

FIELD EXPERIMENT HISTORY

Title: Plant Density and Hybrid Influence on Corn Grain and Silage Performance
Experiment: 02PD - Hi-Chop **Trial ID:** 6161 **Year:** 2017
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 /8 /17 **pH:** 6.7 **OM (%)** 3.5 **P (ppm)** 53 **K (ppm)** 168

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 /8 /17
Post plant :	N/A	N/A	N/A
Manure:			
Herbicide:	Hornet 4.0 oz/A Harness 28 oz/A	Insecticide:	Force 3G 4.4 lbs/A
Irrigation:	None	Hybrid:	See Factors
Planting Date:	5/8/17	Planting Depth:	1.5" Row Width: 30"
Target Plant Density:	See Factors	Planting Method:	Almaco Precision Planter
Harvest Date:	S: 9/18/17 G: 10/20/17	Harvest Method:	S: New Holland 707 G: Massey 8XP

Experimental Design

Design: RCB **Replications:** 4
Plot Size Seeded: 20' x 25' **Experiment Size:** 0.75 A
Harvest Plot Size: S: 2.5' x 23'
G: 5' x 23' **Harvest Plant Density:** 32907

Factors/Treatments:

<u>Target Plant Density:</u>	<u>Hybrid:</u>
1) 20000	1) Channel 203-01STXRIB
2) 26000	2) Dekalb DKC58-06RIB
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 1702-01 & 1702-02.

**Table: 1702-01. Plant Density and Hybrid Influence on Corn Grain.
Arlington, WI - 2017.**

Hybrid	Target density plants/A	Density			Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			AGR \$3.24 \$/A
		V3 plants/A	Harvest plants/A	Ears ears/A				Total %	Stalk %	Root %	
Channel 203-01STXRIB		33735	32828	33112	233	23.5	54	9.3	9.2	0.1	666
DKC58-06RIB		34698	32986	34327	248	25.9	56	8.3	8.3	0.0	695
	20000	14607	15199	17708	175	27.0	54	1.7	1.3	0.3	486
	26000	26538	26515	27414	233	26.0	54	4.8	4.8	0.0	651
	32000	32173	30776	31108	257	24.8	54	3.3	3.3	0.0	725
	38000	37997	36931	37405	267	23.6	54	7.9	7.9	0.0	760
	44000	44294	42045	42376	255	23.4	56	16.5	16.5	0.0	728
	50000	49692	45975	46306	256	23.4	57	18.7	18.7	0.0	730
Channel 203-01STXRIB	20000	14204	14962	15625	150	26.1	54	1.4	0.7	0.7	418
Channel 203-01STXRIB	26000	26278	26609	26609	222	24.9	54	4.0	4.0	0.0	627
Channel 203-01STXRIB	32000	31865	30965	31060	255	23.2	53	2.8	2.8	0.0	729
Channel 203-01STXRIB	38000	37547	36647	37215	264	22.2	53	7.7	7.7	0.0	758
Channel 203-01STXRIB	44000	43465	41761	41855	258	22.1	55	16.9	16.9	0.0	741
Channel 203-01STXRIB	50000	49052	46022	46306	251	22.2	55	22.9	22.9	0.0	722
DKC58-06RIB	20000	15009	15435	19791	201	27.9	54	1.9	1.9	0.0	554
DKC58-06RIB	26000	26799	26420	28219	243	27.1	55	5.7	5.7	0.0	676
DKC58-06RIB	32000	32481	30587	31155	258	26.3	55	3.8	3.8	0.0	722
DKC58-06RIB	38000	38446	37215	37594	270	24.9	56	8.1	8.1	0.0	762
DKC58-06RIB	44000	45122	42329	42897	253	24.7	57	16.0	16.0	0.0	715
DKC58-06RIB	50000	50331	45927	46306	261	24.6	58	14.5	14.5	0.0	739
Mean		34217	32907	33720	241	24.7	55	8.8	8.8	0.1	680
Probability(%)											
Hybrid (H)		0.0	70.9	0.8	0.9	0.0	0.0	61.8	66.2	32.5	5.8
Plant Density (D)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.3	0.0
Plant Density x Hybrid		81.4	97.1	7.9	6.1	96.0	8.9	64.8	63.0	43.3	4.6
LSD (0.10)											
Hybrid (H)		437	NS	734	9	0.7	1	NS	NS	NS	25
Plant Density (D)		757	1227	1271	15	1.2	1	5.5	5.5	NS	43
Plant Density x Hybrid		NS	NS	1797	22	NS	2	NS	NS	NS	61

Table: 1702-02. Cutting Height, Plant Density and Hybrid Influence on Silage Performance.

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Hybrid	Target density plants/A	Cutting height inches	Whole Plant																
			Density			Dry Matter Yield	Moist %	Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude		In Vitro				Milk per	
			V5 plants/A	Harvest plants/A	Ears ears/A							protein %	ADF %	NDF %	Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A
Channel 203-01STXRIB			33475	32907	33443	10.6	62.6	59.4	3.0	2.1	5.0	6.9	18.2	35	87	64.8	30.7	3191	34016
DKC58-06RIB			34138	32323	33933	11.1	62.0	56.5	2.8	2.0	4.9	7.1	17.5	34	86	60.3	30.9	3064	33864
	20000		14110	14252	17661	8.6	65.2	61.3	3.1	3.3	6.3	8.0	18.5	36	87	63.3	26.3	2969	25454
	26000		26231	26846	27604	10.3	64.0	54.4	2.7	2.4	5.1	7.2	17.3	34	88	64.2	30.4	3143	32245
	32000		31960	30871	31628	11.1	62.3	60.6	3.0	2.0	5.0	6.9	17.5	34	87	62.8	31.5	3160	35028
	38000		37642	36174	36837	11.5	62.1	56.9	2.8	1.7	4.5	6.8	17.9	35	87	62.8	31.6	3173	36354
	44000		43986	42187	42755	11.7	60.0	53.8	2.7	1.5	4.2	6.6	17.7	35	86	61.0	32.9	3178	37268
	50000		48910	45359	45643	11.9	60.3	60.6	3.0	1.4	4.5	6.5	18.2	35	86	61.1	32.2	3141	37291
		6	33159	32118	33191	11.4	64.7	57.9	2.9	2.1	5.0	7.0	19.7	37	85	59.3	28.7	3049	35060
		24	34453	33112	34185	10.2	59.9	57.9	2.9	2.0	4.9	7.0	16.0	33	89	65.8	33.0	3206	32821
Channel 203-01STXRIB	20000		14015	14110	16572	8.1	65.0	65.0	3.3	3.3	6.6	7.9	18.9	37	86	63.9	25.5	2942	23682
Channel 203-01STXRIB	26000		26325	27746	27746	9.8	64.4	57.5	2.9	2.4	5.2	7.2	18.2	36	88	66.2	29.2	3151	31003
Channel 203-01STXRIB	32000		31818	31818	32386	10.9	63.2	61.2	3.1	2.1	5.2	6.9	17.7	35	88	65.5	31.2	3216	35099
Channel 203-01STXRIB	38000		36931	36079	36268	11.3	62.1	57.5	2.9	1.7	4.5	6.6	17.8	35	88	66.4	32.1	3280	37057
Channel 203-01STXRIB	44000		43181	42045	42045	11.6	61.1	52.6	2.6	1.6	4.2	6.4	18.1	35	87	63.2	33.0	3285	37991
Channel 203-01STXRIB	50000		48579	45643	45643	12.0	59.6	62.5	3.1	1.3	4.4	6.3	18.3	35	87	63.7	33.5	3271	39266
DKC58-06RIB	20000		14204	14394	18750	9.1	65.3	57.5	2.9	3.2	6.1	8.1	18.0	35	87	62.7	27.2	2995	27226
DKC58-06RIB	26000		26136	25947	27462	10.7	63.6	51.3	2.6	2.5	5.0	7.2	16.3	33	88	62.2	31.6	3136	33487
DKC58-06RIB	32000		32102	29924	30871	11.3	61.4	60.0	3.0	1.9	4.9	7.0	17.3	34	86	60.1	31.9	3105	34958
DKC58-06RIB	38000		38352	36268	37405	11.6	62.0	56.2	2.8	1.7	4.5	6.9	17.9	35	86	59.3	31.2	3066	35651
DKC58-06RIB	44000		44791	42329	43465	11.9	58.9	55.0	2.7	1.4	4.2	6.7	17.3	34	86	58.8	32.8	3072	36546
DKC58-06RIB	50000		49242	45075	45643	11.7	60.9	58.7	2.9	1.6	4.5	6.8	18.2	35	85	58.6	30.8	3011	35316
Channel 203-01STXRIB		6	32923	32449	32986	11.1	65.2	59.4	3.0	2.1	5.0	6.9	20.1	38	85	61.4	28.4	3100	34783
Channel 203-01STXRIB		24	34027	33364	33901	10.1	60.0	59.4	3.0	2.0	5.0	6.9	16.3	33	89	68.2	33.1	3282	33250
DKC58-06RIB		6	33396	31786	33396	11.8	64.3	56.5	2.8	2.0	4.9	7.1	19.3	36	84	57.2	29.0	2998	35336
DKC58-06RIB		24	34880	32859	34469	10.4	59.8	56.5	2.8	2.0	4.9	7.2	15.8	32	88	63.4	32.8	3130	32392
	20000	6	13257	13826	17235	9.1	67.7	61.3	3.1	3.3	6.3	7.9	20.7	39	84	59.6	23.0	2792	25571
	20000	24	14962	14678	18087	8.1	62.7	61.3	3.1	3.3	6.3	8.1	16.3	33	89	66.9	29.6	3145	25337
	26000	6	25757	27083	27841	10.7	66.6	54.4	2.7	2.4	5.1	7.2	19.2	37	85	60.2	28.0	3040	32545
	26000	24	26704	26609	27367	9.8	61.4	54.4	2.7	2.4	5.1	7.2	15.3	32	90	68.2	32.9	3246	31945
	32000	6	31155	30681	31439	11.9	64.7	60.6	3.0	2.0	5.0	7.0	19.1	36	85	59.2	29.8	3098	36757
	32000	24	32765	31060	31818	10.3	59.9	60.6	3.0	2.0	5.0	6.9	16.0	32	89	66.5	33.2	3222	33300
	38000	6	37310	35511	36174	12.0	64.5	56.9	2.8	1.7	4.5	6.7	19.9	37	85	59.5	29.8	3125	37613
	38000	24	37973	36837	37499	10.9	59.7	56.9	2.8	1.7	4.5	6.9	15.8	32	89	66.1	33.5	3221	35094
	44000	6	43276	41382	41950	12.6	62.0	53.9	2.7	1.6	4.3	6.6	18.8	36	85	59.3	31.7	3154	39620
	44000	24	44696	42992	43560	10.9	58.0	53.8	2.7	1.5	4.2	6.6	16.7	34	87	62.7	34.1	3203	34917
	50000	6	48200	44223	44507	12.4	62.7	60.6	3.0	1.4	4.5	6.5	20.3	37	84	58.0	30.0	3082	38251
	50000	24	49621	46496	46780	11.3	57.9	60.6	3.0	1.4	4.5	6.6	16.2	33	88	64.3	34.4	3200	36332

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