

FIELD EXPERIMENT HISTORY

Title: Plant Density and Row Spacing Effects on Yield and Quality of Corn Silage
Experiment: 06PDxRS **Trial ID:** 6163 **Year:** 2017
Personnel: Joe Lauer, Kent Kohn, Thierno Diallo
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS373 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 11/1 /17 **pH:** 5.7 **OM (%)** 3.1 **P (ppm)** 8 **K (ppm)** 66

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

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

Herbicide: Harness 28 oz/A
 Hornet 4.0 oz/A
 None

Insecticide: None
Hybrid: Channel 203-01STXRIB

Planting Date: 5/25/17 **Planting Depth:** 1.5" **Row Width:** See Factors

Target Plant Density: See Factors **Planting Method:** Kinze InterRow Planter

Harvest Date: S: 9/27/16
 G: 10/21/16

Harvest Method: S: USDA Kemper
 G: MF 8XP

Experimental Design

Design: RCB **Replications:** 3
Plot Size Seeded: 10' x 70' **Experiment Size:** 1.0 Acre
Harvest Plot Size: S: 3.75' x 23'
 G: 5' x 33' **Harvest Plant Density:** 34958

Factors/Treatments:

<u>Row Spacing:</u>	<u>Plant Density: (plants/A)</u>
1) 15 inch	1) 26000
2) 30 inch	2) 32000
	3) 38000
	4) 44000

Results: Table 1706-01.

**Table: 1706-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality
Arlington, WI - 2017.**

Target Density plants/A	Row spacing inches	Grain								AGI \$3.24 \$/A
		Harvest Density plants/A	Ear Density plants/A	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			
							Total %	Stalk %	Root %	
	15	33500	34000	219	27.0	49	2	2	0	609
	30	36417	37000	221	27.6	49	3	2	1	613
26000		26500	26667	205	27.0	50	2	2	1	568
32000		31167	32500	219	27.6	49	4	3	1	605
38000		37500	38500	228	27.6	49	2	2	0	631
44000		44667	44333	230	26.9	48	1	1	0	639
26000	15	26000	25333	198	27.0	50	0	0	0	549
32000	15	29333	31000	218	27.4	49	4	3	1	604
38000	15	34667	37000	228	27.4	49	4	4	0	633
44000	15	44000	42667	233	26.2	49	0	0	0	651
26000	30	27000	28000	211	27.1	50	5	4	1	587
32000	30	33000	34000	219	27.7	49	3	2	1	607
38000	30	40333	40000	228	27.8	49	1	1	0	629
44000	30	45333	46000	227	27.7	48	2	1	1	628
Mean		34958	35500	220	27.3	49	2	2	1	611
Probability(%)										
Row Spacing (S)		0.0	1.7	62.7	9.8	1.8	50.8	81.0	30.6	79.0
Density (D)		0.0	0.0	0.4	39.5	0.8	45.0	59.4	48.7	0.6
S x D		5.3	99.7	48.0	52.0	28.9	13.0	17.0	82.5	43.8
LSD (0.10)										
Row Spacing (S)		1063	1947	NS	0.6	0	NS	NS	NS	NS
Density (D)		1503	2754	11	NS	1	NS	NS	NS	32
S x D		2126	3894	NS	NS	NS	NS	NS	NS	NS

Continued

Table: 1706-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality
 (continued) **Arlington, WI - 2017.**

Target Density plants/A	Row spacing inches	Dry Matter		Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude			<i>In Vitro</i>			Milk per	
		yield tons/A	Moisture %					protein %	ADF %	NDF %	Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A
	15	8.4	62.2	54.2	2.7	1.9	4.6	6.3	17.2	34.2	88.0	65.0	34.3	3394	32039
	30	7.5	63.4	58.3	2.9	1.9	4.8	6.3	17.5	34.6	88.0	65.2	34.2	3441	25975
26000		7.5	63.2	60.0	3.0	2.0	5.0	6.6	17.2	34.1	88.2	65.4	34.1	3436	27535
32000		8.2	61.9	55.0	2.8	2.1	4.8	6.5	16.7	33.7	88.5	65.9	35.2	3461	30306
38000		8.1	63.6	57.5	2.9	1.9	4.8	6.2	18.0	35.3	87.4	64.4	33.5	3405	29559
44000		8.0	62.5	52.5	2.6	1.5	4.2	5.8	17.5	34.6	87.8	64.6	34.1	3367	28628
26000	15	7.8	62.8	60.0	3.0	1.9	4.9	6.5	17.2	34.3	87.9	64.6	33.8	3386	29832
32000	15	8.7	60.8	55.0	2.8	2.1	4.9	6.7	15.9	32.7	89.5	68.0	35.9	3494	34086
38000	15	8.6	63.5	51.7	2.6	1.8	4.4	6.3	18.2	35.6	87.3	64.5	33.0	3387	32699
44000	15	8.5	61.9	50.0	2.5	1.6	4.1	5.7	17.4	34.4	87.2	62.9	34.3	3311	31540
26000	30	7.2	63.6	60.0	3.0	2.0	5.0	6.7	17.2	33.9	88.5	66.2	34.4	3487	25238
32000	30	7.7	63.0	55.0	2.8	2.0	4.8	6.3	17.6	34.6	87.5	63.8	34.4	3429	26527
38000	30	7.7	63.7	63.3	3.2	2.0	5.2	6.1	17.9	35.0	87.5	64.4	34.0	3424	26418
44000	30	7.5	63.2	55.0	2.8	1.5	4.2	6.0	17.5	34.7	88.3	66.3	33.9	3423	25716
		8.0	62.8	56.3	2.8	1.9	4.7	6.3	17.4	34.4	88.0	65.1	34.2	3418	29007
Probability(%)															
Row Spacing (S)		0.2	7.9	21.8	21.8	85.9	32.8	93.4	32.6	48.1	93.5	80.6	89.0	30.1	0.0
Density (D)		17.7	25.6	42.3	42.3	8.6	11.8	0.9	13.7	13.1	25.7	44.7	40.5	47.6	17.4
S x D		91.9	70.6	55.0	55.0	76.1	53.5	29.2	27.3	24.6	5.0	1.6	58.1	47.7	68.8
LSD (0.10)															
Row Spacing (S)		0.4	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1525
Density (D)		NS	NS	NS	NS	0	NS	0	NS	NS	NS	NS	NS	NS	NS
S x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	1	3	NS	NS	NS