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EFFICACY OF INSECTICIDES FOR THE CONTROL OF SOUTHWESTERN CORN BORER

by
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SUMMARY

This trial was conducted to evaluate the efficacy of insecticides for controlling southwestern corn borer (SWCB), *Diatraea grandiosella* Dyar. The second-generation SWCB infestation was light, and was not very uniform in distribution. Only the number of girdled plants per plot produced a statistically significant result (Table 2). The standard insecticides, Warrior, Baythroid, and Capture, gave 78 to 100% control. The new insecticides, Proaxis and the higher rates of Intrepid, gave equivalent levels of control. The efficacy of the lower rates of Intrepid and Tracer were not demonstrated.

PROCEDURES

The plots were machine-planted to a non-Bt corn hybrid at the Southwest Research-Extension Center near Garden City, KS. The plots were 4 rows wide (10 ft), 50 ft long, and separated by four border rows of corn and 10-ft-wide alleys. The plot design was a randomized block design with 4 replicates. Treatments were applied on 4 August with a high-clearance sprayer using a 10-ft boom with three nozzles directed at each row (one nozzle on each side of the row on 16-in drop hoses directed at the ear zone and a third nozzle directed at the top of the plant). The sprayer was calibrated to deliver 20 gal/acre at 2 mph and 40 psi. The second-generation SWCB infestation resulted

from free-flying feral moths. Ten plants from the two middle rows were dissected on Sept. 25. to make observations on second-generation corn borers.

RESULTS AND DISCUSSION

The corn borer flight was so light that it was difficult to judge when to make the treatments. At the time of insecticide application, we found 4 egg masses on 9 plants. Three of the egg masses were hatched, and one was in the red bar stage, suggesting that the timing was about right for many of the standard chemicals, but may have been a little later than intended for the growth-regulator treatment, Intrepid. The second-generation SWCB infestation averaged only 0.16 larvae per plant in the untreated check (Table 1). The corn borer infestation was so light that only the number of girdled plants per plot produced a statistically significant result (Table 2). The standard insecticides, Warrior, Baythroid, and Capture, gave 78 to 100% control. The new insecticides, Proaxis and the higher rates of Intrepid, gave similar levels of control. The efficacy of the lower rates of Intrepid and Tracer were not demonstrated. The applications may have been too late to take advantage of the low rates of Intrepid and Tracer. Stalk rot was severe, and averaged 2.2 nodes across the experiment. There were many plot-to-plot differences in the field, but they were not associated with corn borer treatment. Many plants were broken over from stalk rot.

Table 1. 2003 Corn borer observations taken Sept. 25 on plots treated with different corn borer insecticides to control second-generation southwestern corn borer (SWCB). Garden City, Kan.

Treat. No.	Hybrid Code	Rate: Product per acre	2 nd Gen. SWCB / 10 plant	No. 2 nd Gen. Tunnels/10 plants			Total cm/plant
				Stalk	Shank	Total	
1	Check	—	1.5	2.25	0.25	2.75	3.13
2	Intrepid 2SC Latron CS-7	2 oz 0.25%	1.25	2.00	0.50	2.75	2.65
3	Intrepid 2SC Latron CS-7	4 oz 0.25%	0.75	1.25	0.75	2.00	1.75
4	Intrepid 2SC Latron SC-7	6 oz 0.25%	0.00	0.00	0.00	0.00	0.00
5	Intrepid 2SC Latron SC-7	8 oz 0.25%	0.00	0.25	0.00	0.25	0.75
6	Tracer 4 SC	2 oz	0.50	0.75	0.75	1.50	1.55
7	Tracer 4 SC	3 oz	0.75	1.00	0.50	1.50	1.50
8	Warrior Zeon	2.56 oz	0.25	0.75	0.00	0.75	0.20
9	Warrior Zeon	3.84 oz	0.75	1.25	0.00	1.25	1.45
10	Proaxis GF-317)	2.56 oz	0.75	1.50	0.50	2.25	1.35
11	Proaxis GF-317)	3.84 oz	0.00	0.75	0.00	0.75	0.70
12	Baythroid 2	1.6 oz	0.50	0.75	0.00	0.75	0.50
13	Baythroid 2	2.8 oz	0.50	0.75	0.00	1.00	0.53
14	Capture 2EC	5.12 oz	0.00	0.75	0.25	1.25	0.83
	P-value		0.198	0.799	0.203	0.722	0.397
	LSD		—	—	—	—	—

Treatments applied August 4.

Table 2. 2003 Corn borer and stalk rot observations taken Sept. 25 on plots treated with different corn borer insecticides to control second-generation southwestern corn borer (SWCB). Garden City, Kan.

Treat. No.	Hybrid Code	Rate: Product per acre	% Plants Borer Infested	No. Borer Girdled Plants/plot	% Control Girdled Plants/plot	Stalk Rot Nodes
1	Check	—	20	9.0 a	—	2.3
2	Intrepid 2SC	2 oz	18	7.75 ab	14	3.0
	Latron CS-7	0.25%				
3	Intrepid 2SC	4 oz	18	3.50 bcd	61	2.2
	Latron CS-7	0.25%				
4	Intrepid 2SC	6 oz	0	1.00 d	89	1.8
	Latron SC-7	0.25%				
5	Intrepid 2SC	8 oz	3	2.25 cd	75	1.8
	Latron SC-7	0.25%				
6	Tracer 4 SC	2 oz	13	6.75 abc	25	1.2
7	Tracer 4 SC	3 oz	13	3.25 bcd	64	1.3
8	Warrior Zeon	2.56 oz	8	0.00 d	100	2.2
9	Warrior Zeon	3.84 oz	10	1.00 d	89	1.1
10	Proaxis GF-317)	2.56 oz	8	1.00 d	89	2.5
11	Proaxis GF-317)	3.84 oz	8	2.25 cd	75	3.0
12	Baythroid 2	1.6 oz	8	2.00 cd	78	2.8
13	Baythroid 2	2.8 oz	10	0.00 d	100	2.6
14	Capture 2EC	5.12 oz	8	2.00 cd	78	2.4
	P-value		0.700	0.0005		0.598
	LSD		—	5.089		—

Treatments applied August 4.
Means in the same column followed by the same letter do not differ significantly (LSD P=0.05).

