

FIELD EXPERIMENT HISTORY

Exp. Number: 02 Plant Density
Title: Determining Corn Hybrid Maturity - Plant Density by Hybrid. **Year:** 1997
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Location: Arlington Research Station, Arlington, WI
Supported by: Hatch

FIELD INFORMATION

Field: 396
Soil Type: Plano Silt Loam
Soil Test Results: Test Date: 10/97 pH: 7.0 P (ppm): 48 K (ppm): 240 O.M. 3.0%
Tillage Operations: Chisel Plow
Field Cultivator
Fertilizer: 24- April 150 lbs N/A 46-0-0
24- April 150 lbs/A 6-24-24 starter
Herbicide: 5-May Frontier @ 20oz/A & Bladex 90DF @ 2.2lbs/a
4-June Banvel @ 1pt/A
Previous Crop: Soybean
Irrigation: None

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split Plot
Replicates: 3
Variables: 7 Densities: 15,000; 20,000; 25,000; 30,000; 35,000; 40,000; 45,000
2 Hybrids: Dekalb DK471 (Short Season), Golden Harvest H2441 (Full Season)
Row Spacing: 30"
Planting Date: 5-May
Area Planted: 20' x 25'
Planting Equip: Kinze Plot Planter w/seed cones
Date Harvested: 3-Oct. - Silage
5-Nov. - Grain
Area Harvested: 5' x 22' - Grain
2.5' x 22' - Silage
Harvesting Equip: Kincaid Plot Combine - Grain
New Holland One-Row Chopper - Silage

Results: Table E-18.

**Table E-18. Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Arlington, WI - 1997**

Density plants/a	Hybrid	Final Population plants/A	Broken Stalks %	Grain			Silage							Milk Per		
				Yield bu/A	Moist %	Test Wt lbs/bu	Yield tons	Moist %	Kernel Milk %	Crude Protein %	ADF %	NDF %	<i>In Vitro</i> Digest %	Cell Wall Digest %	Ton lbs/T	Acre lbs/A
15000		20724	25.4	152.4	24.3	53	5.8	66.1	48	7.7	21.7	41.5	78.9	49.1	2262	12898
20000		22737	12.6	168.0	23.9	54	5.6	66.3	43	7.4	23.5	43.9	77.2	48.2	2062	11632
25000		26268	15.3	169.4	22.8	55	7.1	62.9	41	7.0	21.9	42.3	77.8	47.6	2171	15456
30000		29535	20.6	172.9	23.2	54	6.9	64.4	42	7.0	23.2	43.7	77.0	47.3	2058	14234
35000		34254	29.3	178.2	23.3	54	7.8	63.1	43	7.1	22.0	42.0	77.9	47.2	2184	17060
40000		35475	16.5	154.4	23.8	54	6.8	65.8	39	7.0	24.9	46.0	75.8	47.3	1888	12745
45000		40029	30.3	156.1	24.6	53	7.2	65.1	43	7.0	25.0	45.9	75.3	46.1	1864	13484
	DeKalb DK471	31275	18.3	166.3	22.0	55	6.9	65.5	44	6.9	22.7	42.6	78.0	48.2	2163	14863
	Golden Harvest H2441	28446	24.6	162.6	25.4	53	6.6	64.2	41	7.5	23.6	44.6	76.3	46.8	1977	13090
15000	DeKalb DK471	24420	21.3	142.0	22.7	54	6.5	67.0	52	7.7	22.0	41.3	79.1	49.3	2287	14510
20000	DeKalb DK471	23364	13.7	167.3	21.9	55	5.6	66.3	40	7.1	23.1	43.2	78.2	49.6	2150	12120
25000	DeKalb DK471	27918	7.9	175.5	20.6	56	7.2	62.8	42	6.6	20.6	40.1	79.0	47.7	2336	16878
30000	DeKalb DK471	31086	20.4	174.4	21.1	56	6.8	64.7	45	6.7	23.5	44.1	77.2	48.4	2054	13905
35000	DeKalb DK471	35244	13.9	185.1	22.7	55	7.8	64.5	47	6.8	21.8	41.4	78.8	48.8	2262	17658
40000	DeKalb DK471	35904	12.3	168.3	22.2	55	6.7	67.5	40	6.3	25.2	46.0	75.8	47.4	1894	12703
45000	DeKalb DK471	40986	38.5	151.8	23.1	54	7.4	65.5	45	6.9	22.5	42.0	77.5	46.4	2159	16150
15000	Golden Harvest H2441	17028	29.6	162.8	26.0	53	5.3	65.3	45	7.7	21.4	41.8	78.6	48.8	2237	11823
20000	Golden Harvest H2441	22110	11.6	168.8	25.9	53	5.6	66.4	45	7.8	23.8	44.6	76.2	46.8	1974	11145
25000	Golden Harvest H2441	24618	22.6	163.3	25.1	54	7.0	63.0	40	7.4	23.1	44.5	76.6	47.5	2005	14035
30000	Golden Harvest H2441	27984	20.9	171.4	25.3	53	7.0	64.0	38	7.4	22.8	43.2	76.7	46.1	2061	14563
35000	Golden Harvest H2441	33264	44.7	171.3	24.0	54	7.8	61.7	40	7.3	22.1	42.5	76.9	45.7	2107	16461
40000	Golden Harvest H2441	35046	20.6	140.5	25.4	53	6.8	64.0	38	7.8	24.6	46.0	75.7	47.1	1883	12787
45000	Golden Harvest H2441	39072	22.2	160.4	26.1	52	6.9	64.7	40	7.2	27.5	49.7	73.0	45.8	1568	10819
	Mean	29860	21.4	164.5	23.7	54	6.8	64.8	43	7.2	23.2	43.6	77.1	47.5	2070	13955
	Probability(%)															
	Plant Density (PD)	0.0	41.4	0.2	5.3	2.9	0.0	32.8	53.2	0.0	0.0	0.0	0.0	1.2	0.0	0.1
	Hybrid (H)	0.4	23.5	30.3	0.0	0.0	22.9	18.4	16.3	0.0	2.9	0.0	0.0	0.0	0.0	0.7
	PD x H	54.9	36.4	2.5	15.3	40.7	48.4	92.2	81.0	0.3	1.0	0.2	3.8	16.3	0.7	16.6
	LSD(0.10)															
	Plant Density (PD)	2220	NS	8.7	0.8	0.6	0.4	NS	NS	0.0	1.0	1.3	0.8	0.9	101	1434
	Hybrid (H)	1192	NS	NS	0.4	0.3	NS	NS	NS	0.1	0.6	0.7	0.5	0.5	54	767
	CV(%)	10	78	7	4	1	9	5	18	4	6	4	1	3	6	14