

FIELD EXPERIMENT HISTORY

Title: Plant Density and Row Spacing Effects on Corn Grain and Silage
Experiment: 06 RS x PD **Trial ID:** 2734 **Year:** 2005
Personnel: J.G. Lauer, P.J. Flannery and K.D. Kohn
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS372 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 10/1 /05 **pH** 6.8 **OM (%)** 2.9 **P (ppm)** 23 **K (ppm)** 128

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Soil Finisher

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer: Preplant :	46-0-0	325	4 /14/05
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Outlook 20.0 oz/A **Insecticide:** None
 Hornet 4.0 oz/A **Hybrid:** NK Brand N50-P5
Irrigation: None

Planting Date: 4/28/05 **Planting Depth:** 1.5" **Row Width:** See Factors
Target Plant Density: See Factors **Planting Method:** Kinze Inter-Row Planter
Harvest Date: S: 9/21/05 **Harvest Method:** S: NH 707
 G: 10/25/05 G: Massey Ferguson 8XP

Experimental Design

Design: See Factors **Replications:** 4
Plot Size Seeded: 10' x 80' **Experiment Size:** 0.65 Acre
Harvest Plot Size: S: 5' x 8.75' **Harvest Plant Density:** See Factors
 G: 5' x 71.25'

Factors/Treatments:

Row Spacing:

15 inch
30 inch

Plant Density: (plants/A)

15000, 25000,
35000 and 45000

Results: Table C-44.

**Table C-44. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality
Arlington, WI - 2005**

Row spacing inches	Grain										
	Density plants/A	Harvest population plants/A	Broken stalks %	Yield bu/A	Moisture %	Test weight lbs/bu	Grower return \$/A	Silk doy	Yield Components @ 0% moisture		
									Ear number ears/A	Kernels number no./ear	100 Kernel wt grams
	15000	17424	0	163	16.9	58	260	200	22527	598	26.2
	25000	28874	0	177	16.7	58	283	201	28874	548	24.1
	35000	38955	1	181	16.5	58	291	202	38955	448	22.3
	45000	46671	9	167	16.6	58	268	202	46671	355	21.6
15 inches		33355	3	163	16.6	58	262	201	34786	458	23.5
30 inches		32608	2	181	16.7	58	290	202	33728	516	23.6
15 inches	15000	17424	0	161	17.0	58	258	200	23149	575	26.4
15 inches	25000	29372	0	166	16.6	58	266	202	29372	502	24.2
15 inches	35000	39080	2	179	16.6	58	286	202	39080	450	21.9
15 inches	45000	47543	11	147	16.4	58	237	201	47543	306	21.4
30 inches	15000	17424	0	164	16.9	58	263	201	21904	620	26.0
30 inches	25000	28376	0	188	16.9	58	300	201	28376	593	23.9
30 inches	35000	38831	1	184	16.4	57	295	202	38831	446	22.7
30 inches	45000	45800	6	187	16.9	58	300	202	45800	403	21.8
Mean		32981	2	172	16.7	58	276	201	34257	487	23.6
Probability(%)											
Row Space (S)		34.7	30.5	0.3	35.0	74.1	0.3	14.0	19.8	0.4	73.0
Plant Density (D)		0.0	0.0	7.5	3.5	76.7	6.4	0.3	0.0	0.0	0.0
S x D		85.6	62.4	6.5	9.2	52.0	7.6	15.0	92.7	18.3	58.7
LSD(0.10)											
Row Space (S)		NS	NS	9	NS	NS	14	NS	NS	30	NS
Plant Density (D)		1891	3	12	0.2	NS	20	1	1935	43	0.9
S x D		NS	NS	18	0.3	NS	28	NS	NS	NS	NS
CV(%)											
		7	150	8	2	1	8	0	7	10	4

continued

Table C-44. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality
 (continued) **Arlington, WI - 2005**

Row spacing inches	Whole Plant												
	Density plants/A	Harvest population plants/A	Yield tons/A	Moisture %	Kernel milk %	Crude protein %	ADF %	NDF %	In Vitro Digest %	NDFD %	Starch %	Milk per	
												Ton lbs/T	Acre lbs/A
	15000	17125	8.1	40.7	6	7.4	16.5	38.8	83.4	57.2	40.6	3362	27378
	25000	27250	8.0	38.9	6	6.9	17.2	39.2	82.4	55.1	41.7	3270	26357
	35000	38125	8.4	41.0	13	6.6	18.5	40.3	81.6	54.4	40.6	3230	27124
	45000	41750	8.2	37.8	6	6.7	17.4	38.8	82.2	54.0	42.7	3240	26660
15 inches		30125	8.2	39.6	9	6.9	18.0	40.5	82.0	55.7	40.1	3268	26829
30 inches		32000	8.2	39.6	7	6.9	16.7	38.1	82.8	54.6	42.8	3283	26931
15 inches	15000	15750	8.2	40.8	5	7.4	16.0	38.3	83.6	57.3	41.1	3378	27818
15 inches	25000	26250	7.7	39.6	6	7.1	18.3	40.9	81.7	55.3	39.8	3237	24945
15 inches	35000	36250	8.5	41.1	18	6.6	19.5	42.2	81.0	55.1	38.6	3226	27486
15 inches	45000	42250	8.4	36.9	6	6.5	18.3	40.7	81.8	55.1	40.7	3232	27065
30 inches	15000	18500	8.0	40.6	6	7.4	17.0	39.4	83.1	57.1	40.1	3347	26937
30 inches	25000	28250	8.4	38.2	6	6.8	16.0	37.5	83.1	54.8	43.7	3304	27770
30 inches	35000	40000	8.3	40.9	9	6.5	17.4	38.5	82.1	53.6	42.6	3233	26762
30 inches	45000	41250	8.1	38.6	5	7.0	16.5	36.9	82.7	53.0	44.7	3248	26254
Mean		31063	8.2	39.6	8	6.9	17.4	39.3	82.4	55.2	41.4	3276	26880
Probability(%)													
Row Space (S)		3.4	96.9	97.1	44.6	92.8	2.5	0.7	12.2	14.1	0.3	60.8	90.6
Plant Density (D)		0.0	65.6	15.7	20.1	0.1	10.7	51.6	7.0	1.4	21.7	1.5	83.4
S x D		23.7	27.9	80.7	60.1	14.7	14.2	12.9	45.9	72.3	10.3	69.1	35.9
LSD(0.10)													
Row Space (S)		1425	NS	NS	NS	NS	0.9	1.4	NS	NS	1.4	NS	NS
Plant Density (D)		2015	NS	NS	NS	0.3	NS	NS	1.1	1.6	NS	70	NS
S x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CV(%)													
		8	7	8	104	5	9	6	2	3	6	2	9

FIELD EXPERIMENT HISTORY

Title: Twin Row Corn Strip Trial
Experiment: 06 RS x PD **Trial ID:** 05C53 **Year:** 2005
Personnel: M.G. Bertram
Location: Marshfield, WI **County:** Wood
Supported by: Marshfield Ag. Research Station

Site Information

Field: W5 **Soil Type:** Withee silt loam
Soil Test : **Date:** 10/13/04 **pH** 6.8 **SOM (%)** 3.4 **P (ppm)** 64 **K (ppm)** 125

Plot Management

Tillage Operations: Chisel Plow Field Cultivator

Fertilizer:	<u>Analysis</u>	<u>Rate</u>	<u>Date</u>
Preplant	46-0-0	200	5/3/2005
Starter	9-11-31	200	5/3/2005
Post plant	none	N/A	N/A
Manure	none	N/A	N/A

Herbicide: Lumax 2.25 qt/A **Insecticide:** None

Irrigation: None **Hybrid:** Pioneer 38K06
Planting Date: 5/3/2005 **Planting Depth:** 1.5" **Row Width:** Varies
Target Plant Density: Varies plants per acre **Planting Method:** John Deere 1750 planter
Harvest Date: 10/31/2005 **Harvest Method:** John Deere combine
Notes:

Experimental Design

Design: RCB **Replications:** 3
Plot Size Seeded: 537' x 15' **Experiment Size:** 3.33 A
Harvest Plot size: 537' x 15'

Factors/Treatments:

<u>Row Spacing</u>	<u>Target Population</u>
Single 30"	30,000
Twin 6" on 30" centers	45,000
	60,000

Results: Table C-45.

**Table C-45. Twin Row Corn Strip Trial
Marshfield, WI**

Row Spacing	Target population K ppa	Grain population ppa	Broken Stalks %	Test Weight lb/bu	Grain Moisture %	Grain Yield bu/A
Single		43560	3	56	19.1	156
Twin		43676	3	56	19.2	158
	30	30028	3	56	19.3	150
	45	43153	2	56	19.3	163
	60	57674	3	57	18.9	159
Single	30	29272	3	56	19.2	148
Single	45	42979	3	57	19.2	163
Single	60	58429	2	57	18.8	158
Twin	30	30783	2	56	19.3	151
Twin	45	43327	1	56	19.4	164
Twin	60	56918	5	57	18.9	160
Mean		43618	3	56	19.1	157
Probability (%)						
Row Spacing (S)		>50	>50	22.5	36.8	>50
Population (P)		<0.1	>50	30.1	4.6	<0.1
S x P		20	10.9	22.6	>50	>50
LSD 10%						
Row Spacing (S)		NS	NS	NS	NS	NS
Population (P)		1428	NS	NS	0.3	3
S x P		NS	4	NS	NS	NS
C.V. (%)						
		3	61	47	1	2