Southwest Research-Extension Center

FIELD DAY

1997

Report of Progress
789

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

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EVALUATION OF FORTRESS INSECTICIDE AND THE SMARTBOX™ APPLICATION SYSTEM FOR CORN ROOTWORM CONTROL, 1996

by
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SUMMARY

The T-band applications of Fortress failed to give significant reductions of rootworm damage in this trial, probably because of the extremely dry conditions immediately after planting. However, the in-furrow applications did significantly reduce rootworm damage. No difference was observed between the conventional and the SmartBox™ applications of Fortress.

INTRODUCTION

This experiment was designed to test Fortress applied at planting with conventional or SmartBox™ application technology for the control of corn rootworm larvae.

PROCEDURES

Plots were planted at 30,600 seeds per acre on 9 May in a furrow-irrigated field at the Southwest Research-Extension Center, in Finney County, Kansas. The field was prewatered on 9 April, but the seed-bed dried out and the field was watered again 24 May to complete emergence. The soil type was a Richfield silt loam with a pH of 7.5 and an organic matter content of 1.5%. Plots were two rows (5 ft) by 50 ft long, arranged in a randomized complete block design, and replicated four times. Plots were separated by 10 ft alleyways at the end of each plot and four rows of border corn between each plot. Planting time treatments were applied as a 7-inch band over the open seed-furrow (T-band) or into the open seed-furrow (in-furrow) with either a standard John Deere™ planter-mounted insecticide applicator or with a SmartBox applicator. Spring incorporators were used after the press wheels. Rootworm damage was evaluated on four plants from each plot on 9 July using the 6-point Iowa scale. The weather was very dry after planting, averaging 0.4 inches of pan evaporation for the first 17 days. Then 1.8 inches of rain fell on 26 May, and 6.5 inches of rain was recorded between planting and evaluation of the roots. Yields were taken by mechanically harvesting each plot and measuring rows to correct for gaps created by the destructive sampling.

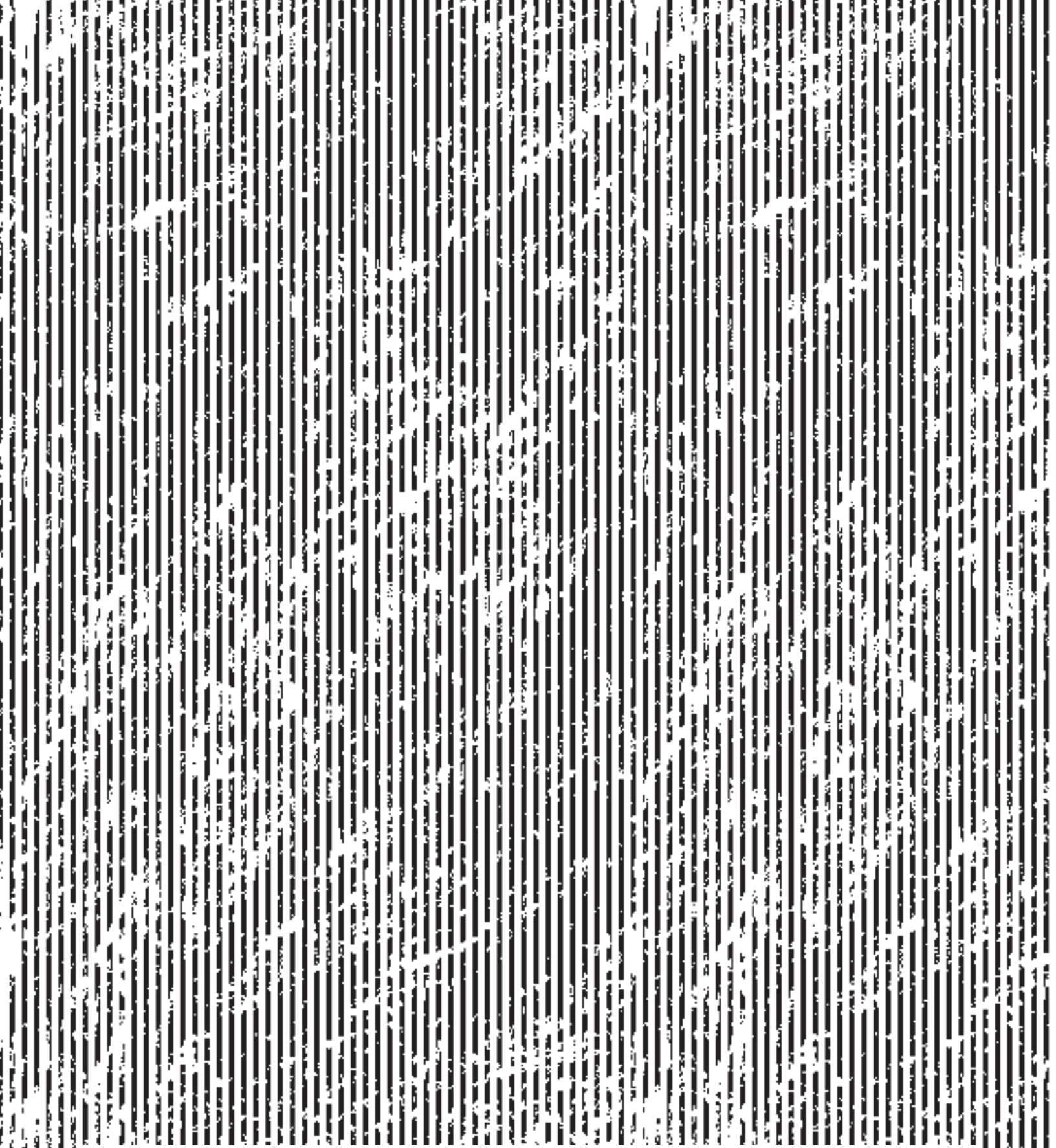
RESULTS AND DISCUSSION

Rootworm damage was severe, causing noticeable stunting, lodging, and stand loss. The in-furrow treatments of Fortress (both standard and SmartBox) gave significant control of rootworm damage, whereas the T-band applications did not. The T-band applications of Counter and Force also gave significant control of rootworm damage. Under the harsh conditions in this test, too much early volatilization of Fortress must have occurred to allow the banded treatments to be as effective as the standard treatments in reducing rootworm damage. The percent of plants with ratings greater than 3 were surprisingly high for all but the Counter treatment. All treatments except one (Fortress 5G, SmartBox, in-furrow) had significantly higher yields than the untreated check.

Table 1. Evaluation of Fortress insecticide and the SmartBox™ application system for corn rootworm control, 1996, Garden City, KS.

Treatment/ Formulation	Rate lb(AI)/acre	Placement	Application	CRW Root Damage	% of Plants > 3	Yield bu/acre
Check	—	——	——	5.3 a	94 a	84.
Fortress 5G	0.15	In-furrow	SmartBox	3.7 cde	75 a	99.9 bc
Fortress 5G	0.15	T-Band	SmartBox	4.4 abcd	94 a	111.9 ab
Fortress 5G	0.15	In-furrow	Standard	3.7 cde	81 a	108.8 ab
Fortress 5G	0.15	T-Band	Standard	4.3 abcd	94 a	108.6 ab
Fortress 5G	0.112	In-furrow	SmartBox	4.1 bcd	81 a	108.2 ab
Fortress 2.5G	0.112	T-Band	Standard	4.7 abc	81 a	106.9 ab
Fortress 2.5G	0.15	T-Band	Standard	4.9 ab	94 a	109.7 ab
Counter 20CR	1.30	T-Band	Standard	2.9 e	13 b	119.2 a
Force 1.5G	0.16	T-Band	Standard	3.6 de	81 a	105.5 ab
LSD				1.07	1.04	18.6
F-test Prob.				0.0035	0.0001	0.08

Means followed by same letter do not differ significantly (P=0.05, LSD).



Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan 66506

SRP 789 August 1997