

EARLY CORN HYBRID EVALUATION

N.W. Buehring¹ M.P. Harrison¹, and R.R. Dobbs¹

¹Northeast Branch Experiment Station, North Mississippi Research and Extension Center, Mississippi State University, Mississippi State, MS 39762

ABSTRACT: A study was conducted in 2001 evaluating selected early maturity (88-105 day maturity) corn hybrids for production in the mid South. Corn growing conditions were favorable for good yield. Rainfall at harvest time, however, caused germination on the ear, particularly the hybrids which had poor shuck coverage and this resulted in lower yield. Pioneer 3223, standard mid-season hybrid, yield was greater than all other hybrids. However, the 100 to 105 day maturity hybrids, Pioneer 3563, Norvartis NV303BT, Norvartis NV4242BT, and Norvartis NV 4640 BT yield ranged from 149 to 156 bu/ac. Days after planting to 50% tassel ranged from 58 for 88 day maturity hybrid to 68 days for the 116 day mid season hybrid Pioneer 3223. Days from planting to physiological maturity (black layer) ranged from 110 day for 88 day maturity hybrid to 120 days for the mid season Pioneer 3223 hybrid.

CITATION: Buehring, N.W., M.P. Harrison, and R.R. Dobbs. 2002. Early corn hybrid evaluation. Annual Report of the North Mississippi Research & Extension Center, Miss. Agric. & For. Expt. Sta. Info. Bull. 386. pp. 21-22.

MATERIALS AND METHODS: A field study on a Leeper silty clay loam soil was conducted in 2001 to evaluate the yield potential for selected early maturity (88 to 105 day maturity) corn hybrids. The study was conducted as a randomized complete block with 4 replications.

Both P and K fertilizer were applied based on soil test recommendations. P fertilizer was not required but potash (K₂O) at 200 lb/ac was applied broadcast to the soil surface on 10/30/00. Fall land preparation consisted of the following: disking (12/06/00), bedding (12/06/00), paratilling (12/06/00), and bed-roller (12/11/00). The plot area was rebedded on 3/27/01. The corn was planted no-till on 4/11/01 with a seeding rate of 28,000 seed/ac. Lorsban (chlorpyrifos) 15 G at 1.3 lb ai/ac was applied in-furrow at planting. Gramoxone (paraquat) + atrazine + surfactant at 0.47 + 2.0 lb ai/ac + 0.5 pt/ac was applied 4/11/01 as a preemergence application. Evik (ametryn) + surfactant at 1.8 lb ai/ac + 1.0 pt/ac was applied post directed broadcast on 5/26/01.

Plant population, maturity date, and shuck coverage at harvest data were collected. The center 2 rows of each 4-row plot was harvested 8/16/01 with a 2 row plot combine equipped with a corn header. The grain was weighed and the seed moisture and test weight were determined with a Dickey John GAC II grain analyzer. The plot yields were converted to bu/ac at 15% seed moisture.

RESULTS AND DISCUSSION: Environmental growing conditions in 2001 were favorable for corn. However, rainfall at harvest time resulted in hybrids with poor shuck coverage to have corn germination on the ear. The hybrids, Pioneer 37M81, Pioneer 3893, and Dekalb DK 385B, with poor shuck coverage also had lower yield (Table 1). The mid season hybrid Pioneer 3223 had the highest yield of 187 bu/ac. However, Pioneer 3563, Norvartis NV 4640BT, and Norvartis NV 4242BT had similar yields which ranged from 149 to 156 bu/ac. Days from planting to 50% tassel ranged from 58 to 64 days for the 88 to 105 days maturity hybrids. Days after planting to physiological maturity (black layer) for these hybrids, ranged from 110 to 117 days. The mid season 116 day maturity hybrid Pioneer 3223 days from planting to 50% tassel and black layer was 68 and 120 days, respectively.

Table 1. Early corn hybrid response on a Leeper silty clay loam soil in 2001, Verona, MS.

Hybrid	Days to maturity	DAP ¹ to tassel	DAP ¹ to black layer	Shuck coverage ²	Yield bu/ac	BTW lb/bu
1) Pioneer 3223	116	68	120	1.0	187	53.4
2) Norvartis NV4640BT	105	64	117	2.3	156	51.1
3) Norvartis NV303BT	105	58	110	3.3	154	50.1
4) Pioneer 3563	102	64	111	2.0	149	54.8
5) Norvartis NV4242BT	100	63	112	2.0	153	53.7
6) Pioneer 37M81	97	58	110	4.8	127	49.6
7) Pioneer 3893	89	58	110	4.5	107	50.9
8) DeKalb DK 385B	88	58	110	4.8	120	52.6
LSD (.05)	---	2	2	0.7	25	1.9
% CV	---	2	1	16.5	12	2.8

¹ DAP means days after planting

² Shuck coverage rating averaged from 1 to 5, with 1 indicating shuck coverage extends about one inch beyond the ear and 5 having the shuck split the length of the ear.