

## FIELD EXPERIMENT HISTORY

**Title:** Plant Density and Row Spacing Effects on Corn Grain and Silage  
**Experiment:** 06RSxPD **Trial ID** 1416 **Year:** 1999  
**Personnel:** J. G. Lauer, K.D. Kohn, P.J. Flannery  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** Hatch

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### Site Information

**Field:** 358 **Previous Crop:** Soybean **Soil Type:** Plano  
**Soil Test:** **Date:** N/A **pH** 6.8 **OM (%)** 3.1 **P (ppm)** 45 **K (ppm)** 240

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### Plot Management

**Tillage Operations:** Fall Chisel Plow Soil Finisher

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>			
Preplant :	46-0-0	325	4 /23/99
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:		None	

**Herbicide:** Frontier @ 1.5 pt/A **Insecticide:** none  
Bladex @ 2.2 lb/A **Hybrid:** Pioneer 3751

**Irrigation:** none

**Planting Date:** 5/10/99 **Planting Depth:** 1.5" **Row Width:** See Factor  
**Target Plant Density:** See Factors **Planting Method:** Kinze inter-row planter  
**Harvest Date:** S: 9/17; G:10/18 **Harvest Method:** New Holland Plot Chopper  
Kincaid Plot Combine

### Notes

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### Experimental Design

**Design:** RCB **Replications:** 4  
**Plot Size Seeded:** 20' x 75' **Experiment Size:** 0.56 A  
**Harvest Plot Size:** 75' x 5' **Harvest Plant Density:**

### Factors/Treatments:

#### Row Spacing

15 inch  
30 inch

#### Plant Density

25000, 30000, 35000  
& 40000 plants/A

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**Results:** Table E-47.

**Table E-47. Plant Density and Row Spacing Effects on Corn Grain And Silage Yield and Quality  
Arlington, WI - 1999**

Row spacing inches	Density plants/A	Grain					Whole Plant										
		Harvest pop	Broken stalks	Yield	Moist	Test weight	Harvest pop	Yield	Moist	Kernel milk	Crude protien	ADF	NDF	<i>In Vitro</i> Digest	Cell Wall Digest	Milk per	
		plants/A	%	bu/A	%	lbs/bu	plants/A	tons/A	%	%	%	%	%	%	%	Ton	Acre
	25000	22000	1.3	176	17.2	57.8	22875	7.8	54.9	28.1	6.7	19.6	41.8	78.2	47.9	2212	17342
	30000	30375	1.4	188	16.8	58.6	30500	7.8	55.4	24.4	6.4	21.8	45.5	76.4	48.1	1947	15206
	35000	32875	1.5	192	16.8	58.4	31625	8.4	51.4	21.9	6.4	19.7	42.0	78.2	48.1	2203	18543
	40000	38375	2.4	195	16.8	58.6	38000	8.1	53.4	19.4	6.0	22.7	46.6	75.4	47.1	1841	14903
15		28500	1.8	182	17.0	58.3	27813	8.0	54.8	24.7	6.5	20.4	43.2	77.5	47.9	2106	16889
30		33313	1.6	194	16.8	58.4	33688	8.0	52.8	22.2	6.3	21.5	44.7	76.6	47.7	1996	16108
15	25000	18750	1.5	168	17.3	57.8	20500	6.9	57.4	26.3	6.7	20.5	43.0	77.3	47.2	2105	14688
15	30000	30750	1.7	177	16.9	58.5	28250	7.9	55.6	23.8	6.6	21.2	44.5	77.0	48.2	2021	15941
15	35000	28750	1.0	190	16.9	58.4	27250	8.8	52.2	25.0	6.7	18.2	40.2	79.8	49.7	2372	20866
15	40000	35750	2.5	195	16.9	58.5	35250	8.4	54.0	23.8	6.0	21.8	45.3	75.9	46.7	1926	16060
30	25000	25250	1.0	186	17.1	57.7	25250	8.6	52.3	30.0	6.7	18.7	40.6	79.2	48.7	2319	19996
30	30000	30000	1.0	198	16.7	58.8	32750	7.6	55.3	25.0	6.3	22.5	46.4	75.8	47.9	1873	14470
30	35000	37000	2.0	195	16.6	58.5	36000	8.0	50.7	18.8	6.1	21.1	43.8	76.6	46.5	2034	16219
30	40000	41000	2.0	195	16.7	58.6	40750	7.8	52.9	15.0	6.0	23.7	47.9	74.9	47.6	1756	13745
Mean		30906	1.7	188	16.9	58.4	30750	8.0	53.8	23.4	6.4	21.0	44.0	77.0	47.8	2051	16498
<b>Probability(%)</b>																	
	Plant Density (D)	0.0	57.0	7.3	46.4	8.1	0.0	13.4	10.3	25.1	1.6	0.8	0.6	0.8	59.3	0.5	1.6
	Row Space (S)	0.1	93.2	3.2	4.4	47.7	0.0	94.7	10.2	42.6	11.4	13.4	17.8	18.8	64.0	17.4	36.1
	D x S	11.6	54.8	20.2	96.1	98.3	68.8	0.1	51.0	44.1	49.4	12.5	20.3	6.3	4.0	11.9	0.3
<b>LSD(0.10)</b>																	
	Plant Density (D)	3190	NS	9	NS	0.5	3386	NS	NS	NS	0.3	1.7	2.5	1.5	NS	191	2035
	Row Space (S)	2256	NS	6	0.3	NS	2395	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	D x S	NS	NS	NS	NS	NS	NS	0.7	NS	NS	NS	NS	NS	2.1	1.9	NS	3879
<b>CV(%)</b>																	
		12	56	6	2	1	13	7	3	9	6	9	7	2	3	11	14

## FIELD EXPERIMENT HISTORY

**Title:** Plant Density and Row Spacing Effects on Corn Grain and Silage  
**Experiment:** 06RSxPD **Trial ID** 1418 **Year:** 1999  
**Personnel:** J.G. Lauer, K.D. Kohn, P.J. Flannery  
**Location:** Fond du Lac, WI **County:** Fond du Lac  
**Supported By:** Hatch

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### Site Information

**Field:** **Previous Crop:** Soybeans **Soil Type:** Virgil  
**Soil Test:** **Date:** N/A **pH** 6.5 **OM (%)** 3.2 **P (ppm)** 33 **K (ppm)** 100

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### Plot Management

**Tillage Operations:** Fall Chisel Plow Field Cultivator

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>			
Preplant :	82-0-0	220	N/A
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:		None	

**Herbicide:** Accent Gold 2.9 oz/A **Insecticide:** None  
**Irrigation:** none **Hybrid:** Pioneer 3751

**Planting Date:** 5/4/99 **Planting Depth:** 1.5" **Row Width:** See Factor  
**Target Plant Density:** See Factors **Planting Method:** Kinze inter-row planter  
**Harvest Date:** S: 9/14/99; G:10/15 **Harvest Method:** New Holland Plot Chopper  
Kincaid Plot Combine

### Notes

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### Experimental Design

**Design:** RCB **Replications:** 4  
**Plot Size Seeded:** 20' x 100' **Experiment Size:** 1.1 A  
**Harvest Plot Size:** 100' x 5' **Harvest Plant Density:**

### Factors/Treatments:

#### Row Spacing

15 inch  
30 inch

#### Plant Density

25000, 30000, 35000  
& 40000 plants/A

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**Results:** Table E-48.

**Table E-48. Plant Density and Row Spacing Effects on Corn Grain And Silage Yield and Quality  
Fond du Lac, WI - 1999**

Row spacing inches	Grain						Whole Plant										
	Density	Harvest pop	Broken stalks	Yield	Moist	Test weight	Harvest pop	Yield	Moist	Kernel milk	Crude protien	ADF	NDF	<i>In Vitro</i> Digest	Cell Wall Digest	Milk per	
	plants/A	plants/A	%	bu/A	%	lbs/bu	plants/A	tons/A	%	%	%	%	%	%	%	Ton	Acre
	25000	24500	1.7	189	22.5	53.8	24875	8.6	62.5	59.4	6.6	22.9	46.2	77.4	51.1	1974	17049
	30000	28875	3.0	197	22.2	53.8	27625	8.9	61.6	60.6	6.3	21.4	44.1	78.4	51.0	2125	19004
	35000	33000	3.0	209	22.5	54.7	31625	9.1	61.9	58.1	6.3	23.6	47.4	75.9	49.3	1836	16759
	40000	39500	1.5	216	21.9	55.2	35375	9.2	60.7	56	6.2	22.9	46.2	76.4	49.0	1919	17716
15		30063	1.7	202	22.4	54.2	29625	9.0	61.9	58.8	6.4	22.5	45.7	77.3	50.3	1985	17831
30		32875	2.7	203	22.2	54.5	30125	8.9	61.4	58.1	6.3	23.0	46.2	76.8	49.9	1942	17432
15	25000	24000	2.0	185	22.8	53.5	24000	8.7	62.6	60	6.5	22.8	46.4	77.9	52.3	1994	17290
15	30000	27750	3.0	196	22.0	53.7	26250	8.6	63.4	62.5	6.5	22.1	44.9	77.6	50.1	2042	17624
15	35000	31000	1.0	209	22.5	54.7	33250	9.5	60.5	55.0	6.4	22.0	45.4	77.2	49.8	1997	18956
15	40000	37500	1.0	218	22.2	55.0	35000	9.1	61.2	57.5	6.3	22.9	46.3	76.3	48.9	1908	17456
30	25000	25000	1.0	193	22.2	54.1	25750	8.6	62.4	58.8	6.8	23.0	46.0	76.9	49.9	1955	16807
30	30000	30000	3.0	198	22.3	53.8	29000	9.2	59.8	58.8	6.1	20.8	43.2	79.2	52.0	2208	20384
30	35000	35000	4.0	208	22.6	54.7	30000	8.6	63.2	61.3	6.3	25.1	49.4	74.6	48.8	1674	14562
30	40000	41500	2.0	213	21.7	55.4	35750	9.3	60.2	53.8	6.1	23.0	46.1	76.6	49.2	1931	17976
Mean		31469	2.2	202	22.3	54.4	29875	8.9	61.7	58.4	6.4	22.7	46.0	77.0	50.1	1964	17632
<b>Probability(%)</b>																	
Plant Density (D)		0.0	23.0	0.0	60.1	0.0	0.0	41.6	63.5	37.2	27.7	31.4	23.8	15.0	9.8	19.0	54.5
Row Space (S)		2.2	31.0	73.8	61.3	14.9	67.8	87.1	63.1	76.2	44.2	53.0	70.8	59.3	64.4	64.5	73.6
D x S		74.6	41.3	46.6	75.1	65.4	32.6	24.4	17.5	28.5	34.3	28.8	34.3	29.6	21.9	32.2	21.1
<b>LSD(0.10)</b>																	
Plant Density (D)		2773	NS	6	NS	0.5	2894	NS	NS	NS	NS	NS	NS	NS	1.8	NS	NS
Row Space(S)		1961	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
D x S		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>CV(%)</b>																	
		10	46	7	5	1	11	8	4	10	6	10	7	3	4	13	19

## FIELD EXPERIMENT HISTORY

**Title:** Plant Density and Row Spacing Effects on Corn Grain and Silage  
**Experiment:** 06RSxPD **Trial ID** 1415 **Year:** 1999  
**Personnel:** J. G. Lauer, K.D. Kohn, P.J. Flannery  
**Location:** Janesville, WI **County:** Rock  
**Supported By:** Hatch

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### Site Information

**Field:** R-5D **Previous Crop:** Soybean **Soil Type:** Plano  
**Soil Test:** **Date:** N/A **pH** 6.6 **OM (%)** 3.4 **P (ppm)** 74 **K (ppm)** 215

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### Plot Management

**Tillage Operations:** Fall Chisel Plow Field Cultivator

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>			
Preplant :	28-0-0	160 A	4 /25/99
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:		None	

**Herbicide:** Harness @ 2.75pt/A  
Hornet @ 4.5 oz/A **Insecticide:** none  
**Hybrid:** Pioneer 3751

**Irrigation:** none

**Planting Date:** 4/30/99 **Planting Depth:** 1.5" **Row Width:** See Factor  
**Target Plant Density:** See Factors **Planting Method:** Kinze inter-row planter  
**Harvest Date:** 10/15/99 **Harvest Method:** 6 Row Combine

### Notes

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### Experimental Design

**Design:** RCB **Replications:** 4  
**Plot Size Seeded:** 20' x 200' **Experiment Size:** 3.5 A  
**Harvest Plot Size:** 200' x 15' **Harvest Plant Density:**

### Factors/Treatments:

#### Row Spacing

15 inch  
30 inch

#### Plant Density

25000, 30000, 35000  
& 40000 plants/A

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**Results:** Table E-49.

**Table E-49. Plant Density and Row Spacing Effects on Corn Grain  
And Silage Yield and Quality.  
Janesville, WI - 1999**

Row spacing inches	Density plants/A	Harvest population plants/A	Broken stalks %	Yield bu/A	Moisture %
	25000	27563	0.8	204	14.9
	30000	32563	1.2	223	15.1
	35000	37250	1.1	228	15.8
	40000	43125	1.5	230	15.8
15		34688	0.9	217	15.4
30		35563	1.4	226	15.4
15	25000	27250	0.5	192	14.9
15	30000	32500	1.0	218	15.0
15	35000	36250	1.3	227	15.6
15	40000	42750	0.8	232	16.0
30	25000	27875	1.1	217	14.9
30	30000	32625	1.4	228	15.1
30	35000	38250	1.0	230	16.0
30	40000	43500	2.3	227	15.5
Mean		35125	1.2	221	15.4
<b>Probability(%)</b>					
Plant Density (D)		0.0	37.4	0.0	7.1
Row Space (S)		10.0	4.9	1.1	100
D x S		61.4	17.7	1.1	75.1
<b>LSD(0.10)</b>					
Plant Density (D)		1238	NS	7	0.7
Row Space(S)		NS	0.5	5	NS
D x S		NS	NS	10	1.0
<b>CV(%)</b>					
		4	66	4	5

## FIELD EXPERIMENT HISTORY

**Title:** Plant Density and Row Spacing Effects on Corn Grain and Silage  
**Experiment:** 06RSxPD **Trial ID** 1417 **Year:** 1999  
**Personnel:** J.G. Lauer, K.D. Kohn, P.J. Flannery, S. Hendrickson  
**Location:** Valders, WI **County:** Manitowoc  
**Supported By:** Hatch

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### Site Information

**Field:** **Previous Crop:** Alfalfa **Soil Type:** Kewannee  
**Soil Test:** **Date:** N/A **pH** 7.2 **OM (%)** 3 **P (ppm)** 49 **K (ppm)** 155

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### Plot Management

**Tillage Operations:** Moldboard Plow Field Cultivated

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>			
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:		12000 gal	

**Herbicide:** Accent @ .33 oz/A **Insecticide:** none  
Northstar @ 4 oz/A **Hybrid:** Pioneer 3751

**Irrigation:** none

**Planting Date:** 5/3/99 **Planting Depth:** 1.5" **Row Width:** See Factor  
**Target Plant Density:** See Factors **Planting Method:** Kinze inter-row planter  
**Harvest Date:** S: 9/10; G:10/13/99 **Harvest Method:** New Holland Plot Chopper  
Kincaid Plot Combine

### Notes

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### Experimental Design

**Design:** RCB **Replications:** 4  
**Plot Size Seeded:** 20' x 100' **Experiment Size:** 1.1 A  
**Harvest Plot Size:** 100' x 5' **Harvest Plant Density:**

### Factors/Treatments:

#### Row Spacing

15 inch  
30 inch

#### Plant Density

25000, 30000, 35000  
& 40000 plants/A

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**Results:** Table E-50.

**Table E-50. Plant Density and Row Spacing Effects on Corn Grain And Silage Yield and Quality  
Valders, WI - 1999**

Row spacing inches	Density plants/A	Grain					Whole Plant										
		Harvest pop	Broken stalks	Yield	Moist	Test weight	Harvest pop	Yield	Moist	Kernel milk	Crude protien	ADF	NDF	<i>In Vitro</i> Digest	Cell Wall Digest	Milk per	
		plants/A	%	bu/A	%	lbs/bu	plants/A	tons/A	%	%	%	%	%	%	%	Ton	Acre
	25000	23375	2.0	178	23.4	53.2	21750	7.0	63.5	64.4	7.7	22.3	46.9	76.2	49.2	1875	13337
	30000	28000	1.4	189	23.3	53.6	27375	7.2	63.6	65.6	7.6	23.3	47.7	75.2	48.1	1782	13009
	35000	33000	1.6	198	22.4	53.9	30375	8.0	62.3	67.5	7.2	22.7	46.7	76.0	48.6	1870	15208
	40000	37750	1.4	201	22.5	54.1	34875	8.1	60.0	61.3	7.3	21.6	45.2	76.5	48.2	1965	15919
15		30250	1.6	190	22.8	53.7	27750	7.4	63.0	65.6	7.6	22.5	46.9	76.0	48.9	1865	13995
30		30813	1.4	193	22.8	53.8	29438	7.8	61.7	63.8	7.3	22.4	46.4	75.9	48.2	1881	14741
15	25000	22500	2.0	174	23.4	53.1	19500	6.6	64.9	63.8	7.9	23.1	48.5	75.6	49.8	1771	11742
15	30000	27500	1.3	190	23.6	53.3	25250	6.2	65.1	68.8	7.8	23.8	48.7	74.5	47.6	1698	10818
15	35000	34000	2.0	195	22.6	53.7	31000	8.3	62.3	68.8	7.1	22.4	46.4	76.6	49.7	1918	15975
15	40000	37000	1.3	202	22.0	54.4	35250	8.4	59.7	61.3	7.4	20.7	43.9	77.4	48.7	2074	17447
30	25000	24250	2.0	182	23.3	53.2	24000	7.5	62.1	65.0	7.5	21.4	45.3	76.8	48.7	1978	14931
30	30000	28500	1.5	189	23.1	53.8	29500	8.2	62.1	62.5	7.3	22.8	46.7	75.9	48.6	1866	15200
30	35000	32000	1.0	200	22.1	54.1	29750	7.8	62.4	66.3	7.3	23.0	46.9	75.3	47.6	1822	14442
30	40000	38500	1.7	199	22.9	53.9	34500	7.8	60.3	61.3	7.3	22.5	46.6	75.7	47.7	1857	14392
Mean		30531	1.5	192	22.8	53.7	28594	7.6	62.4	65	7.4	22.5	46.6	76.0	48.5	1873	14368
<b>Probability(%)</b>																	
Plant Density (D)		0.0	74.8	0.0	5.3	0.1	0.0	3.9	2.9	6.3	10.7	63.4	66.5	73.4	59.5	70.7	25.9
Row Space (S)		38.8	54.5	31.5	73.3	39.6	5.2	15.6	16.1	24.3	10.9	93.5	73.1	90.4	24.9	89.0	53.4
D x S		16.9	37.9	29.5	28.8	8.5	3.0	1.8	35.6	36.3	29.8	56.4	47.8	45.1	42.5	46.6	10.5
<b>LSD(0.10)</b>																	
Plant Density (D)		1553	NS	5.0	1	0.3	1991	0.7	3.8	2.3	NS	NS	NS	NS	NS	NS	NS
Row Space (S)		NS	NS	NS	NS	NS	1408	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
D x S		NS	NS	NS	NS	0.5	2815	0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>CV(%)</b>		6	43	3	4	1	8	11	4	7	5	12	9	3	4	17	23