

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain Performance
Experiment: 02Plant Density **Trial ID:** 3485 **Year:** 2011
Personnel: J.G. Lauer, K.D. Kohn and T.H. Diallo
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 10/21/11 **pH:** 7.1 **OM (%)** 3.3 **P (ppm)** 64 **K (ppm)** 193

Plot Management

Tillage Operations: Disk Ripper Field Cultivator Cultivated
Fertilizer:

<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant : 46-0-0	150 bs/A	5 /2 /11
Starter : 10-34-0	3.0 gal/A	5 /16/11
Post plant : N/A	N/A	N/A
Manure: N/A	N/A	N/A

Herbicide: Dual II Mag 24 oz/A
 Hornet 4 oz/A
 Accent Q 1 oz/A

Insecticide: Force 3G 4.4 lb/A
Hybrid: Pioneer 35F44

Irrigation: None

Planting Date: 5/16/11 **Planting Depth:** 1.5" **Row Width:** 30"
Target Plant Density: See Factors **Planting Method:** Almaco Precision Planter
Harvest Date: 10/31/11 **Harvest Method:** Massey Ferguson 8XP

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 10' x 25' **Experiment Size:** 0.2A
Harvest Plot Size: 23' x 5' **Harvest Plant Density:** Varies

Factors/Treatments:

Target Plant Density:

14000	38000
20000	44000
26000	50000
32000	56000

Results: Tables C-20.

Table C-20. Plant Density and Hybrid Influence on Corn Grain.
Arlington, WI - 2011.

Target density	Grain											
	V4 population	Harvest		Yield	Moisture	Test weight	Lodged			Grower return	Silk date	Plant height
		plants	ears				Total	Stalk	Root			
plants/A	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	\$/A	doy	inches
14000	14773	16288	16288	136	20.1	55	1	0	1	729	200	101
20000	19791	19697	19697	174	20.5	56	2	2	0	928	200	103
26000	27462	27746	27746	220	20.6	56	8	7	0	1173	200	106
32000	34753	32575	32575	220	20.4	57	9	9	0	1177	200	103
38000	42140	37026	37026	213	21.0	57	9	9	0	1134	200	105
44000	47916	42424	42424	205	21.1	57	9	9	0	1092	200	106
50000	54428	45580	45580	192	20.7	58	4	3	0	1024	201	100
56000	55681	46401	46401	193	20.6	58	10	10	0	1030	201	103
Mean	37118	33467	33467	194	20.6	57	7	6	0	1036	200	103
Probability(%)												
Plant Density (D)	0.0	0.0	0.0	0.0	92.2	0.0	0.7	0.4	24.7	0.0	6.4	13.8
LSD (0.10)												
Plant Density (D)	1941	2078	2078	15	NS	1	5	5	NS	77	1	NS

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Silage Performance
Experiment: 02Plant Density **Trial ID:** 3497 **Year:** 2011
Personnel: J.G. Lauer, K.D. Kohn and T.H. Diallo
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 10/21/11 **pH:** 7.1 **OM (%)** 3.3 **P (ppm)** 64 **K (ppm)** 193

Plot Management

Tillage Operations: Disk Ripper Field Cultivator Cultivated
Fertilizer:

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	46-0-0	150 bs/A	5 /2 /11
Starter :	10-34-0	3.0 gal/A	5 /16/11
Post plant :	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Dual II Mag 24 oz/A
 Hornet 4 oz/A
 Accent Q 1 oz/A

Insecticide: Force 3G 4.4 lb/A
Hybrid: See Factors

Irrigation: None

Planting Date: 5/16/11 **Planting Depth:** 1.5" **Row Width:** 30"
Target Plant Density: See Factors **Planting Method:** Almaco Precision Planter
Harvest Date: 9/8/11 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 10' x 25' **Experiment Size:** 0.6A
Harvest Plot Size: 23' x 2.5' **Harvest Plant Density:** Varies

Factors/Treatments:

<u>Target Plant Density:</u>	<u>Hybrid:</u>
14000 38000	Mycogen F2F569
20000 44000	Mycogen F2F622
26000 50000	Pioneer 35F44I
32000 56000	

Results: Tables C-21.

**Table C-22. Plant Density and Hybrid Influence on Corn Grain.
Marshfield, WI - 2011.**

Target density	V4 population	Harvest		Grain						
		plants	ears	Yield	Moisture	Test weight	Lodged			Grower return
plants/A	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	Total %	Stalk %	Root %	\$/A
14000	16193	18276	18276	152	26.5	48	0	0	0	793
20000	22443	23200	23200	182	26.3	48	0	0	0	951
26000	28409	27462	27462	186	26.6	47	0	0	0	971
32000	31060	30303	30303	196	25.8	48	0	0	0	1025
38000	36837	33617	33617	221	25.6	48	0	0	0	1160
44000	45643	45927	45927	215	26.1	47	0	0	0	1125
50000	54166	50094	50094	211	26.1	47	0	0	0	1105
56000	60984	55586	55586	206	26.4	47	0	0	0	1077
Mean	36967	35558	35558	196	26.2	48	0	0	0	1026
<u>Probability(%)</u>										
Plant Density (D)	0.0	0.0	0.0	0.0	51.6	1.1	45.9	45.9	-	0.0
<u>LSD (0.10)</u>										
Plant Density (D)	2201	3670	3670	13	NS	0	NS	NS	-	70

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Silage Performance
Experiment: 02Plant Density **Trial ID:** 3486 **Year:** 2011
Personnel: J.G. Lauer, K.D. Kohn and T.H. Diallo
Location: Marshfield, WI **County:** Wood
Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Withee Silt Loam
Soil Test: **Date:** 10/21/11 **pH:** 6.5 **OM (%)** 3.3 **P (ppm)** 55 **K (ppm)** 138

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Cultivated
Fertilizer:

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	N/A	N/A	N/A
Starter :	10-34-0	3.0 gal/A	4 /28/10
Post plant :	28-0-0	120	N/A
Manure:	N/A	N/A	N/A

Herbicide: SureStart 2.25 pt/A **Insecticide:** Force 3G 4.4 lbs/A
 Volley 2.75 oz/A **Hybrid:** See Factors

Irrigation: None

Planting Date: 5/18/11 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Precision Planter

Harvest Date: 9/22/11 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 10' x 25' **Experiment Size:** 0.4 A
Harvest Plot Size: 23' x 2.5' **Harvest Plant Density:** Varies

Factors/Treatments:

<u>Target Plant Density:</u>	<u>Hybrid:</u>
14000 38000	Dekalb DKC42-72
20000 44000	Mycogen F2F488
26000 50000	
32000 56000	

Results: Tables C-23.

Table C-23. Plant Density and Hybrid Influence on Silage Performance.
Marshfield, WI - 2011.

Target density plants/A	Hybrid	Whole Plant																					
		Harvest		Dry Matter		Kernel	KMR			SMR			VMR			Crude			<i>in vitro</i>			Milk per	
		plants/A	ears/A	Yield T/A	Moisture %	milk %	0-5	0-5	0-10	protein %	ADF %	NDF %	Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A						
	Dekalb DKC42-72	40056	36837	7.6	68.2	78	3.9	2.8	6.7	6.3	25.9	49.2	79.1	57.5	33.2	3139	23928						
	Mycogen F2F488	36884	28835	6.8	72.8	86	4.3	2.9	7.3	7.1	27.5	53.0	81.7	65.4	25.2	3241	21952						
14000		16382	15151	4.9	69.6	78	3.9	3.2	7.1	7.1	25.8	50.7	81.2	63.1	28.3	3239	15793						
20000		23674	23011	7.0	68.4	81	4.0	3.1	7.1	6.6	25.2	49.0	81.0	61.3	32.1	3245	22530						
26000		29640	27556	7.4	69.8	82	4.1	2.9	7.0	6.6	26.5	50.8	80.8	62.1	29.6	3218	23900						
32000		35606	32007	7.0	70.9	83	4.1	2.8	6.9	6.7	27.0	51.7	80.3	61.6	28.7	3179	22198						
38000		42329	35321	7.2	71.5	81	4.1	2.9	7.0	6.9	27.7	52.4	79.5	60.8	27.9	3131	22576						
44000		48200	38257	7.9	71.3	86	4.3	2.7	7.0	6.7	26.8	50.7	80.1	60.6	29.5	3181	25208						
50000		54355	45075	8.4	71.0	83	4.2	2.6	6.8	6.5	27.2	51.5	79.8	60.6	29.7	3158	26650						
56000		57575	46306	7.8	71.6	84	4.2	2.6	6.8	6.7	27.4	51.9	80.2	61.6	28.1	3172	24664						
14000	Dekalb DKC42-72	19507	18939	5.2	68.8	70	3.5	3.3	6.8	6.8	26.3	51.2	78.8	58.6	30.5	3104	16299						
20000	Dekalb DKC42-72	22538	22538	7.1	67.6	79	3.9	3.2	7.1	6.5	25.1	48.6	79.8	58.5	34.0	3183	22663						
26000	Dekalb DKC42-72	32386	29734	8.0	66.6	76	3.8	2.6	6.4	6.3	25.5	48.8	79.7	58.5	33.4	3179	25495						
32000	Dekalb DKC42-72	37310	35037	7.5	68.2	79	3.9	2.7	6.6	6.1	25.8	49.0	79.5	58.1	33.3	3163	23636						
38000	Dekalb DKC42-72	43181	40530	7.9	69.4	79	3.9	2.9	6.8	6.3	27.5	51.3	77.9	56.9	31.0	3059	24098						
44000	Dekalb DKC42-72	49052	43371	8.1	68.8	83	4.1	2.5	6.6	6.1	25.7	48.2	78.6	55.6	34.8	3123	25290						
50000	Dekalb DKC42-72	57575	53219	8.9	67.8	80	4.0	2.4	6.4	6.0	25.6	48.5	79.1	57.1	34.8	3151	28025						
56000	Dekalb DKC42-72	58901	51325	8.2	68.2	80	4.0	2.5	6.5	6.2	25.5	48.2	79.2	56.8	34.1	3153	25922						
14000	Mycogen F2F488	13257	11363	4.5	70.4	86	4.3	3.0	7.3	7.3	25.2	50.2	83.7	67.6	26.1	3373	15288						
20000	Mycogen F2F488	24810	23485	6.8	69.3	83	4.1	3.0	7.1	6.8	25.4	49.5	82.3	64.1	30.2	3307	22397						
26000	Mycogen F2F488	26894	25378	6.8	73.0	88	4.4	3.2	7.6	6.8	27.6	52.7	81.9	65.7	25.8	3257	22306						
32000	Mycogen F2F488	33901	28977	6.5	73.6	86	4.3	2.8	7.1	7.2	28.3	54.3	81.0	65.1	24.1	3195	20760						
38000	Mycogen F2F488	41477	30113	6.6	73.6	84	4.2	3.0	7.2	7.5	27.8	53.5	81.1	64.6	24.8	3202	21055						
44000	Mycogen F2F488	47348	33143	7.8	73.8	90	4.5	2.8	7.3	7.2	27.8	53.3	81.7	65.6	24.3	3238	25127						
50000	Mycogen F2F488	51136	36931	8.0	74.1	86	4.3	2.9	7.2	7.1	28.7	54.5	80.5	64.2	24.6	3165	25276						
56000	Mycogen F2F488	56249	41287	7.3	75.0	88	4.4	2.8	7.2	7.2	29.3	55.7	81.2	66.3	22.1	3191	23406						
Mean		38470	32836	7.2	70.5	82	4.1	2.8	7.0	6.7	26.7	51.1	80.4	61.5	29.2	3190	22940						
Probability(%)																							
Plant Density (D)		0.0	0.0	0.0	0.4	33.2	33.2	12.7	92.8	7.0	8.7	33.7	34.8	35.3	16.7	32.6	0.0						
Hybrid (H)		0.0	0.0	0.1	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0						
D x H		12.7	3.8	94.1	1.2	58.3	58.3	41.9	60.5	6.2	8.7	5.0	43.9	50.5	10.0	28.9	91.2						
LSD (0.10)																							
Plant Density (D)		2641	3929	0.7	1.4	NS	NS	NS	NS	0	1.4	NS	NS	NS	NS	NS	2481						
Hybrid (H)		1321	1965	0.4	0.7	3	0.1	0.2	0.2	0.1	0.7	1.1	0.7	1	1.3	44	1241						
D x H		NS	5557	NS	2	NS	NS	NS	NS	0.4	2	3	NS	NS	NS	NS	NS						