Double Crop Corn Hybrid Evaluations, Graham County 1989

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Abstract

Ten corn hybrids of widely differing maturities were planted in Graham county to find which maturity would be optimal for double crop corn production. The highest yielding hybrid was the quickest maturing with a relative maturity of 98 days, it yielded 5629 pounds per acre.

Introduction

Over the past several years more interest has been developing in corn as a double crop as a replacement for grain sorghum (1, 2). This interest has reached Graham county and a variety trial was set up to see, more than anything else, what maturity range in corn can produce a crop with a planting date in late June to early July. Corn hybrids with maturities from 98 days to --- were included in this trial.

Materials and Methods

Following a small grain harvest, the soil was prepared and rowed off, planted dry and watered up. David Hilbers was the cooperating farmer. The farm was located in the Eden area of Graham county.

Crop History

Elevation: 2800 feet above sea level
Soil: Grabe/Pima clay loam
Planting date: 20 June, 1989 Rate: 30,000 seeds/acre
Irrigation: Furrow irrigated 6 times, ca. 40 acre inches
Herbicide: 2,4-D
Fertilizer: 100 lbs of N injected, 50 lbs N water run
Insecticide: Asana two times to control heliothus
Field variety: Pioneer 3737
Plot size: 4-36 inch rows approximately 1,200 feet in length
Harvest date: 17 November

This was a strip trial with check plots every other planter pass. Plots were harvested with a John Deere 4420 combine, weighed in a weigh wagon and sampled for bushel weight and moisture. Stalk, ear and lodging counts were taken immediately prior to harvest.

Results and Discussion

Planting dates for double crops are of critical importance, it has been said that a day at planting time is equivalent to a week at harvest time. A look at the AZMET records for Safford in 1989 showed solar radiation going from 610 to 316 and heat units going from 24.7 to 5.4 from July to November, respectively,

so a day for a week may not be too far off. The first frost came around the 28th of October, which is not too far off the average date, and all the hybrids in the trial had reached physiological maturity before this time. Comparing the results of this trial in Table 1 with two previous double crop corn trials in Greenlee county (1, 2) the data are as follows:

Trial	High yield	Avg yield	Pl date
Greenlee 1	8789	6992	13 June
This trial	5629	4953	20 June
Greenlee 2	4627	4149	3 July

There appears to be a strong relationship between yield and planting date.

Looking at the original premise for the trial, the maturity range of corn hybrids that could succeed in the area, one sees that the highest yielding hybrid was early maturing, but the number two hybrid was medium maturing and the full maturity hybrid, Garst 8345, was only 640 pounds off the leader. It appears, then, that a wide range of corn cultivars can produce a crop of grain when planted in June or early July, the challenge is to pick the one that has the greatest economic advantage.

The frost came before the harvest in 1989, which helped to dry the grain low enough that none of the hybrids required drying, with its related costs. There was another factor, however, the field variety matured quicker than the other cultivars and required one less irrigation than the others, and thus cost less to produce. In this case the field variety was the best choice, whereas it may not have had the yield potential had the crop been planted a week earlier. Further experimentation are needed to find the best corn hybrid for double crop planting in Graham county.

References

1. DeRosa, E, L. Clark and D. Parsons. 1986. Late corn variety trial, Greenlee county - 1985. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-67, pp. 114-5.

2. Clark, L. and E. DeRosa. 1987. Late corn variety trial in Greenlee county, 1986. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-71, pp. 177-8.

Table 1. Yield and other agronomic data from double crop corn varieties grown in Eden, 1989.

Variety	% M	Bu Wt	Pl/ac	% Bare	% Ldg	Yield[1] Lbs/ac	Bu/ac	RM[2]
Field var.	10.3	57.7	29342	4.4	2.2	5628.7	100.5	98
DK 656	14.3	56.0	27515	15.6	0.0	5407.1	96.6	115
PIO 3569	12.6	57.5	28375	0.0	3.0	5352.3	95.6	103
DK 636	13.0	56.0	20636	4.2	0.0	5245.9	93.7	113
NK N6873	13.4	59.0	27515	15.6	0.0	5040.4	90.0	113
GARST 8345	14.5	55.5	33534	7.7	0.0	4989.8	89.1	125
CARGLL 6127	11.6	57.0	39553	8.7	0.0	4877.2	87.1	110
GARST 8532	15.0	58.5	27515	3.1	0.0	4629.7	82.7	120
ASGRW RX578	12.4	58.5	28375	18.2	0.0	4233.1	75.6	105
CARGLL 861	11.4	58.0	28375	3.0	0.0	4128.9	73.7	105
Average	12.9	57.4	29074	8.1	0.5	4953.3	88.5	

1. Yields adjusted to 15.5% moisture.
2. Relative Maturity in days.