

Effects of Varying Plant Populations on Agronomic Performance of Corn Hybrids

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Objective

To evaluate differences in stalk rot, lodging, grain yield, and moisture among hybrids planted at varying plant populations in a field with a history of Gray Leaf Spot.

Background

Cooperator:	Riverview FFA	Row Width:	30 inches
Nearest Town:	Warsaw	Plot Length:	25 feet
Major Soil Type:	Chagrin Loam	N-P-K Fertilizer (lbs):	200-40-40
Previous Crop:	Soybean	Soil Test:	pH 6.2; P 89; K 551
Planting Date:	5/24/02	Planting Rate:	26000 and 40000 seeds/A
Harvest Date:	11/13/02		

Methods

Six Pioneer Brand hybrids with varying stalk strength and Gray Leaf Spot resistance were planted with three replications in a split plot design, with seeding rate as the main plot and hybrid as the split. The plots were planted in a field that has a history of Gray Leaf Spot pressure at the Riverview FFA farm, near Warsaw in Coshocton county. The plots were four rows by 25 feet long, with the center two rows harvested.

The hybrids were rated from 4 to 7 for stalk strength and 5 to 6 for Gray Leaf Spot resistance by Pioneer (with 9 being the best).

Results

Table 1. Agronomic Performance of Corn Planted to Varying Plant Densities Under Gray Leaf Spot Pressure, Warsaw, Ohio, 2002.

Hybrid	Seeding Rate (seeds/A)	Grain Yield (bu/A)	Harvest Moisture (%)	Harvest Population (plants/A)	Lodging (%)	Emerg. (%)	Test Weight (lbs./bu)
Pioneer 33J56	26,000	142.2	22.3	29,800	13.3	99.3	58
Pioneer 33G26	26,000	145.6	23.1	27,267	15	96.3	60.5
Pioneer 34M94	26,000	141.8	19.9	27,600	7.7	98	57.2
Pioneer 33D31	26,000	143.2	24	28,267	10.3	98.7	56.6
Pioneer 34H31	26,000	152.1	21.1	28,033	16	99	60.8
Pioneer 34B23	26,000	135	21.5	28,600	8.3	97	59.4
Pioneer 33J56	40,000	135.2	22.1	41,200	53.3	99	58
Pioneer 33G26	40,000	160.6	21.7	39,867	58	98.7	59.8
Pioneer 34M94	40,000	152.4	19	38,067	67.3	97.3	57.3
Pioneer 33D31	40,000	146.2	24.2	37,667	11.7	99	56.4
Pioneer 34H31	40,000	150.7	22.2	37,867	5.7	99.3	59.5
Pioneer 34B23	40,000	157.9	21.6	38,633	61.3	97.7	59.1
Seeding Rate (S) LSD (0.05)		NS	NS	167	NS	NS	NS
Hybrid (H) LSD (0.05)		NS	0.9	1,599	NS	NS	1
S x H		NS	NS	NS	35.9	NS	NS

Summary

There was very little Gray Leaf Spot present this year due to the dry conditions throughout the growing season.

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