Corn Hybrid Evaluation in Bonita, Cochise County, 1988

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ABSTRACT

Droughts in the Midwestern corn belt pushed up demand and prices for corn nationwide, but those droughts did not affect southeast Arizona. Rainfall increased; in some locations in Cochise County, rains nearly set a record. High moisture during July helped pollination and pushed Arizona growers into the limelight with a first and a third place win in the National Corn Growers yield trials. The national winner was Ted Johnson, with a yield of 253 bushels per acre (14,168 pounds per acre) (1,2).

Eighteen commercial corn hybrids were tested on a heavy textured soil in northern Cochise county in 1988. The top-yielding hybrid was Pioneer 3168, a new hybrid, that produced 12,834 pounds per acre. Garst 8345, the 1987 yield winner, came in second, with a yield of 12,616 pounds per acre. It was a good corn year in the Sulfur Springs Valley; half the entries produced more than 12,000 pounds per acre.

INTRODUCTION

The quest for a new corn hybrid that would produce more than the commonly planted hybrids was successful in 1987. A newly imported hybrid produced the top yield in the test (3). This year, 12 hybrids that had not been previously tested in this area were imported for research, along with some of the old standards.

MATERIALS AND METHODS

The experiment was planted in a dark clay-loam soil on Randy Haas' farm. The field was planted using an 8-row John Deere 7300 vacuum meter planter, in a randomized-strip plot design with a check plot of Garst TP4445 every third pass.

Crop History

Elevation: 4300 feet above sea level
Previous crop: Corn
Planting date: 12 April 1988 Rate: 30,700 seeds per acre
Irrigation: Center pivot
Herbicide: Sutan
Fertilizer: 15 gallons of 10-34-0 at planting
UN32 applied with irrigation, total of 300 pounds of N/ac
Plot size: 8 - 36 inch rows approximately 2400 feet in length
Harvest date: 28 September

Strips were harvested with an International 1480 combine with an 8-row corn header. Plots were dumped into individual trucks and taken to an elevator where weights, bushel weights and percent moisture were determined. Plants counts were made just prior to harvest to determine the final plant populations, percent barren and percent lodging.

RESULTS AND DISCUSSION

Table 1. Yields, agronomic variables and adjusted gross income per acre for corn hybrids grown in Bonita, 1988.

VARIETY	%M	BU WT	PL/AC	%BARE	%LDG	YIELD* LBS/AC	YIELD* BU/AC	ADJ GROSS INCOME/AC
PIO3168	20.8	60	32670	5.6	2.8	12833.9	229	750.9
GARST8345	19.9	58	32670	0.0	0.0	12616.4	225	740.7
PIO3181	21.4	59	32670	8.3	0.0	12561.4	224	732.9
SX 352	20.1	57	33578	8.1	2.7	12518.0	224	734.3
LYMAN1163	20.8	58	33578	10.8	2.7	12431.3	222	727.3
PIO3183	23.3	56	30855	0.0	0.0	12414.9	222	718.5
RX905	23.8	56	32670	0.0	2.8	12193.1	218	704.1
XP 9086	23.5	55	34485	5.3	5.3	12093.9	216	699.3
GARST4445	20.9	57	34485	13.2	0.0	12060.6	215	705.4
CRGL 7990	19.8	57	30855	8.8	0.0	11952.5	213	702.2
RS1115	21.5	58	33578	18.9	2.7	11933.6	213	696.0
GARST8344	20.4	59	31763	0.0	0.0	11893.9	212	697.1
S8505	24.6	55	35393	2.6	5.3	11756.2	210	676.7
DK656	21.8	58	32670	19.4	0.0	11667.0	208	679.6
GARST8315	23.5	56	30855	14.7	8.8	11529.7	206	666.7
DK672	20.6	56	33578	5.4	0.0	11261.9	201	659.2
GARST8116	24.9	56	33578	8.1	0.0	11251.7	201	646.7
NK8727	24.7	57	37208	19.5	2.4	9781.1	175	562.6

* YIELDS ADJUSTED TO 15.5% MOISTURE.

ADJUSTED GROSS INCOME CALCULATED USING $3.35/BU AND DEDUCTING $0.025 PER POINT OF MOISTURE FROM THE HARVEST MOISTURE TO 15.5%.

PL/AC = PLANT POPULATION PER ACRE, AT HARVEST.
%BARE = PERCENT OF THE STALKS THAT HAD NO EARS AT HARVEST.
%LDG = PERCENT OF PLANTS THAT LODGED AT HARVEST TIME.

Climatic conditions were almost perfect in 1988, except for a cool, moist weather front in the middle of April. Weather, coupled with good management practices by the farmer and good genetic material provided by the seed companies, led to the highest yields since the University began hybrid evaluations in Arizona. Pioneer 3168, a new variety that had topped several yield trials in California (4), produced the largest yield per acre, as well as the greatest adjusted gross income per acre. Garst 8345, last year's winner, came in second in both yield and income. Several of the hybrids produced very acceptable yields.

Most of the plant populations were in the acceptable range, approximately 32,000 plants per acre. The notable exception was the new long-season Northrup King entry, NK 8727. Its plant population was too high, which probably had an adverse effect on the percent of barren stocks, lodging and ultimately, on yield.

REFERENCES

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