

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Experiment: 02PD **Trial ID:** 6260 **Year:** 2018
Personnel: Joe Lauer, Kent Kohn, Thierno Diallo
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS408 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 5 /1 /18 **pH** 6.2 **OM (%)** 3.5 **P (ppm)** 37 **K (ppm)** 106

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

	<u>Analysis:</u>	<u>Rate lbs/A</u>	<u>Date:</u>
Fertilizer:			
Preplant :	46-0-0	250	N/A
Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /1 /18
Post plant :	N/A	N/A	N/A
Manure:			
Herbicide:	Resicore 80.0 oz/A Simazine 4L 16.0oz/A	Insecticide:	Force 3G 4.4 lbs/A
Irrigation:	None	Hybrid:	See Factors
Planting Date:	5/1/18	Planting Depth:	1.5" Row Width: 30"
Target Plant Density:	See Factors	Planting Method:	Almaco Precision Planter
Harvest Date:	S: 9/7/18 G: 10/9/18	Harvest Method:	S: New Holland 707 G: Massey 8XP

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 20' x 25' **Experiment Size:** 1.0 A
Harvest Plot Size: S: 2.5' x 23'
G: 5' x 23' **Harvest Plant Density:** 33972

Factors/Treatments:

<u>Target Plant Density:</u>	<u>Hybrid:</u>
1) 20000	1) Jung 53SS517RIB
2) 26000	2) Dekalb DKC58-06RIB
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 1802-01 & 1802-02.

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Experiment: 02PD **Trial ID:** 6325 **Year:** 2018
Personnel: Joe Lauer, Kent Kohn, Thierno Diallo
Location: Marshfield, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 5 /8 /18 **pH** 6.0 **OM (%)** 2.8 **P (ppm)** 30 **K (ppm)** 91

Plot Management

Tillage Operations: Vertical-Till
Analysis: **Rate lbs/A** **Date:**
Fertilizer: **Preplant :** N/A **N/A** **N/A**
Starter : 9-11-30-6S-1Zn **200 lbs/A** **5 /8 /18**
Post plant : 28-0-0 **40 gal/A** **N/A**
Manure: N/A **N/A**
Herbicide: Me-too-lachlor 1.7pt/A **Insecticide:** Force 3G 4.4 lbs/A
Hornet 3.0 oz/A
Accent Q 1.0 oz/A
Irrigation: None **Hybrid:** See Factors
Planting Date: 5/8/18 **Planting Depth:** 1.5" **Row Width:** 30"
Target Plant Density: See Factors **Planting Method:** Almaco Precision Planter
Harvest Date: S: 9/12/18 **Harvest Method:** S: New Holland 707
G: 10/18/18 G: Massey 8XP

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 20' x 25' **Experiment Size:** 1.0 A
Harvest Plot Size: S: 2.5' x 23' **Harvest Plant Density:** 33794
G: 5' x 23'

Factors/Treatments:

<u>Target Plant Density:</u>	<u>Hybrid:</u>	<u>Cutting height</u>
1) 20000	1) Jung 46SS427RIB	1) High-cut: 24-inches
2) 26000	2) NuTech 5L-503	2) Low-cut: 6-inches
3) 32000		
4) 38000		
5) 44000		
6) 50000		

Results: Tables 1802-03 & 1802-04.

Table: 1802-04. Cutting Height, Plant Density and Hybrid Influence on Silage Performance.
Marshfield, WI - 2018. (page 1 of 2)

Hybrid	Target density plants/A	Cutting height inches	Whole Plant													Milk per	
			Density Harvest plants/A	Dry Matter Yield T/A	Moist %	Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein %	ADF %	NDF %	<i>In Vitro</i> Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A
Jung 46SS427RIB			33626	8.3	62.6	68.3	3.4	2.1	5.5	6.6	17.8	35.4	86.5	62.0	32	3224	26880
NuTech 5L-503			34055	8.2	64.7	68.2	3.4	2.8	6.2	6.8	17.4	34.5	87.6	64.2	32	3280	26741
	20000		21215	8.0	62.8	67.5	3.4	3.1	6.5	7.3	16.7	33.9	88.0	64.9	33	3326	26499
	26000		26160	8.5	62.0	64.6	3.2	2.7	5.9	7.0	16.6	33.6	87.8	64.0	34	3317	28143
	32000		30918	8.0	64.3	68.9	3.4	2.6	6.0	6.6	17.8	35.1	87.1	63.2	32	3275	26047
	38000		37594	8.3	64.0	70.8	3.5	2.3	5.9	6.5	18.0	35.5	86.5	62.0	32	3217	26757
	44000		42506	8.6	64.6	68.0	3.4	2.1	5.5	6.5	18.6	36.2	86.1	61.7	31	3180	27453
	50000		44649	8.1	64.1	69.4	3.5	1.9	5.4	6.4	17.9	35.3	86.8	62.8	31	3198	25964
		6	33818	8.8	64.5	68.2	3.4	2.4	5.9	6.5	18.6	36.0	85.9	60.9	31	3204	28215
		24	33862	7.7	62.8	68.2	3.4	2.4	5.9	6.9	16.7	33.9	88.2	65.3	33	3300	25406
Jung 46SS427RIB	20000		21313	8.4	61.9	66.2	3.3	2.8	6.1	7.3	16.8	34.4	87.5	63.9	32	3288	27752
Jung 46SS427RIB	26000		26752	8.4	62.1	70.0	3.5	2.2	5.7	6.8	18.0	35.6	86.5	62.3	32	3224	27057
Jung 46SS427RIB	32000		30303	7.9	63.3	70.0	3.5	2.4	5.9	6.6	17.7	35.1	86.8	62.5	32	3259	25906
Jung 46SS427RIB	38000		36837	8.4	62.3	68.8	3.4	2.2	5.6	6.4	18.0	35.5	86.2	61.4	32	3217	27130
Jung 46SS427RIB	44000		40624	8.5	63.2	63.6	3.2	1.7	4.8	6.5	18.4	36.1	85.6	60.2	31	3179	27113
Jung 46SS427RIB	50000		45927	8.3	62.8	71.1	3.6	1.6	5.1	6.1	18.0	35.8	86.2	61.8	32	3177	26323
NuTech 5L-503	20000		21117	7.5	63.8	68.7	3.4	3.4	6.8	7.2	16.6	33.5	88.6	65.9	33	3364	25245
NuTech 5L-503	26000		25568	8.6	61.8	59.2	3.0	3.2	6.2	7.3	15.2	31.6	89.1	65.6	35	3410	29229
NuTech 5L-503	32000		31534	8.0	65.2	67.9	3.4	2.8	6.2	6.7	18.0	35.0	87.3	64.0	32	3290	26189
NuTech 5L-503	38000		38352	8.2	65.8	72.9	3.6	2.4	6.1	6.5	18.0	35.4	86.7	62.5	31	3217	26384
NuTech 5L-503	44000		44387	8.8	66.1	72.5	3.6	2.5	6.1	6.5	18.9	36.3	86.6	63.2	30	3181	27792
NuTech 5L-503	50000		43371	8.0	65.3	67.8	3.4	2.3	5.7	6.7	17.9	34.9	87.3	63.8	31	3219	25605
Jung 46SS427RIB		6	33473	8.9	63.7	68.3	3.4	2.1	5.5	6.4	18.9	36.7	85.2	59.8	31	3178	28261
Jung 46SS427RIB		24	33779	7.8	61.5	68.3	3.4	2.1	5.5	6.8	16.7	34.1	87.7	64.2	33	3270	25499
NuTech 5L-503		6	34164	8.7	65.2	68.2	3.4	2.8	6.2	6.6	18.2	35.3	86.5	62.0	32	3229	28169
NuTech 5L-503		24	33946	7.6	64.1	68.2	3.4	2.8	6.2	7.1	16.6	33.6	88.7	66.4	32	3331	25312
	20000	6	21521	8.4	63.8	67.5	3.4	3.1	6.5	7.0	17.8	35.5	86.6	62.3	31	3240	27316
	20000	24	20909	7.5	61.8	67.5	3.4	3.1	6.5	7.5	15.6	32.4	89.5	67.6	34	3412	25682
	26000	6	26246	9.2	62.2	64.6	3.2	2.7	5.9	6.7	17.3	34.3	87.1	62.6	33	3287	30394
	26000	24	26073	7.7	61.7	64.6	3.2	2.7	5.9	7.3	15.9	32.9	88.6	65.3	34	3347	25892
	32000	6	30681	8.6	64.8	68.9	3.4	2.6	6.0	6.5	18.5	35.9	86.1	61.4	32	3248	27865
	32000	24	31155	7.3	63.7	68.9	3.4	2.6	6.0	6.8	17.1	34.3	88.0	65.0	32	3301	24230
	38000	6	37499	8.8	65.2	70.8	3.5	2.3	5.9	6.3	19.0	36.5	85.3	59.8	31	3185	27890
	38000	24	37689	7.9	62.9	70.8	3.5	2.3	5.9	6.7	17.0	34.5	87.6	64.1	32	3250	25625
	44000	6	42833	9.3	65.3	68.0	3.4	2.1	5.5	6.4	19.0	36.5	85.4	60.0	31	3177	29524
	44000	24	42179	8.0	63.9	68.0	3.4	2.1	5.5	6.7	18.2	35.9	86.8	63.4	30	3184	25382
	50000	6	44128	8.5	65.4	69.4	3.5	1.9	5.4	6.1	19.7	37.4	84.7	59.1	29	3085	26304
	50000	24	45170	7.7	62.7	69.4	3.5	1.9	5.4	6.7	16.2	33.3	88.8	66.5	33	3311	25624

continued

Table: 1802-04. Cutting Height, Plant Density and Hybrid Influence on Silage Performance.

(continued)

Marshfield, WI - 2018.**(page 2 of 2)**

Hybrid	Target density plants/A	Cutting height inches	Whole Plant													Milk per	
			Density Harvest plants/A	Dry Matter Yield T/A	Moist %	Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein %	ADF %	NDF %	<i>In Vitro</i> Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A
Jung 46SS427RIB	20000	6	21262	8.8	63.7	66.2	3.3	2.8	6.1	7.0	18.8	37	85	60.4	29.3	3134	27714
Jung 46SS427RIB	20000	24	21363	8.1	60.1	66.2	3.3	2.8	6.1	7.7	14.8	32	90	67.5	35.5	3441	27790
Jung 46SS427RIB	26000	6	26925	9.1	63.0	70.0	3.5	2.2	5.7	6.5	19.4	37	85	59.9	30.6	3172	28775
Jung 46SS427RIB	26000	24	26578	7.7	61.2	70.0	3.5	2.2	5.7	7.0	16.7	34	88	64.7	32.6	3276	25340
Jung 46SS427RIB	32000	6	29356	8.5	63.8	70.0	3.5	2.4	5.9	6.5	17.9	35	86	61.4	32.2	3260	27823
Jung 46SS427RIB	32000	24	31250	7.4	62.8	70.0	3.5	2.4	5.9	6.6	17.4	35	87	63.6	32.1	3258	23988
Jung 46SS427RIB	38000	6	37121	8.8	63.8	68.8	3.4	2.2	5.6	6.3	19.3	37	85	59.0	30.8	3171	27874
Jung 46SS427RIB	38000	24	36553	8.1	60.7	68.8	3.4	2.2	5.6	6.6	16.6	34	88	63.7	33.5	3263	26387
Jung 46SS427RIB	44000	6	40719	9.2	63.4	63.6	3.2	1.7	4.8	6.5	17.8	35	86	59.4	33.3	3275	30011
Jung 46SS427RIB	44000	24	40530	7.8	62.9	63.6	3.2	1.7	4.8	6.5	18.9	37	85	60.9	29.4	3083	24214
Jung 46SS427RIB	50000	6	45454	9.0	64.3	71.1	3.6	1.6	5.1	5.7	20.1	38	84	58.5	29.1	3057	27371
Jung 46SS427RIB	50000	24	46401	7.7	61.3	71.1	3.6	1.6	5.1	6.4	15.8	33	88	65.1	34.1	3297	25274
NuTech 5L-503	20000	6	21780	8.0	64.0	68.7	3.4	3.4	6.8	7.0	16.8	34	88	64.2	33.0	3345	26918
NuTech 5L-503	20000	24	20454	7.0	63.5	68.7	3.4	3.4	6.8	7.4	16.3	33	89	67.7	32.9	3382	23573
NuTech 5L-503	26000	6	25568	9.4	61.4	59.2	3.0	3.2	6.2	6.8	15.3	32	89	65.4	35.9	3403	32014
NuTech 5L-503	26000	24	25568	7.7	62.2	59.2	3.0	3.2	6.2	7.7	15.1	32	89	65.9	34.9	3417	26444
NuTech 5L-503	32000	6	32007	8.6	65.8	67.9	3.4	2.8	6.2	6.6	19.1	36	86	61.5	30.9	3236	27906
NuTech 5L-503	32000	24	31060	7.3	64.7	67.9	3.4	2.8	6.2	6.9	16.9	34	89	66.5	32.4	3344	24472
NuTech 5L-503	38000	6	37878	8.7	66.6	72.9	3.6	2.4	6.1	6.2	18.6	36	86	60.6	31.3	3198	27906
NuTech 5L-503	38000	24	38825	7.7	65.0	72.9	3.6	2.4	6.1	6.8	17.4	35	88	64.5	30.9	3236	24863
NuTech 5L-503	44000	6	44947	9.4	67.2	72.5	3.6	2.5	6.1	6.3	20.3	38	85	60.5	28.4	3078	29036
NuTech 5L-503	44000	24	43827	8.1	65.0	72.5	3.6	2.5	6.1	6.8	17.5	35	88	65.9	31.5	3285	26549
NuTech 5L-503	50000	6	42802	8.1	66.5	67.8	3.4	2.3	5.7	6.5	19.2	36	85	59.7	29.8	3114	25236
NuTech 5L-503	50000	24	43939	7.8	64.1	67.8	3.4	2.3	5.7	6.9	16.6	33	89	67.8	32.2	3324	25974
Mean			33840	8.3	63.6	68.2	3.4	2.4	5.9	6.7	17.6	35	87	63.1	31.9	3252	26810
Probability(%)																	
Hybrid (H)			76.7	55.9	0.9	96.2	96.2	5.6	6.5	12.5	38.5	17.9	4.1	1.7	86.1	17.1	89.4
Plant Density (D)			0.0	57.3	0.4	38.4	38.4	3.7	8.5	0.0	2.5	10.6	1.2	0.2	28.0	5.3	81.9
Hybrid x Density (H x D)			79.2	75.8	13.3	4.9	4.9	91.7	87.4	27.5	26.4	43.9	59.4	71.3	41.4	67.6	80.9
Cutting Height (C)			86.3	0.0	0.0	-	-	-	-	0.0	0.0	0.0	0.0	0.0	1.6	0.1	0.0
H x C			30.7	87.2	8.1	-	-	-	-	24.7	37.3	35.9	54.2	95.1	33.2	83.0	90.4
D x C			36.3	27.0	24.7	-	-	-	-	17.7	37.9	28.1	13.5	12.1	27.5	16.0	7.5
D x H x C			20.4	43.3	11.9	-	-	-	-	14.9	2.0	1.6	1.9	6.5	1.6	1.2	8.8
LSD (0.10)																	
Hybrid (H)			NS	NS	0.8	NS	NS	0.5	0.5	NS	NS	NS	1	1.1	NS	NS	NS
Plant Density (D)			3884	NS	1.0	NS	NS	0.6	0.7	0.3	1.1	NS	1	1.3	NS	94	NS
Hybrid x Density (H x D)			NS	NS	NS	6.6	0.3	NS	NS	0.4	NS	NS	NS	NS	NS	NS	NS
Cutting Height (C)			NS	0.2	0.5	NS	NS	NS	NS	0.1	0.6	1	0	0.8	0.9	44	664
H x C			NS	NS	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
D x C			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2914
D x H x C			NS	NS	NS	NS	NS	NS	NS	NS	2.0	3	2	2.6	3.5	166	4180