25 lb ai/A) and EPN (.75 lb ai/A) gave significantly better control than did the standard (Sevimol).

Table 5.—Comparison of effectiveness of three compounds as aerial applications. Accord, New York. 1973.

Compound ^a	Rate	% Worm-free Ears
Lannate	.25 lb ai/A	100.0a
EPN ^b	.75 lb ai/A	99.3a
Standard	1.5# ai/A	96.3 b
Check ^c	—	52.3

^a Eight applications, 4 days apart.

^b EPN—five applications, Sevimol—three applications.

^c Parathion added (.4 lb)—first three applications.