Corn Talk News

RESEARCH UPDATE

CORN TALK NEWS
PENNSYLVANIA MASTER CORN GROWERS ASSOC., INC.

Optimum Plant Population For Corn In Cecil County

In the wake of several droughts, the most recent occurring in 1993, there has been considerable research into identifying corn populations that will produce the most profitable yields.

Research conducted on sandy soils in Wicomico County suggests that in most years 20,000 plants per acre may be adequate for normal yields. Here in Cecil County which has predominantly silt loam soils, the optimum plant population may be somewhat higher. The trend in recent years by local farmers is to increase populations in an attempt to increase yields. Is this trend agronomically and economically justifiable and which populations give maximum economic yields?

The field chosen had Matapeake silt loam soil types. Four target seeding rates of 20,000, 24,000, 28,000, and 32,000 were selected to cover the range of corn populations that have been planted in Cecil County. Pioneer 3163 corn was planted on May 8, 1995 with a Case IH Cyclo Air corn planter. Plots consisted of six 30-inch rows and were 1,500 feet long by 15 feet wide. Treatments were replicated twice. The farmer's standard cultural practices were followed.

Actual plant populations were counted on June 14. Analysis of variance for population showed treatment means to be significantly different at the 0.05 probability level with an LSD of 2430 plants per acre. Plots were harvested on September 29, 1995 with an International 1460 combine. Plot weights were measured with a weigh wagon and converted to bu/A at 15.5% moisture.

Table 1. Treatment means for plant population and corn yield.

Treatment	Actual Population (plt/A)	Yield (bu/A)	Seed Cost ($/A)*
20,000	21,222	137.2	23.87
24,000	23,445	138.6	26.38
28,000	27,667	139.3	31.13
32,000	31,778	133.5	35.75
LSD (0.05)	2430	N.S.	
Coefficient of Variation	2.91%	5.31%	

*Seed cost calculated using cost of $90.00 per 80,000 seed unit and assuming 100% germination and emergence. Actual seed cost will vary depending on price of seed and germination and emergence.

Yields were analyzed by anaylsis of variance. No statistical differences were found at the 0.05 probability level. The trend observed shows yields rising slightly from the 21,222 plant population level, peaking at the 27,667 level, and falling sharply at the 31,778 plant population level. At corn grain prices of $3.50 per bushel, a farmer would only be economically justified in increasing plant populations from 21,222 to 23,445 plants per acre.

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