

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Experiment: 02 Plant Density **Trial ID:** 2237 **Year:** 2001
Personnel: J.G. Lauer, P. J. Flannery and K. D. Kohn
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS408 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 11/1 /01 **pH** 6.7 **OM (%)** 2.9 **P (ppm)** 88 **K (ppm)** 185

Plot Management

Tillage Operations: Fall Chisel Plow Spring Soil Finisher Cultivated on 6/17/01

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:			
Preplant :	46-0-0	325	4 /23/01
Starter :	6-24-24	150	5 /9 /01
Post plant :	N/A	N/A	N/A
Manure:	N/A	None	

Herbicide: Harness 1.5 pt/A
Permit 0.66 oz/A **Insecticide:** None
Hybrid: See Factors

Irrigation: none

Planting Date: 5/9/01 **Planting Depth:** 1.5" **Row Width:** 30"
Target Plant Density: See Factors **Planting Method:** Kinze Plot Planter
Harvest Date: S:9/25/01 **Harvest Method:** S: NH707 Plot Chopper
G:10/25/01 G: Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3
Plot Size Seeded: 25' x 20' **Experiment Size:** 0.5 A
Harvest Plot Size: S: 2.5' x 22',
G: 5' x 22' **Harvest Plant Density:** N/A plants per acre

Factors/Treatments:

<u>Plant Density: (plants/A)</u> 15000, 25000, 35000, 45000, 55000 and 65000	<u>Hybrids:</u> NK Brand 48V8 Pioneer 35R57 Pioneer 3751
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Results: Table C-24.

Table C-24 Plant Density and Hybrid Influence on Corn Grain and Silage Performance.

Arlington, WI - 2001.

Target Density	Hybrid	Grain						Harvest		Plants emerged	Seeds planted	Flag Leaf height
		Yield bu/A	Moisture %	Test Wt lbs/bu	Lodged %	Grower Return \$/A	plants/A	ears/A				
									plants/A			
	NK 48V8	150	26.4	50	20	297	38764	39248	51172	55440	112	
	Pioneer 3751	193	19.2	53	17	402	38016	38720	51546	55440	89	
	Pioneer 37R71	192	19.9	52	9	397	38632	38984	50600	55440	95	
15000		151	22.1	51	5	308	15312	18392	22385	23760	101	
25000		191	21.9	52	11	391	25520	25520	33132	35640	99	
35000		202	21.7	52	17	414	34408	34408	44396	47520	100	
45000		191	21.9	52	19	392	41624	41624	55088	59400	99	
55000		175	21.9	52	20	359	52184	52184	69333	75240	97	
65000		160	21.7	52	19	328	61776	61776	82302	91080	96	
15000	NK 48V8	159	26.4	50	7	314	15312	18216	22605	23760	125	
15000	Pioneer 3751	149	19.4	52	0	310	15048	19272	22374	23760	86	
15000	Pioneer 37R71	146	20.4	52	7	301	15576	17688	22176	23760	92	
25000	NK 48V8	178	26.5	50	25	352	25608	25608	32538	35640	113	
25000	Pioneer 3751	195	19.2	54	7	406	25344	25344	33528	35640	90	
25000	Pioneer 37R71	201	20.0	52	0	416	25608	25608	33330	35640	94	
35000	NK 48V8	168	26.0	50	23	334	34056	34056	44517	47520	111	
35000	Pioneer 3751	208	19.3	54	19	434	34320	34320	44649	47520	91	
35000	Pioneer 37R71	229	19.8	52	8	476	34848	34848	44022	47520	97	
45000	NK 48V8	135	26.6	50	21	267	43296	43296	54681	59400	111	
45000	Pioneer 3751	216	19.0	54	26	451	39072	39072	56067	59400	91	
45000	Pioneer 37R71	221	20.1	52	11	459	42504	42504	54516	59400	96	
55000	NK 48V8	134	26.9	50	18	263	51216	51216	71247	75240	111	
55000	Pioneer 3751	197	19.0	53	25	412	52272	52272	69531	75240	86	
55000	Pioneer 37R71	193	19.7	52	17	402	53064	53064	67221	75240	95	
65000	NK 48V8	127	26.2	50	25	251	63096	63096	81444	91080	104	
65000	Pioneer 3751	192	19.2	53	24	401	62040	62040	83127	91080	87	
65000	Pioneer 37R71	160	19.6	52	8	332	60192	60192	82335	91080	97	
Mean		178	21.9	52	15	365	38471	38984	51106	55440	99	
Probability(%)												
Plant Density (D)		0.0	94.5	31.7	0.2	0.0	0.0	0.0	0.0	-	26.6	
Hybrid (H)		0.0	0.0	0.0	1.5	0.0	60.4	82.0	7.1	-	0.0	
D x H		0.0	77.8	20.6	46.4	0.0	63.6	62.2	8.0	-	0.2	
LSD (0.10)												
Plant Density (D)		5	NS	NS	5	11	1481	1745	1070	-	NS	
Hybrid (H)		6	0.4	0	6	13	NS	NS	669	-	2	
D x H		15	NS	NS	NS	32	NS	NS	1639	-	6	
CV(%)												
		6	3	1	73	6	6	6	2	-	4	

continued

Table C-24. Plant Density and Hybrid Influence on Corn Grain and Silage Performance.

(continued) **Arlington, WI - 2001.**

Target Density	Hybrid	Whole Plant												
		Dry Matter yield	Moisture	Kernel milk	Harvest		Crude protien	ADF		NDF	<i>In Vitro</i> Digest	Cell Wall Digest	Starch	Milk per
		tons/A	%	%	plants/A	ears/A	%	%	%	%	%	%	lbs/T	lbs/A
	NK 48V8	8.5	61.8	32	38764	40040	7.1	24.6	48.2	72.3	42.4	29.2	2624	22342
	Pioneer 3751	8.4	55.5	12	39116	41140	7.2	20.2	41.8	76.3	43.3	38.7	2861	24050
	Pioneer 37R71	9.2	56.5	15	39468	39600	7.2	19.7	40.4	76.6	42.0	36.6	2880	26582
15000		7.8	60.4	34	16192	22440	7.4	20.8	42.8	75.9	43.7	32.8	2871	22375
25000		8.6	58.2	17	24728	25696	7.1	20.8	42.3	76.1	43.5	35.9	2862	24579
35000		9.4	57.9	21	34320	34672	7.0	20.8	42.6	75.7	42.9	36.9	2825	26468
45000		9.1	55.2	10	45056	45056	7.1	21.9	43.4	74.1	40.3	36.9	2690	24609
55000		8.7	57.7	19	52360	51568	7.3	21.7	43.7	74.8	42.3	34.1	2764	24109
65000		8.7	58.3	16	62040	62128	7.3	22.9	45.9	73.8	42.9	32.5	2717	23808
15000	NK 48V8	8.8	61.9	43	16632	22704	7.2	21.9	44.3	74.9	43.3	31.6	2803	24647
15000	Pioneer 3751	7.4	60.0	35	15312	24816	7.3	21.9	44.7	75.0	44.2	32.8	2816	20672
15000	Pioneer 37R71	7.3	59.3	23	16632	19800	7.8	18.5	39.4	77.8	43.7	34.0	2994	21805
25000	NK 48V8	8.9	60.9	33	25080	25872	6.8	23.2	45.7	73.8	42.8	33.1	2716	24055
25000	Pioneer 3751	8.5	55.2	7	25344	27192	7.5	18.3	38.9	78.0	43.5	40.8	2967	25359
25000	Pioneer 37R71	8.4	58.5	12	23760	24024	7.0	20.8	42.3	76.4	44.1	33.8	2904	24323
35000	NK 48V8	9.2	61.3	38	34584	35376	6.5	25.5	50.3	71.3	42.8	30.1	2563	23585
35000	Pioneer 3751	8.8	54.7	12	34320	34584	7.1	19.2	40.3	77.5	44.1	40.9	2936	25923
35000	Pioneer 37R71	10.1	57.6	12	34056	34056	7.2	17.8	37.2	78.3	41.6	39.6	2975	29897
45000	NK 48V8	8.5	60.3	15	45936	45936	7.2	25.2	48.4	71.2	40.2	30.0	2527	21513
45000	Pioneer 3751	8.5	54.9	5	44616	44616	7.4	21.7	43.2	74.4	40.6	38.2	2701	22935
45000	Pioneer 37R71	10.3	50.5	10	44616	44616	6.7	18.9	38.8	76.8	40.2	42.4	2843	29380
55000	NK 48V8	8.2	61.4	30	49896	49896	7.6	23.4	46.4	73.8	43.6	28.7	2719	22052
55000	Pioneer 3751	8.5	53.6	7	53592	53856	7.3	20.3	41.7	76.1	42.5	39.1	2835	24096
55000	Pioneer 37R71	9.5	58.0	22	53592	50952	6.9	21.5	43.1	74.5	40.9	34.4	2740	26180
65000	NK 48V8	7.5	65.2	33	60456	60456	7.5	28.3	53.8	68.7	41.8	21.8	2416	18200
65000	Pioneer 3751	8.7	54.4	5	61512	61776	7.0	20.1	42.1	76.9	45.1	40.2	2910	25316
65000	Pioneer 37R71	9.9	55.3	10	64152	64152	7.4	20.4	41.7	75.8	41.8	35.5	2824	27908
Mean		8.7	57.9	20	39116	40260	7.2	21.5	43.5	75.1	42.6	34.8	2788	24325
Probability(%)														
Plant Density (D)		28.1	14.2	1.7	0.0	0.0	20.5	26.8	31.0	8.6	1.4	17.5	0.3	36.4
Hybrid (H)		3.5	0.0	0.0	79.0	25.2	57.3	0.0	0.0	0.0	30.2	0.0	0.0	0.1
D x H		11.8	11.2	38.0	79.7	42.0	0.9	15.9	16.4	11.7	88.6	20.1	22.6	5.1
LSD (0.10)														
Plant Density (D)		NS	NS	9	1467	1439	NS	NS	NS	1.4	1.3	NS	90	NS
Hybrid (H)		0.6	1.7	6	NS	NS	NS	1.4	2.2	1.3	NS	2.9	88	1737
D x H		NS	NS	NS	NS	NS	0.5	NS	NS	NS	NS	NS	NS	4254
CV(%)														
Plant Density (D)		11	5	52	8	13	5	12	9	3	6	15	6	12