

FIELD EXPERIMENT HISTORY

Year: 1996

Title: Determining Corn Hybrid Maturity - Date of Planting by Hybrid and Plant Density.
Personnel: J.G. Lauer, K.D. Hudelson
Location: Arlington Research Station, Arlington, WI
Supported by: Hatch

FIELD INFORMATION

Field: 410W
Soil Type: Plano Silt Loam
Soil Test Results: Test Date: 7/95 pH: 6.8 P (ppm): 76 K (ppm): 215 OM (%): 3.3
Fertilizer: Each Planting Date: 150 lbs/a 6-24-24 starter
Preplant - 150 lbs N/a 46-0-0
Tillage Operations: Chisel Plow, Field Cultivate(2x)
Field Cultivate before each planting
Previous Crop: Soybean
Irrigation: None

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split Plot Factorial
Replicates: 4
Variables: Date of Planting: May 1 and May 22
Hybrids: Pioneer 3394 and 3845
Plant Densities: 18,000 and 30,000 plants/a
Area Planted: 10' x 25'
Area Harvested: 5.0' x 22'
Row Spacing: 30"
Planting Date: May 1 and May 22
Planting Equip: Kinze Plot Planter w/seed cones
Planting Rate: variable
Harvesting Date: 8-Nov
Harvesting Equip: Gleaner Plot Combine

	<u>Material</u>	<u>Rate</u>	<u>Method</u>
Herbicides:	Bladex	2 qts/a	preemerg
	Lasso	2 qts/a	preemerg

Results: Tables E-14 and E-15.

**Table E-14. Determining Corn Hybrid Maturity - Date of Planting by Hybrid by Plant Density.
Growth and Development
Arlington, WI - 1996.**

Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
May 1			.	7.4	9.2	10.5	87.9
May 22			.	7.6	9.4	10.8	94.6
	Pioneer 3394		.	7.2	8.9	10.3	83.7
	Pioneer 3845		.	7.8	9.6	11.0	98.3
May 1	Pioneer 3394		.	7.0	8.8	10.1	79.2
May 1	Pioneer 3845		.	7.8	9.6	11.0	96.5
May 22	Pioneer 3394		.	7.4	9.1	10.6	88.8
May 22	Pioneer 3845		.	7.8	9.6	11.0	100.3
		18,000	.	7.5	9.3	10.7	90.2
		30,000	.	7.5	9.2	10.6	91.8
May 1		18,000	.	7.4	9.2	10.5	86.7
May 1		30,000	.	7.5	9.2	10.6	89.0
May 22		18,000	.	7.7	9.5	10.9	94.1
May 22		30,000	.	7.5	9.3	10.7	95.0
	Pioneer 3394	18,000	.	7.2	8.9	10.3	83.0
	Pioneer 3394	30,000	.	7.2	9.0	10.4	84.5
	Pioneer 3845	18,000	.	7.9	9.7	11.1	97.3
	Pioneer 3845	30,000	.	7.7	9.5	10.9	99.2
May 1	Pioneer 3394	18,000	.	6.9	8.7	10.0	78.6
May 1	Pioneer 3394	30,000	.	7.2	8.9	10.2	79.9
May 1	Pioneer 3845	18,000	.	7.9	9.7	11.0	94.9
May 1	Pioneer 3845	30,000	.	7.8	9.5	10.9	98.1
May 22	Pioneer 3394	18,000	.	7.5	9.2	10.6	87.9
May 22	Pioneer 3394	30,000	.	7.3	9.1	10.5	89.7
May 22	Pioneer 3845	18,000	.	7.9	9.8	11.1	100.2
May 22	Pioneer 3845	30,000	.	7.7	9.5	10.9	100.4
			151	0.6	1.0	3.1	3.5
			161	1.4	1.9	3.4	7.3
			170	3.5	4.8	6.2	22.6
			177	4.9	7.3	8.5	35.0
			182	6.1	8.6	10.4	58.7
			193	10.0	13.6	15.4	110.2
			200	11.6	14.3	16.0	157.0
			239	18.5	18.5	18.5	289.8
May 1			151	0.6	1.0	3.1	3.5
May 1			161	2.2	3.3	4.3	9.3
May 1			170	3.9	5.4	7.0	26.1
May 1			177	5.4	8.0	9.2	39.0
May 1			182	6.6	9.1	10.9	65.4
May 1			193	10.2	13.8	15.4	117.4
May 1			200	12.2	14.6	16.0	160.7
May 1			239	18.4	18.4	18.4	281.5
May 22			151
May 22			161	0.5	0.6	2.6	5.3

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Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
May 22			170	3.0	4.2	5.5	19.1
May 22			177	4.4	6.7	7.8	31.1
May 22			182	5.7	8.2	9.9	52.0
May 22			193	9.9	13.4	15.4	103.1
May 22			200	11.0	14.0	15.9	153.3
May 22			239	18.6	18.6	18.6	298.0
	Pioneer 3394		151	0.2	0.2	2.7	2.8
	Pioneer 3394		161	1.0	1.5	3.0	5.9
	Pioneer 3394		170	3.4	4.5	5.7	19.2
	Pioneer 3394		177	4.7	6.9	8.0	28.2
	Pioneer 3394		182	5.8	8.1	9.9	56.9
	Pioneer 3394		193	9.9	13.5	15.3	96.3
	Pioneer 3394		200	10.8	14.1	15.8	137.4
	Pioneer 3394		239	18.4	18.4	18.4	282.6
	Pioneer 3845		151	0.9	1.7	3.5	4.2
	Pioneer 3845		161	1.7	2.4	3.8	8.7
	Pioneer 3845		170	3.6	5.1	6.8	26.0
	Pioneer 3845		177	5.1	7.7	8.9	41.9
	Pioneer 3845		182	6.5	9.2	10.9	60.4
	Pioneer 3845		193	10.2	13.7	15.5	124.2
	Pioneer 3845		200	12.4	14.6	16.2	176.5
	Pioneer 3845		239	18.6	18.6	18.6	297.0
May 1	Pioneer 3394		151	0.2	0.2	2.7	2.8
May 1	Pioneer 3394		161	1.9	2.9	3.9	7.4
May 1	Pioneer 3394		170	3.7	5.1	6.3	21.8
May 1	Pioneer 3394		177	5.1	7.4	8.4	30.5
May 1	Pioneer 3394		182	6.2	8.4	10.3	57.2
May 1	Pioneer 3394		193	10.0	13.7	15.3	101.1
May 1	Pioneer 3394		200	11.1	14.3	15.8	139.3
May 1	Pioneer 3394		239	18.1	18.1	18.1	273.9
May 1	Pioneer 3845		151	0.9	1.7	3.5	4.2
May 1	Pioneer 3845		161	2.4	3.6	4.6	11.2
May 1	Pioneer 3845		170	4.2	5.7	7.6	30.5
May 1	Pioneer 3845		177	5.8	8.6	9.9	47.4
May 1	Pioneer 3845		182	6.9	9.8	11.6	73.7
May 1	Pioneer 3845		193	10.4	13.9	15.6	133.6
May 1	Pioneer 3845		200	13.3	14.9	16.3	182.0
May 1	Pioneer 3845		239	18.7	18.7	18.7	289.1
May 22	Pioneer 3394		151	.	.	.	.
May 22	Pioneer 3394		161	0.1	0.1	2.1	4.5
May 22	Pioneer 3394		170	3.0	3.8	5.0	16.5
May 22	Pioneer 3394		177	4.4	6.5	7.5	25.8

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Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
May 22	Pioneer 3394		182	5.4	7.8	9.5	56.7
May 22	Pioneer 3394		193	9.7	13.3	15.3	91.4
May 22	Pioneer 3394		200	10.4	13.8	15.8	135.5
May 22	Pioneer 3394		239	18.7	18.7	18.7	291.3
May 22	Pioneer 3845		151	.	.	.	.
May 22	Pioneer 3845		161	1.0	1.1	3.0	6.1
May 22	Pioneer 3845		170	3.1	4.6	5.9	21.6
May 22	Pioneer 3845		177	4.3	6.9	8.0	36.4
May 22	Pioneer 3845		182	6.0	8.6	10.3	47.2
May 22	Pioneer 3845		193	10.0	13.4	15.4	114.8
May 22	Pioneer 3845		200	11.6	14.2	16.1	171.0
May 22	Pioneer 3845		239	18.6	18.6	18.6	304.8
		18,000	151	0.6	1.1	3.1	3.4
		18,000	161	1.3	1.9	3.4	7.0
		18,000	170	3.4	4.8	6.2	22.5
		18,000	177	4.9	7.3	8.4	34.3
		18,000	182	6.1	8.7	10.4	61.5
		18,000	193	10.2	13.8	15.6	109.5
		18,000	200	11.8	14.4	16.0	149.9
		18,000	239	18.5	18.5	18.5	289.8
		30,000	151	0.6	0.9	3.1	3.6
		30,000	161	1.4	1.9	3.4	7.6
		30,000	170	3.6	4.9	6.3	22.7
		30,000	177	4.8	7.4	8.5	35.8
		30,000	182	6.2	8.6	10.4	55.9
		30,000	193	9.9	13.3	15.2	111.0
		30,000	200	11.4	14.3	15.9	164.0
		30,000	239	18.6	18.6	18.6	289.8
May 1		18,000	151	0.6	1.1	3.1	3.4
May 1		18,000	161	2.1	3.2	4.2	9.1
May 1		18,000	170	3.8	5.4	6.8	26.7
May 1		18,000	177	5.4	7.9	9.1	38.1
May 1		18,000	182	6.4	9.0	10.8	68.8
May 1		18,000	193	10.2	13.8	15.4	114.3
May 1		18,000	200	12.3	14.7	16.0	150.3
May 1		18,000	239	18.4	18.4	18.4	283.2
May 1		30,000	151	0.6	0.9	3.1	3.6
May 1		30,000	161	2.3	3.3	4.3	9.5
May 1		30,000	170	4.1	5.4	7.1	25.6
May 1		30,000	177	5.4	8.1	9.2	39.8
May 1		30,000	182	6.7	9.2	11.1	62.0
May 1		30,000	193	10.2	13.8	15.5	120.4
May 1		30,000	200	12.0	14.6	16.1	171.0
May 1		30,000	239	18.4	18.4	18.4	279.8
May 22		18,000	151

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Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
May 22		18,000	161	0.5	0.6	2.5	4.9
May 22		18,000	170	3.1	4.1	5.5	18.4
May 22		18,000	177	4.5	6.7	7.8	30.5
May 22		18,000	182	5.8	8.4	10.1	54.2
May 22		18,000	193	10.2	13.9	15.8	104.7
May 22		18,000	200	11.2	14.1	16.1	149.4
May 22		18,000	239	18.5	18.5	18.5	296.3
May 22		30,000	151	.	.	.	.
May 22		30,000	161	0.6	0.6	2.6	5.7
May 22		30,000	170	3.0	4.3	5.4	19.7
May 22		30,000	177	4.2	6.7	7.7	31.8
May 22		30,000	182	5.7	8.0	9.7	49.7
May 22		30,000	193	9.5	12.9	14.9	101.6
May 22		30,000	200	10.8	13.9	15.8	157.1
May 22		30,000	239	18.7	18.7	18.7	299.7
	Pioneer 3394	18,000	151	0.1	0.2	2.7	2.5
	Pioneer 3394	18,000	161	0.9	1.4	2.9	5.5
	Pioneer 3394	18,000	170	3.3	4.4	5.6	20.5
	Pioneer 3394	18,000	177	4.8	7.0	8.1	27.1
	Pioneer 3394	18,000	182	5.8	8.2	9.8	56.9
	Pioneer 3394	18,000	193	9.8	13.5	15.3	100.6
	Pioneer 3394	18,000	200	10.8	14.0	15.8	133.4
	Pioneer 3394	18,000	239	18.2	18.2	18.2	276.9
	Pioneer 3394	30,000	151	0.3	0.2	2.8	3.0
	Pioneer 3394	30,000	161	1.1	1.6	3.1	6.4
	Pioneer 3394	30,000	170	3.4	4.6	5.7	17.8
	Pioneer 3394	30,000	177	4.6	6.9	7.9	29.2
	Pioneer 3394	30,000	182	5.8	8.1	9.9	56.9
	Pioneer 3394	30,000	193	9.9	13.5	15.2	92.0
	Pioneer 3394	30,000	200	10.7	14.1	15.8	141.4
	Pioneer 3394	30,000	239	18.6	18.6	18.6	288.3
	Pioneer 3845	18,000	151	1.0	1.9	3.6	4.2
	Pioneer 3845	18,000	161	1.7	2.4	3.8	8.5
	Pioneer 3845	18,000	170	3.6	5.1	6.7	24.6
	Pioneer 3845	18,000	177	5.1	7.6	8.8	41.5
	Pioneer 3845	18,000	182	6.4	9.2	11.1	66.0
	Pioneer 3845	18,000	193	10.6	14.2	15.8	118.4
	Pioneer 3845	18,000	200	12.7	14.7	16.3	166.4
	Pioneer 3845	18,000	239	18.7	18.7	18.7	302.7
	Pioneer 3845	30,000	151	0.9	1.6	3.4	4.2
	Pioneer 3845	30,000	161	1.8	2.3	3.8	8.9
	Pioneer 3845	30,000	170	3.7	5.2	6.8	27.5
	Pioneer 3845	30,000	177	5.1	7.8	9.1	42.3
	Pioneer 3845	30,000	182	6.6	9.1	10.8	54.8
	Pioneer 3845	30,000	193	9.8	13.2	15.2	130.1

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Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
	Pioneer 3845	30,000	200	12.1	14.4	16.1	186.7
	Pioneer 3845	30,000	239	18.6	18.6	18.6	291.3
May 1	Pioneer 3394	18,000	151	0.1	0.2	2.7	2.5
May 1	Pioneer 3394	18,000	161	1.8	2.8	3.8	6.8
May 1	Pioneer 3394	18,000	170	3.6	5.0	6.2	25.4
May 1	Pioneer 3394	18,000	177	5.0	7.2	8.3	29.6
May 1	Pioneer 3394	18,000	182	6.0	8.3	10.1	61.0
May 1	Pioneer 3394	18,000	193	9.7	13.4	15.0	104.7
May 1	Pioneer 3394	18,000	200	11.1	14.3	15.8	131.2
May 1	Pioneer 3394	18,000	239	17.9	17.9	17.9	267.6
May 1	Pioneer 3394	30,000	151	0.3	0.2	2.8	3.0
May 1	Pioneer 3394	30,000	161	2.0	3.0	4.0	8.0
May 1	Pioneer 3394	30,000	170	3.9	5.2	6.4	18.2
May 1	Pioneer 3394	30,000	177	5.1	7.6	8.6	31.3
May 1	Pioneer 3394	30,000	182	6.3	8.4	10.4	53.3
May 1	Pioneer 3394	30,000	193	10.3	13.9	15.6	97.5
May 1	Pioneer 3394	30,000	200	11.0	14.3	15.8	147.3
May 1	Pioneer 3394	30,000	239	18.3	18.3	18.3	280.3
May 1	Pioneer 3845	18,000	151	1.0	1.9	3.6	4.2
May 1	Pioneer 3845	18,000	161	2.3	3.7	4.7	11.4
May 1	Pioneer 3845	18,000	170	4.0	5.8	7.4	27.9
May 1	Pioneer 3845	18,000	177	5.8	8.6	9.9	46.6
May 1	Pioneer 3845	18,000	182	6.8	9.7	11.6	76.6
May 1	Pioneer 3845	18,000	193	10.7	14.1	15.8	124.0
May 1	Pioneer 3845	18,000	200	13.6	15.0	16.2	169.3
May 1	Pioneer 3845	18,000	239	19.0	19.0	19.0	298.9
May 1	Pioneer 3845	30,000	151	0.9	1.6	3.4	4.2
May 1	Pioneer 3845	30,000	161	2.6	3.6	4.6	11.0
May 1	Pioneer 3845	30,000	170	4.3	5.7	7.8	33.0
May 1	Pioneer 3845	30,000	177	5.8	8.6	9.9	48.3
May 1	Pioneer 3845	30,000	182	7.1	9.9	11.7	70.7
May 1	Pioneer 3845	30,000	193	10.1	13.7	15.4	143.3
May 1	Pioneer 3845	30,000	200	13.0	14.9	16.3	194.7
May 1	Pioneer 3845	30,000	239	18.4	18.4	18.4	279.4
May 22	Pioneer 3394	18,000	151	.	.	.	.
May 22	Pioneer 3394	18,000	161	0.0	0.0	2.0	4.2
May 22	Pioneer 3394	18,000	170	3.0	3.8	5.0	15.7
May 22	Pioneer 3394	18,000	177	4.7	6.8	7.8	24.6
May 22	Pioneer 3394	18,000	182	5.6	8.0	9.6	52.9
May 22	Pioneer 3394	18,000	193	10.0	13.6	15.7	96.5
May 22	Pioneer 3394	18,000	200	10.4	13.7	15.8	135.5
May 22	Pioneer 3394	18,000	239	18.6	18.6	18.6	286.2
May 22	Pioneer 3394	30,000	151

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Planting Date	Hybrid	Plant Density plants/a	Day of Year	Leaf Development			Plant Height cm
				Leaf Collars	Hail Adjuster's Method	Total Leaves	
May 22	Pioneer 3394	30,000	161	0.1	0.1	2.2	4.7
May 22	Pioneer 3394	30,000	170	3.0	3.9	5.0	17.4
May 22	Pioneer 3394	30,000	177	4.1	6.2	7.2	27.1
May 22	Pioneer 3394	30,000	182	5.3	7.7	9.4	60.5
May 22	Pioneer 3394	30,000	193	9.4	13.1	14.9	86.4
May 22	Pioneer 3394	30,000	200	10.4	13.9	15.8	135.5
May 22	Pioneer 3394	30,000	239	18.8	18.8	18.8	296.3
May 22	Pioneer 3845	18,000	151	.	.	.	.
May 22	Pioneer 3845	18,000	161	1.0	1.2	3.0	5.5
May 22	Pioneer 3845	18,000	170	3.1	4.4	6.0	21.2
May 22	Pioneer 3845	18,000	177	4.3	6.7	7.8	36.4
May 22	Pioneer 3845	18,000	182	6.0	8.8	10.6	55.5
May 22	Pioneer 3845	18,000	193	10.4	14.2	15.9	112.8
May 22	Pioneer 3845	18,000	200	11.9	14.4	16.3	163.4
May 22	Pioneer 3845	18,000	239	18.4	18.4	18.4	306.5
May 22	Pioneer 3845	30,000	151	.	.	.	.
May 22	Pioneer 3845	30,000	161	1.0	1.0	3.0	6.8
May 22	Pioneer 3845	30,000	170	3.0	4.7	5.9	22.0
May 22	Pioneer 3845	30,000	177	4.3	7.1	8.2	36.4
May 22	Pioneer 3845	30,000	182	6.0	8.3	10.0	39.0
May 22	Pioneer 3845	30,000	193	9.6	12.7	15.0	116.8
May 22	Pioneer 3845	30,000	200	11.2	13.9	15.8	178.7
May 22	Pioneer 3845	30,000	239	18.7	18.7	18.7	303.1
Mean				7.5	9.3	10.7	91.0
Probability %							
Date of Planting (DOP)				< 0.1	0.3	0.4	17.7
Hybrid (H)				< 0.1	< 0.1	< 0.1	< 0.1
Plant Density (PD)				> 50	45.8	> 50	47.5
H x PD				23.9	22.3	26.8	> 50
H x DOP				4.5	22.6	4.2	8.9
PD x DOP				18.8	33.6	12.7	> 50
H x PD x DOP				39.2	> 50	42.8	> 50
Days (D)				< 0.1	< 0.1	< 0.1	< 0.1
D x DOP				< 0.1	< 0.1	< 0.1	< 0.1
D x H				< 0.1	0.4	0.8	< 0.1
D x PD				21.9	40.3	> 50	26.8
D x H x PD				38.8	44.1	> 50	8.9
D x H x DOP				5.4	29.5	> 50	> 50
D x PD x DOP				43.1	32.3	48.3	> 50
D x H x PD x DOP				> 50	> 50	> 50	> 50
LSD (0.10)							
Date of Planting (DOP)				0.1	0.2	0.1	NS
Hybrid (H)				0.2	0.2	0.1	3.7
Plant Density (PD)				0.2	0.2	0.1	3.7
Day of Year (D)				0.2	0.2	0.2	7.1
CV %				7.2	7.3	6.3	13.3

**Table E-15. Determining Corn Hybrid Maturity.
Date of Planting by Hybrid by Plant Density - Harvest Data.
Arlington, WI - 1996.**

Planting Date	Hybrid	Plant Density	Broken Stalks %	Moisture %	Yield bu/a
May 1			3.4	28.5	147.9
May 22			1.2	29.6	147.4
	Pioneer 3394		2.5	32.8	139.3
	Pioneer 3845		2.1	25.3	155.9
May 1	Pioneer 3394		3.3	32.0	136.4
May 1	Pioneer 3845		3.6	24.9	159.4
May 22	Pioneer 3394		1.8	33.5	142.3
May 22	Pioneer 3845		0.6	25.7	152.5
		18,000	2.6	29.1	139.0
		30,000	2.0	29.0	156.2
May 1		18,000	3.7	28.6	135.9
May 1		30,000	3.1	28.3	159.9
May 22		18,000	1.5	29.6	142.2
May 22		30,000	0.9	29.6	152.5
	Pioneer 3394	18,000	2.6	32.7	126.0
	Pioneer 3394	30,000	2.4	32.8	152.7
	Pioneer 3845	18,000	2.6	25.5	152.1
	Pioneer 3845	30,000	1.6	25.1	159.7
May 1	Pioneer 3394	18,000	3.0	32.0	119.9
May 1	Pioneer 3394	30,000	3.6	32.0	152.9
May 1	Pioneer 3845	18,000	4.4	25.2	151.8
May 1	Pioneer 3845	30,000	2.7	24.6	166.9
May 22	Pioneer 3394	18,000	2.2	33.4	132.1
May 22	Pioneer 3394	30,000	1.3	33.6	152.5
May 22	Pioneer 3845	18,000	0.7	25.8	152.3
May 22	Pioneer 3845	30,000	0.4	25.6	152.6
Mean			2.3	29.1	147.6
Probability %					
Date of Planting (DOP)			1.7	7.6	> 50
Hybrid (H)			> 50	< 0.1	2.8
Plant Density (PD)			> 50	> 50	2.3
H x PD			> 50	48.3	17.6
DOP x H			42.9	28.3	35.5
DOP x PD			> 50	> 50	32.0
DOP x H x PD			42.9	> 50	> 50
LSD (0.10)					
Date of Planting (DOP)			0.9	1.0	NS
Hybrid (H)			NS	0.6	11.8
Plant Density (PD)			NS	NS	11.8
CV %			94.5	2.8	11.0