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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GAUCHO SEED TREATMENT TRIAL, GARDEN CITY, KANSAS — 1996

by

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SUMMARY

Five different sorghum hybrids treated with Gaucho were monitored to evaluate the seed treatment's impacts on greenbug populations and sorghum yield under both dryland and irrigated conditions. Gaucho was found to reduce greenbug populations by about 99% early in the season (18 days after planting) on 4- to 5-leaf sorghum and by about 70% later in the season (70 days after planting) as the sorghum was heading in the dryland plots. Similar reductions in greenbug numbers were observed in the irrigated plots. However, because greenbug populations were below economic levels, yield differences between treated and untreated hybrids were not significantly different.

PROCEDURES

Treated and untreated seed of five sorghum hybrids (NC+ 271, Cargill 607E, DeKalb DK-56, Deltapine 1552, Pioneer 8500) were obtained from Gustafson, Inc. for use in the trial. Part of each seed lot had been treated with Gaucho™480 (imidacloprid) at a rate of 8 oz per 100 lb of seed (4 oz ai/cwt). Plots were established on 3 and 4 June at the Southwest Research-Extension Center, Finney County, Kansas. Plots were two rows (5 ft) by 22 ft, arranged in a randomized split plot design, and replicated four times. Seed was planted with a cone planter using 7 g of seed/row (12.2 lb seed/acre) in the irrigated trial and 1.5 g of seed/row (2.6 lb seed/acre) in the dryland trial. Ramrod and Atrazine were used for weed control.

Greenbugs were sampled in the dryland plots on 21 June (18 days after planting) by visually examining five plants in each row in each plot. Late-season greenbug counts were made on 12 and 13 August (70 days after planting) by cutting off two plants per plot (one plant at random from each row) at ground level and visually searching them for greenbugs. Yields were taken by machine harvesting the plots and calculating yields on a bu/acre basis.

RESULTS AND DISCUSSION

Low numbers of greenbugs were noticed in the plots a few days after planting, and counts made in the dryland plots indicated that the Gaucho was very effective at controlling this early-season invasion (about 99% control). Low numbers of greenbugs also were observed in mid-August, and counts showed about a 70% reduction in greenbug numbers in both the dryland and irrigated trials. Gaucho is a seed treatment, so the cost per acre is dependent on the amount of seed used to plant each acre. In these trials, the costs on a per acre basis were estimated to be about $2.80/acre on the dryland plots and $13.30/acre on the irrigated plots. Thus the significant reduction in greenbug numbers and the low cost per acre makes this treatment fairly attractive to dryland sorghum producers. However, in this particular year, greenbug numbers were low. Although the Gaucho provided significant reductions in greenbug numbers even late in the season, yields were not significantly affected by the Gaucho treatment when averaged across hybrids. Thus, these trials indicate that Gaucho can be equally effective in reducing greenbug numbers in both dryland and irrigated plots, and even though the treatment is cheaper when using dryland seeding rates, the economics of the treatment will depend on the severity of the pest populations.

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Table 1. Gaucho seed treatment trial on dryland sorghum, Southwest Research-Extension Center, 1996.

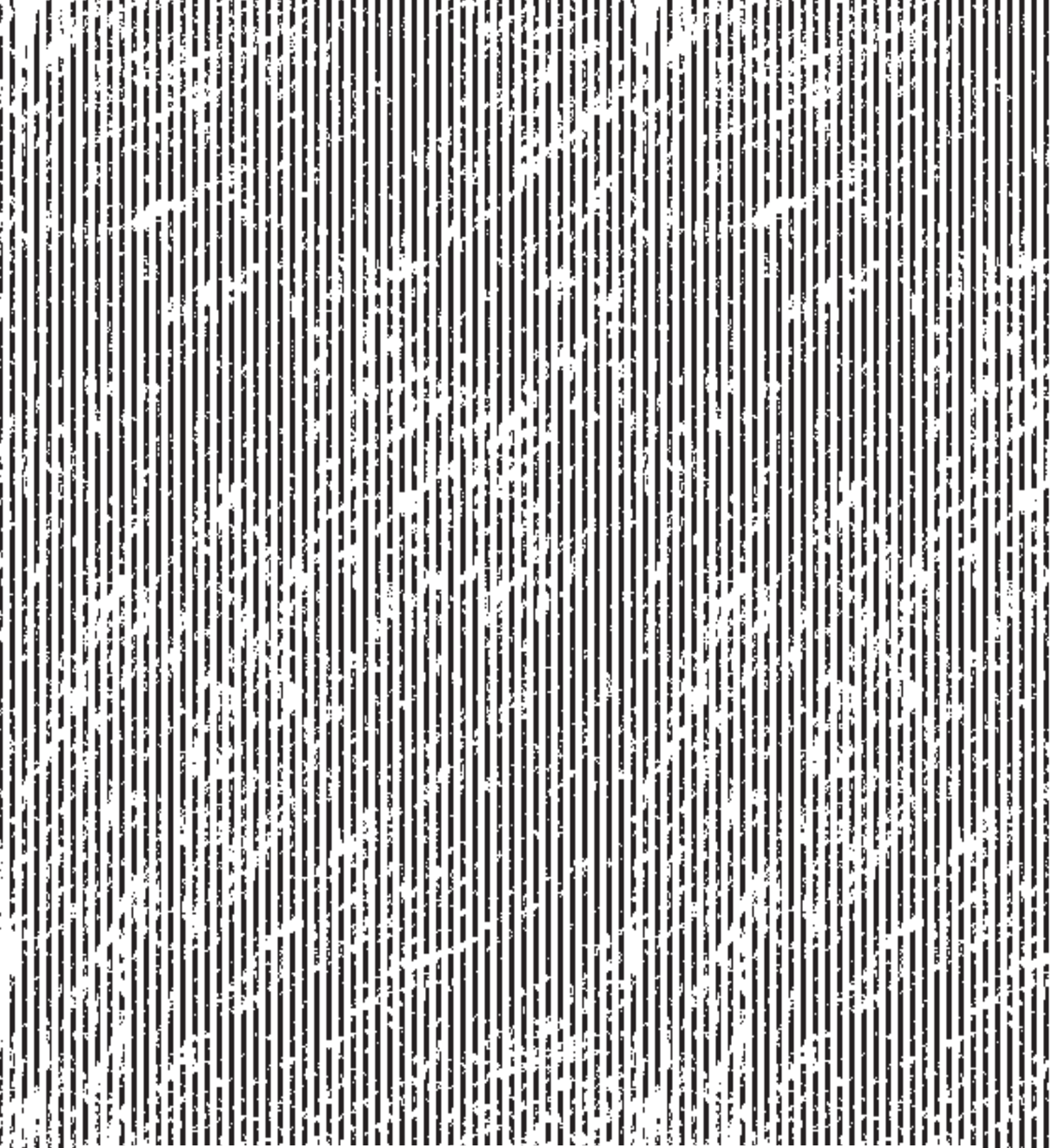
Hybrid	Avg. Greenbug Numbers per Plant 21 June 18 Days after Planting		Avg. Greenbug Numbers per Plant 12 Aug. 70 Days after Planting		Yield bu/acre	
	Without Gaucho	With Gaucho	Without Gaucho	With Gaucho	Without Gaucho	With Gaucho
NC+271	11.2	0.02	263	51	118.8	120.5
Cargill 607E	4.2	0.02	90	34	98.4	91.6
DeKalb DK-56	1.1	0.1	66	40	118.9	115.9
Deltapine 1552	7.0	0.05	95	22	109.3	110.3
Pioneer 8500	8.7	0.05	104	56	116.9	116.3
ANOVA	P-Value		P-Value		P-Value	
Hybrid	0.1598		0.1151		0.0001	
Seed Treatment	0.0001		0.0060		0.4058	
Interaction	0.1527		0.2218		0.5736	
Main Effect Means						
Hybrid						
NC+271	5.6		157		119.7	c
Cargill 607E	2.1		62		95.0	a
Dekalb 56	0.6		53		117.4	c
Deltapine 1552	3.5		59		109.8	b
Pioneer 8500	4.4		80		116.6	c
Seed Treatment						
Without Gaucho	6.45	b	124	b	112.4	
With Gaucho	0.05	a	41	a	110.9	

Means separated using the Duncan New Multiple Range Test.

Table 2. Gaucho seed treatment trial on irrigated sorghum, Southwest Research-Extension Center, 1996.

Hybrid	Avg. Greenbug Numbers per Plant 13 Aug. 70 Days after Planting		Yield bu/acre	
	Without Gaucho	With Gaucho	Without Gaucho	With Gaucho
NC+271	125	39	115.9	113.9
Cargill 607E	93	9	107.3	111.6
DeKalb DK-56	95	60	124.5	121.7
Deltapine 1552	236	45	94.1	93.3
Pioneer 8500	216	51	112.0	114.5
ANOVA	P-Value		P-Value	
Hybrid	0.0600		0.0014	
Seed Treatment	0.0001		0.9383	
Interaction	0.1451		0.9610	
Main Effect Means				
Hybrid				
NC+271	82 ab		114.9 bc	
Cargill 607E	51 a		109.5 b	
Dekalb 56	78 ab		123.1 c	
Deltapine 1552	141 b		93.7 a	
Pioneer 8500	134 b		113.3 bc	
Seed Treatment				
Without Gaucho	153 b		110.8	
With Gaucho	41 a		111.0	

Means separated using the Duncan New Multiple Range Test.



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SRP 789 August 1997