

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Experiment: 02PD **Trial ID** 1548 **Year:** 2000
Personnel: J.G. Lauer, P. J. Flannery, K. D. Kohn, M. Kral
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: 427 **Previous Crop:** Soybean **Soil Type:** Plano
Soil Test: **Date:** 6 /1 /00 **pH** 6.3 **OM (%)** 3.6 **P (ppm)** 50 **K (ppm)** 132

Plot Management

Tillage Operations: Fall Chisel Plow Soil Finisher 1 Cultivation 6/19/00
Analysis: **Rate lbs/A:** **Date:**
Fertilizer: **Preplant :** 46-0-0 325 N/A
Starter : 6-24-24 150 4 /25/00
Post plant : N/A N/A N/A
Manure: N/A None
Herbicide: Harness @ 1.5 pt/A **Insecticide:** None
Hornet @ 2.4 oz/A **Hybrid:** See Factors
Banvel @ 2.0 oz/A
Irrigation: none
Planting Date: 4/25/00 **Planting Depth:** 1.5" **Row Width:** 30"
Target Plant Density: See Factors **Planting Method:** Kinze Plot Planter
Harvest Date: S:9/19/00 **Harvest Method:** New Holland Plot Chopper
G:10/13/00 Kincaid Plot Combine
Notes:

Experimental Design

Design: RCB **Replications:** 3
Plot Size Seeded: 23.2' x 10' **Experiment Size:** 0.5 A
Harvest Plot Size: S: 2.5' x 22', **Harvest Plant Density:** N/A plants per acre
G: 5' x 22'

Factors/Treatments:

Plant Density: (plants/A)

15000, 25000, Mycogen TMF 106
35000, 45000, Pioneer 35R57
and 55000 Pioneer 3751

Results: Tables E-7.

**Table E-7. Plant Density and Hybrid Influence on Corn Grain and Silage Performance.
Arlington, WI - 2000.**

Target Density	Hybrid	Grain						Silk Date	Plants emerged	Seeds planted	Plant height
		Yield	Moisture	Test Wt	Lodged	Harvest					
						plants/A	ears/A				
bu/A	%	lbs/bu	%	plants/A	ears/A	day of year	plants/A	seeds/A	inches		
	Mycogen TMF106	139	28.9	50	33	28538	29806	211	37429	48312	114
	Pioneer 35R57	182	25.3	54	35	30690	31878	208	45368	48312	109
	Pioneer 3751	184	21.8	56	48	31469	32393	206	43223	48312	100
15000		151	25.6	53	9	15356	18612	207	20581	23760	106
25000		181	24.6	54	20	23144	24860	207	30844	35640	106
35000		172	24.8	53	41	31152	31284	209	40447	47520	109
45000		179	25.5	53	57	35992	36168	209	51216	59400	108
55000		160	26.1	52	71	47372	47619	208	66946	75240	108
15000	Mycogen TMF106	134	29.0	50	8	14520	18216	210	18084	23760	119
15000	Pioneer 35R57	163	27.0	54	7	14652	18744	206	22605	23760	104
15000	Pioneer 3751	155	20.8	56	13	16896	18876	205	21054	23760	95
25000	Mycogen TMF106	144	28.3	51	20	20856	22176	209	27357	35640	107
25000	Pioneer 35R57	205	24.6	55	15	24156	25344	207	33297	35640	110
25000	Pioneer 3751	192	20.9	56	25	24420	27060	205	31878	35640	100
35000	Mycogen TMF106	133	29.2	49	51	29172	29436	212	34353	47520	117
35000	Pioneer 35R57	193	24.6	54	33	32340	32472	208	44682	47520	111
35000	Pioneer 3751	191	20.6	57	40	31944	31944	207	42306	47520	100
45000	Mycogen TMF106	145	29.1	49	36	35508	35904	213	44979	59400	111
45000	Pioneer 35R57	191	24.9	54	65	38412	38544	209	55341	59400	110
45000	Pioneer 3751	202	22.6	55	70	34056	34056	207	53328	59400	104
55000	Mycogen TMF106	138	28.7	49	51	42636	43296	211	62370	75240	115
55000	Pioneer 35R57	160	25.4	53	70	50490	50490	208	70917	75240	109
55000	Pioneer 3751	182	24.2	54	90	50028	50028	206	67551	75240	101
	Mean	169	25.3	53	39	30222	31347	208	42007	48312	108
Probability(%)											
Plant Density (D)		5.9	45.6	18.1	0.0	0.0	0.0	12.9	0.0	-	73.8
Hybrid (H)		0.0	0.0	0.0	3.6	7.4	10.8	0.0	0.0	-	0.0
D x H		12.1	7.0	1.2	6.7	68.0	74.1	97.3	0.2	-	44.4
LSD (0.10)											
Plant Density (D)		17	NS	NS	7	3535	3539	NS	932	-	NS
Hybrid (H)		9	0.8	1	9	2885	NS	1	708	-	4
D x H		NS	1.8	1	19	NS	NS	NS	1582	-	NS
CV(%)											
		8	5	1	36	15	15	1	3	-	7

continued

Table E-7. Plant Density and Hybrid Influence on Corn Grain and Silage Performance.

(continued) **Arlington, WI - 2000.**

Target Density	Hybrid	Whole Plant												
		Dry Matter		Kernel	Harvest		Crude	In Vitro			Cell Wall		Milk per	
		yield	Moisture	milk	plants	ears	protien	ADF	NDF	Digest	Digest	Starch	Ton	Acre
		tons/A	%	%	plants/A	ears/A	%	%	%	%	%	%	lbs/T	lbs/A
	Mycogen TMF106	9.0	61.2	42	29146	30994	7.3	25.8	52.0	71.3	44.8	24.9	2669	24135
	Pioneer 35R57	9.3	61.2	42	34742	34214	6.6	24.5	49.3	73.0	45.2	30.2	2790	25921
	Pioneer 3751	9.1	56.3	34	31258	33211	6.6	22.6	46.8	74.4	45.4	34.1	2793	25469
15000		7.0	62.2	37	15136	19360	7.5	23.4	48.8	73.5	45.6	28.7	2831	20035
25000		9.4	60.6	41	25256	27456	6.7	23.9	49.3	73.3	45.9	29.3	2815	26510
35000		9.4	58.5	39	29832	27632	6.6	22.6	46.5	74.2	44.6	33.0	2808	26478
45000		9.9	57.7	43	42856	43296	6.6	24.2	49.2	73.1	45.3	30.9	2736	27239
55000		9.8	59.1	37	45496	46288	6.8	27.2	53.1	70.4	44.4	26.6	2566	25156
15000	Mycogen TMF106	6.3	64.7	40	12408	19008	8.4	24.9	51.7	71.8	45.4	23.8	2697	17826
15000	Pioneer 35R57	7.5	63.4	50	15048	19536	6.9	23.9	49.2	73.6	46.4	28.4	2903	21662
15000	Pioneer 3751	6.9	59.3	20	17952	19536	7.1	21.4	45.4	75.0	44.9	34.0	2893	19882
25000	Mycogen TMF106	7.8	62.8	50	23760	25344	7.2	25.8	52.2	71.4	45.3	23.6	2719	21301
25000	Pioneer 35R57	9.6	61.4	38	27192	28776	6.7	23.0	47.6	74.1	45.4	31.6	2882	27668
25000	Pioneer 3751	10.7	57.4	35	24816	28248	6.4	23.0	48.1	74.6	47.1	32.8	2843	30562
35000	Mycogen TMF106	9.9	60.9	45	29304	29832	7.1	23.9	48.6	72.7	43.7	28.7	2755	27120
35000	Pioneer 35R57	9.1	59.6	32	33000	22968	6.2	23.9	48.3	73.4	44.9	32.0	2784	25300
35000	Pioneer 3751	9.4	55.0	40	27192	30096	6.5	20.1	42.5	76.7	45.1	38.4	2884	27015
45000	Mycogen TMF106	9.6	61.6	40	36960	36960	6.8	25.8	51.5	71.6	44.9	26.0	2703	25896
45000	Pioneer 35R57	11.4	55.1	50	50160	50424	6.7	21.5	45.1	75.7	45.9	36.4	2858	32637
45000	Pioneer 3751	8.8	56.5	40	41448	42504	6.4	25.4	50.9	72.0	45.0	30.1	2647	23185
55000	Mycogen TMF106	10.7	57.4	37	43296	43824	6.9	28.5	55.8	69.2	44.8	22.2	2473	26426
55000	Pioneer 35R57	8.8	66.6	42	48312	49368	6.7	30.3	56.4	68.1	43.5	22.4	2523	22340
55000	Pioneer 3751	9.9	53.3	33	44880	45672	6.7	23.0	47.2	74.0	44.8	35.3	2701	26700
	Mean	9.1	59.6	39	31715	32806	6.8	24.3	49.4	72.9	45.1	29.7	2751	25199
Probability(%)														
Plant Density (D)		0.5	3.5	87.2	0.0	0.0	0.2	0.3	0.9	0.6	16.2	3.3	0.2	3.4
Hybrid (H)		63.9	0.2	11.7	0.5	1.0	0.0	0.1	0.0	0.0	56.7	0.0	0.5	24.8
D x H		5.7	8.1	31.0	28.4	13.3	17.5	1.2	0.7	0.9	64.4	3.6	12.1	3.5
LSD (0.10)														
Plant Density (D)		1.0	2.0	NS	4007	4344	0.3	1.3	2.2	1.2	NS	2.7	77.6	3287
Hybrid (H)		NS	2.4	NS	2627	2742	0.3	1.2	1.6	1.0	NS	3.3	64.9	NS
D x H		1.8	5.3	NS	NS	NS	NS	2.8	3.6	2.3	NS	5.3	NS	5226
CV(%)		14	6	32	13	13	6	8	5	2	4	13	4	15