

FIELD EXPERIMENT HISTORY

Title: Plant Density and Row Spacing Effects on Corn Grain and Silage.
Experiment: 06RSxPD **Trial ID:** 3377 **Year:** 2010
Personnel: J.G. Lauer, K.D. Kohn and T.H. Diallo
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS392 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam
Soil Test: **Date:** 10/21/10 **pH:** 6.7 **OM (%)** 3.3 **P (ppm)** 44 **K (ppm)** 134

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:			
Preplant :	46-0-0	325	N/A
Starter :	N/A	N/A	N/A
Post plant :	N/A	N/A	N/A
Manure:	N/A	N/A	N/A
Herbicide:	Dual II Mag 1.5 pt/A Hornet 4.0 oz/A	Insecticide: None	
		Hybrid: See Factors	
Irrigation:	None		
Planting Date:	5/18/10	Planting Depth: 1.5"	Row Width: See Factors
Target Plant Density:	See Factors	Planting Method:	Kinze 2000 Inter-Row Planter
Harvest Date:	S: 9/13/10 G: 10/18/10	Harvest Method:	S: NH 707 G: Massey Ferguson 8XP

Experimental Design

Design: RCB split-plot **Replications:** 4
Plot Size Seeded: 10' x 100' **Experiment Size:** 1.2 A
Harvest Plot Size: S: 5' x 8.75'
G: 5' x 100' **Harvest Plant Density:** See Factors

Factors/Treatments:

<u>Row Spacing:</u>	<u>Plant Density: (plants/A)</u>	<u>Hybrid:</u>
15 inch	25000, 30000,	Dekalb DKC52-59
30 inch	35000 and 40000	Pioneer 37Y14

Results: Table C-36 and C-37.

**Table C-36. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality
Arlington, WI - 2010.**

Row spacing inches	Density plants/A	Hybrid	Grain								Grower return \$/A
			Harvest		Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			
			population plants/A	ears ears/A				Total %	Stalk %	Root %	
		Dekalb DKC52-59	35232	35232	191	12.8	54	3	3	0	859
		Pioneer 37Y14	35719	35719	191	13.6	56	1	1	0	858
	25000		27381	27381	183	13.5	56	0	0	0	823
	30000		32919	32919	192	13.3	56	1	0	0	864
	35000		38208	38208	195	13.1	55	3	3	0	874
	40000		43395	43395	194	13.0	55	4	4	0	873
	25000	Dekalb DKC52-59	27007	27007	185	13.0	55	0	0	0	831
	25000	Pioneer 37Y14	27754	27754	181	13.9	56	0	0	0	815
	30000	Dekalb DKC52-59	32110	32110	196	12.8	55	0	0	0	878
	30000	Pioneer 37Y14	33728	33728	189	13.8	56	1	0	0	849
	35000	Dekalb DKC52-59	38208	38208	191	12.7	54	5	5	0	859
	35000	Pioneer 37Y14	38208	38208	198	13.6	56	1	1	0	889
	40000	Dekalb DKC52-59	43604	43604	193	12.7	54	6	6	0	867
	40000	Pioneer 37Y14	43187	43187	196	13.3	56	3	3	0	878
15			35128	35128	193	13.3	56	2	2	0	867
30			35824	35824	189	13.2	55	2	2	0	850
15		Dekalb DKC52-59	34724	34724	193	12.8	55	2	2	0	869
15		Pioneer 37Y14	35533	35533	192	13.7	56	2	1	0	864
30		Dekalb DKC52-59	35741	35741	189	12.8	54	3	3	0	849
30		Pioneer 37Y14	35906	35906	190	13.6	56	1	1	0	851
15	25000		26509	26509	182	13.5	56	0	0	0	819
15	30000		32359	32359	192	13.3	56	1	0	0	863
15	35000		38084	38084	196	13.2	55	3	3	0	879
15	40000		43560	43560	202	13.0	55	4	4	0	906
30	25000		28252	28252	184	13.4	56	0	0	0	827
30	30000		33479	33479	193	13.3	55	0	0	0	865
30	35000		38333	38333	194	13.1	55	3	3	0	869
30	40000		43231	43231	187	13.0	55	5	5	0	840

continued

Table C-36. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality

(continued) **Arlington, WI - 2010.**

Row spacing	Density	Hybrid	Grain								
			Harvest		Yield	Moisture	Test weight	Lodged			Grower return
inches	plants/A		population	ears				bu/A	%	lbs/bu	
15	25000	Dekalb DKC52-59	25887	25887	185	13.1	55	0	0	0	830
15	25000	Pioneer 37Y14	27132	27132	180	13.9	56	0	0	0	808
15	30000	Dekalb DKC52-59	30865	30865	197	12.9	55	0	0	0	883
15	30000	Pioneer 37Y14	33852	33852	188	13.8	56	2	1	1	842
15	35000	Dekalb DKC52-59	38084	38084	192	12.7	54	4	4	0	861
15	35000	Pioneer 37Y14	38084	38084	200	13.6	56	3	3	0	897
15	40000	Dekalb DKC52-59	44058	44058	201	12.6	54	6	6	0	901
15	40000	Pioneer 37Y14	43062	43062	203	13.4	56	2	2	0	910
30	25000	Dekalb DKC52-59	28127	28127	185	12.9	55	0	0	0	832
30	25000	Pioneer 37Y14	28376	28376	183	13.9	56	0	0	0	822
30	30000	Dekalb DKC52-59	33355	33355	195	12.8	55	1	1	0	874
30	30000	Pioneer 37Y14	33603	33603	191	13.8	56	0	0	0	856
30	35000	Dekalb DKC52-59	38333	38333	191	12.6	54	7	7	0	858
30	35000	Pioneer 37Y14	38333	38333	196	13.5	56	0	0	0	881
30	40000	Dekalb DKC52-59	43150	43150	185	12.8	53	6	6	0	833
30	40000	Pioneer 37Y14	43311	43311	188	13.2	56	3	3	0	846
Mean			35476	35476	191	13.2	55	2	2	0	858
Probability(%)											
Row Spacing (S)			26.3	26.3	21.6	42.5	7.1	98.3	90.0	40.0	21.5
Density (D)			0.0	0.0	0.0	0.0	0.0	0.4	0.3	42.7	0.0
S x D			49.6	49.6	1.0	95.7	44.0	98.7	99.7	42.7	1.0
Hybrid (H)			34.1	34.1	87.7	0.0	0.0	4.1	3.2	33.8	87.6
S x H			52.7	52.7	67.0	89.2	36.1	27.9	32.9	33.8	67.0
D x H			51.1	51.1	3.9	0.7	0.1	14.7	17.8	42.3	3.9
R x D x H			57.9	57.9	85.0	3.5	72.8	63.0	63.2	42.3	85.0
LSD(0.10)											
Row Spacing (S)			NS	NS	NS	NS	0	NS	NS	NS	NS
Density (D)			1229	1229	4	0.1	0	2	2	NS	18
S x D			NS	NS	6	NS	NS	NS	NS	NS	27
Hybrid (H)			NS	NS	NS	0.1	0	1	1	NS	NS
S x H			NS	NS	NS	NS	NS	NS	NS	NS	NS
D x H			NS	NS	6	0.1	0	NS	NS	NS	25
R x D x H			NS	NS	NS	0.2	NS	NS	NS	NS	NS

continued

Table C-36. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality

(continued) **Arlington, WI - 2010.**

Row spacing inches	Density plants/A	Hybrid	Whole Plant														
			Harvest population plants/A	Dry Matter yield tons/A	Moisture %	Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein %	ADF %	NDF %	In Vitro			Milk per	
													Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A
		Dekalb DKC52-59	34230	9.8	55	37	2	1	3	6.1	24.1	43.8	77.9	49.8	35.3	3006	29281
		Pioneer 37Y14	35406	9.5	60	24	1	1	2	6.3	25.4	44.7	77.9	50.7	32.6	2992	28615
	25000		27000	9.5	58	34	2	1	3	6.5	23.8	43.7	78.7	51.3	33.6	3046	29132
	30000		31250	9.6	58	28	1	1	2	6.1	25.4	45.0	77.5	50.2	33.4	2968	28547
	35000		38188	9.8	57	30	2	1	2	6.2	24.9	44.3	77.7	49.9	34.3	2988	29213
	40000		42834	9.8	56	30	1	1	2	6.0	24.9	44.0	77.7	49.6	34.4	2993	28900
	25000	Dekalb DKC52-59	26625	9.6	57	43	2	1	3	6.4	23.8	44.1	78.2	50.7	34.2	3016	28929
	25000	Pioneer 37Y14	27375	9.5	60	26	1	1	3	6.7	23.8	43.2	79.2	51.9	33.0	3077	29335
	30000	Dekalb DKC52-59	30500	9.7	57	29	1	1	2	6.1	24.7	44.6	77.4	49.4	34.1	2964	28759
	30000	Pioneer 37Y14	32000	9.5	60	26	1	1	2	6.1	26.0	45.5	77.7	51.0	32.6	2972	28334
	35000	Dekalb DKC52-59	37250	9.6	56	38	2	1	2	6.1	24.7	44.5	77.2	48.8	35.2	2957	28517
	35000	Pioneer 37Y14	39125	9.9	59	23	1	1	2	6.4	25.0	44.1	78.3	50.9	33.4	3020	29909
	40000	Dekalb DKC52-59	42544	10.4	52	37	2	1	3	6.0	23.0	42.0	79.0	50.2	37.6	3087	30919
	40000	Pioneer 37Y14	43125	9.2	60	22	1	1	2	6.0	26.8	46.1	76.5	49.0	31.2	2899	26881
15			33375	9.8	58	28	1	1	2	6.3	24.7	44.2	78.0	50.3	33.8	3004	29523
30			36261	9.5	57	33	2	1	3	6.2	24.8	44.4	77.8	50.2	34.0	2994	28373
15		Dekalb DKC52-59	32313	10.0	55	34	2	1	2	6.2	23.7	43.2	78.2	49.8	35.7	3028	30205
15		Pioneer 37Y14	34438	9.6	61	22	1	1	2	6.3	25.7	45.1	77.7	50.8	32.0	2980	28841
30		Dekalb DKC52-59	36147	9.7	55	39	2	1	3	6.1	24.4	44.4	77.7	49.8	34.9	2984	28357
30		Pioneer 37Y14	36375	9.4	59	26	1	1	2	6.2	25.1	44.4	78.0	50.6	33.2	3004	28389
15	25000		25250	9.4	59	28	1	1	2	6.7	23.4	43.2	79.3	52.1	33.4	3085	29023
15	30000		29625	9.8	58	34	2	1	3	6.0	25.0	44.5	78.0	50.8	34.0	3001	29508
15	35000		37125	9.7	59	25	1	1	2	6.1	25.6	45.1	77.0	49.0	33.7	2937	28527
15	40000		41500	10.3	55	26	1	1	2	6.1	24.8	43.8	77.7	49.2	34.2	2992	31034
30	25000		28750	9.7	57	41	2	1	3	6.4	24.2	44.2	78.1	50.4	33.8	3007	29240
30	30000		32875	9.4	58	22	1	1	2	6.1	25.8	45.6	77.0	49.7	32.7	2935	27585
30	35000		39250	9.8	55	35	2	1	2	6.3	24.1	43.5	78.5	50.7	35.0	3040	29900
30	40000		44169	9.3	57	33	2	1	2	5.9	25.0	44.2	77.8	50.0	34.6	2994	26767

continued

Table C-36. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality

(continued) **Arlington, WI - 2010.**

Row spacing inches	Density plants/A	Hybrid	Whole Plant														
			Harvest population plants/A	Dry Matter yield tons/A	Moisture %	Kernel milk %	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein %	ADF %	NDF %	In Vitro			Milk per	
												Digest %	NDFD %	Starch %	Ton lbs/T	Acre lbs/A	
15	25000	Dekalb DKC52-59	24000	9.4	57	34	2	1	3	6.6	22.5	42.6	79.2	51.2	35.6	3085	29151
15	25000	Pioneer 37Y14	26500	9.3	62	23	1	1	2	6.9	24.3	43.8	79.4	53.0	31.2	3085	28895
15	30000	Dekalb DKC52-59	28250	9.9	56	40	2	1	3	6.1	23.8	43.1	78.6	50.5	35.6	3050	30280
15	30000	Pioneer 37Y14	31000	9.6	60	28	1	1	2	6.0	26.2	46.0	77.4	51.1	32.5	2952	28736
15	35000	Dekalb DKC52-59	35250	9.6	57	31	2	1	2	6.1	24.6	44.3	77.3	48.9	35.3	2967	28484
15	35000	Pioneer 37Y14	39000	9.8	61	19	1	1	2	6.1	26.7	45.9	76.6	49.1	32.1	2908	28571
15	40000	Dekalb DKC52-59	41750	10.9	51	33	2	0	2	6.0	24.0	43.0	77.9	48.5	36.3	3010	32905
15	40000	Pioneer 37Y14	41250	9.8	59	20	1	1	2	6.3	25.6	44.7	77.6	49.9	32.1	2974	29163
30	25000	Dekalb DKC52-59	29250	9.7	56	51	3	1	4	6.2	25.1	45.6	77.3	50.2	32.8	2946	28706
30	25000	Pioneer 37Y14	28250	9.7	58	30	2	1	3	6.5	23.3	42.7	78.9	50.7	34.7	3069	29775
30	30000	Dekalb DKC52-59	32750	9.4	57	19	1	1	2	6.2	25.7	46.2	76.1	48.4	32.6	2878	27237
30	30000	Pioneer 37Y14	33000	9.3	60	25	1	1	2	6.1	25.9	45.0	77.9	51.0	32.8	2991	27933
30	35000	Dekalb DKC52-59	39250	9.6	54	44	2	1	3	6.0	24.8	44.7	77.1	48.7	35.2	2947	28551
30	35000	Pioneer 37Y14	39250	10.0	57	26	1	1	2	6.6	23.3	42.3	80.0	52.7	34.8	3132	31248
30	40000	Dekalb DKC52-59	43337	9.9	52	42	2	1	3	6.0	22.1	40.9	80.2	52.0	38.9	3163	28934
30	40000	Pioneer 37Y14	45000	8.7	61	24	1	1	2	5.8	28.0	47.5	75.4	48.1	30.4	2824	24599
Mean			34818	9.7	57	30	2	1	2	6.2	24.7	44.3	77.9	50.3	33.9	2999	28948
Probability(%)																	
Row Spacing (S)			1.4	40.5	50.7	35.2	35.2	39.9	33.7	50.7	93.8	87.5	88.5	95.0	89.5	89.2	46.0
Density (D)			0.0	75.6	14.9	64.3	64.3	1.4	25.7	1.0	52.3	82.6	66.3	37.0	89.1	72.8	96.1
S x D			82.1	15.0	21.0	11.7	11.7	81.4	25.5	20.6	65.1	80.2	51.3	30.4	86.7	57.7	22.3
Hybrid (H)			2.0	20.2	0.0	0.0	0.0	1.1	0.6	23.7	9.9	40.2	93.7	14.8	2.8	78.5	49.9
S x H			5.6	15.3	58.2	91.8	91.8	0.5	24.3	89.1	41.5	40.2	54.9	90.8	39.5	50.5	47.9
D x H			74.0	83.1	16.4	30.4	30.5	69.0	27.4	63.2	33.3	39.6	28.1	26.3	38.7	29.6	25.8
R x D x H			13.6	99.9	90.8	26.8	26.9	51.2	39.1	41.1	27.4	40.7	21.3	7.7	45.0	24.5	94.0
LSD(0.10)																	
Row Spacing (S)			1318	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Density (D)			1374	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	NS	NS	NS	NS	NS	NS
Hybrid (H)			809	NS	1	5	0	0	0	NS	1.3	NS	NS	NS	2.0	NS	NS
S x H			1218	NS	NS	NS	NS	0	NS	NS	NS	NS	NS	NS	NS	NS	NS
D x H			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
R x D x H			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3.2	NS	NS	NS

Table C-37. Hybrid, Plant Density and Row Spacing Influence on Corn Stover Agronomic and Biofuel Measurements. Arlington, WI - 2010.†

Row Spacing inches	Hybrid	Density		Moisture %	Yield					CP	ADF	NDF	NDFD	ADL	Lignin %	Glucan	Xylan	Cell	Hem
		Target plants / A	Harvest		Stover g/plant	TEP T/A	TE G/T	Etoh G/A	g/L										
	Dekalb 52-59	35200	24.7	93	3.5	97.5	343	3.77	5.2	53.4	80.0	43.3	7.2	18.6	36.4	19.6	46.2	27.5	
	Pioneer 37Y14	35700	49.1	93	3.6	94.2	337	4.13	5.3	52.1	77.8	42.3	6.4	18.4	35.7	18.4	45.6	26.2	
15		35100	39.4	98	3.7	95.3	351	3.90	5.3	52.5	78.7	42.4	6.8	18.5	35.8	18.9	45.5	27.1	
30		35800	34.4	88	3.4	96.4	329	4.00	5.2	53.0	79.1	43.1	6.7	18.5	36.2	19.1	46.2	26.6	
15	Dekalb 52-59	34700	29.2	96	3.6	97.0	347	3.81	5.1	53.1	79.7	42.4	7.4	18.5	36.3	19.5	45.8	27.3	
15	Pioneer 37Y14	35500	49.7	100	3.8	93.5	356	3.99	5.4	51.9	77.6	42.5	6.3	18.4	35.4	18.3	45.2	26.8	
30	Dekalb 52-59	35700	20.2	90	3.5	98.0	339	3.72	5.2	53.7	80.3	44.2	7.0	18.6	36.5	19.7	46.5	27.6	
30	Pioneer 37Y14	35900	48.5	86	3.4	94.9	318	4.27	5.2	52.4	77.9	42.1	6.4	18.4	36.0	18.5	46.0	25.5	
		25000	27400	48.8	111	3.4	94.2	315	3.98	5.5	51.2	77.7	41.3	6.6	18.2	35.3	18.9	44.1	27.9
		30000	32900	43.0	98	3.5	95.6	338	3.80	5.1	53.0	78.7	41.2	7.7	18.5	36.0	18.9	45.8	26.2
		35000	38200	32.1	86	3.6	96.5	349	4.02	5.3	53.5	79.3	44.6	6.1	18.6	36.3	19.1	46.9	26.6
		40000	43400	23.7	77	3.7	97.2	359	3.98	5.2	53.4	79.9	44.0	6.6	18.7	36.6	19.2	46.7	26.6
15		25000	26500	53.6	121	3.5	92.3	326	4.19	5.6	50.4	77.0	41.4	6.3	18.0	34.6	18.6	43.2	28.5
15		30000	32300	44.2	101	3.6	96.0	344	3.73	5.0	53.1	78.9	41.2	7.9	18.4	36.1	19.0	45.7	26.5
15		35000	38100	35.2	87	3.7	96.6	352	3.73	5.2	53.5	79.2	44.3	6.4	19.0	36.6	18.9	46.9	26.5
15		40000	43600	24.7	83	4.0	96.2	384	3.94	5.4	53.0	79.7	42.9	6.7	18.5	36.1	19.1	46.3	26.8
30		25000	28300	43.9	102	3.2	96.0	304	3.77	5.4	52.1	78.4	41.2	7.0	18.3	35.9	19.2	44.9	27.2
30		30000	33500	41.8	94	3.5	95.2	331	3.88	5.2	52.8	78.4	41.2	7.5	18.7	36.0	18.7	46.0	25.9
30		35000	38300	28.9	85	3.6	96.4	345	4.31	5.3	53.5	79.5	45.0	5.9	18.2	36.0	19.3	46.9	26.8
30		40000	43200	22.7	71	3.4	98.1	334	4.02	5.0	53.8	80.1	45.2	6.5	18.8	37.0	19.3	47.2	26.4
	Dekalb 52-59	25000	27000	35.7	111	3.3	96.7	319	3.58	5.4	52.4	79.2	41.4	7.7	18.3	36.0	19.7	44.6	28.1

continued

Table C-37. Hybrid, Plant Density and Row Spacing Influence on Corn Stover Agronomic and Biofuel Measurements.
 (continued) **Arlington, WI - 2010.†**

Row Spacing inches	Hybrid	Density		Moisture %	Yield														
		Target plants / A	Harvest		Stover g/plant	TEP T/A	TE G/T	Etoh G/A	CP g/L	ADF	NDF	NDFD	ADL	Lignin	Glucan	Xylan	Cell	Hem	
	Pioneer 37Y14	25000	27800	61.8	111	3.4	91.6	311	4.38	5.5	50.1	76.2	41.1	5.6	18.0	34.5	18.0	43.6	27.6
	Dekalb 52-59	30000	32100	31.5	102	3.6	97.1	350	3.56	5.1	53.6	79.7	41.2	8.3	18.9	36.4	19.4	46.1	26.6
	Pioneer 37Y14	30000	33800	54.6	93	3.4	94.1	325	4.04	5.1	52.3	77.6	41.2	7.1	18.1	35.7	18.3	45.6	25.8
	Dekalb 52-59	35000	38200	19.4	82	3.5	97.5	337	4.20	5.1	53.7	79.8	45.3	6.2	18.8	36.5	19.5	46.7	27.3
	Pioneer 37Y14	35000	38200	44.7	90	3.8	95.5	360	3.85	5.4	53.2	78.8	44.0	6.0	18.4	36.1	18.7	47.1	26.0
	Dekalb 52-59	40000	43600	12.2	77	3.7	98.8	365	3.72	5.1	53.9	81.3	45.2	6.5	18.3	36.8	19.8	47.4	27.9
	Pioneer 37Y14	40000	43200	35.2	78	3.7	95.6	353	4.24	5.2	52.9	78.5	42.9	6.7	19.0	36.3	18.6	46.1	25.4
15	Dekalb 52-59	25000	25900	44.6	116	3.3	95.5	314	3.64	5.4	51.6	78.6	40.0	7.6	18.0	35.6	19.5	43.8	28.3
15	Pioneer 37Y14	25000	27100	62.6	127	3.8	89.1	338	4.73	5.7	49.1	75.4	42.7	5.0	18.0	33.6	17.6	42.7	28.7
15	Dekalb 52-59	30000	30800	32.5	106	3.6	97.3	349	3.66	5.0	53.7	79.9	40.9	8.4	18.5	36.4	19.5	46.2	26.4
15	Pioneer 37Y14	30000	33800	55.9	96	3.6	94.7	339	3.79	5.0	52.6	77.9	41.5	7.3	18.2	35.8	18.6	45.1	26.5
15	Dekalb 52-59	35000	38100	26.5	82	3.4	97.2	332	4.23	5.1	53.3	79.1	44.1	6.6	19.2	36.7	19.2	46.4	26.6
15	Pioneer 37Y14	35000	38100	44.0	93	3.9	95.9	373	3.23	5.4	53.7	79.2	44.4	6.1	18.8	36.5	18.6	47.5	26.4
15	Dekalb 52-59	40000	44100	13.1	83	4.0	98.2	392	3.69	5.1	53.9	81.3	44.3	6.9	18.5	36.6	19.7	46.9	28.0
15	Pioneer 37Y14	40000	43100	36.3	84	4.0	94.2	375	4.19	5.7	52.2	78.1	41.5	6.6	18.6	35.6	18.5	45.6	25.7
30	Dekalb 52-59	25000	28200	26.9	107	3.3	97.9	325	3.52	5.4	53.1	79.8	42.7	7.8	18.6	36.4	19.8	45.4	27.8
30	Pioneer 37Y14	25000	28400	61.0	96	3.0	94.1	284	4.03	5.3	51.1	77.0	39.6	6.2	18.0	35.5	18.5	44.5	26.6
30	Dekalb 52-59	30000	33500	30.4	99	3.6	96.9	352	3.46	5.2	53.5	79.6	41.6	8.3	19.4	36.4	19.3	46.0	26.7
30	Pioneer 37Y14	30000	33600	53.3	90	3.3	93.5	311	4.30	5.1	52.1	77.3	40.9	6.8	18.0	35.6	18.1	46.0	25.1
30	Dekalb 52-59	35000	38300	12.3	83	3.5	97.8	343	4.16	5.1	54.2	80.6	46.4	5.8	18.4	36.3	19.8	47.0	28.1
30	Pioneer 37Y14	35000	38300	45.5	87	3.7	95.1	347	4.46	5.4	52.8	78.5	43.6	6.0	18.1	35.8	18.8	46.7	25.5
30	Dekalb 52-59	40000	43100	11.4	72	3.4	99.3	338	3.76	5.2	53.9	81.3	46.0	6.1	18.2	37.1	19.9	47.8	27.7
30	Pioneer 37Y14	40000	43300	34.1	71	3.4	96.9	330	4.28	4.7	53.7	79.0	44.3	6.9	19.5	36.9	18.7	46.6	25.1
Mean			35500	36.9	93	3.5	95.9	340	3.95	5.2	52.8	78.9	42.8	6.8	18.5	36.0	19.0	45.9	26.8

continued

Table C-37. Hybrid, Plant Density and Row Spacing Influence on Corn Stover Agronomic and Biofuel Measurements.
(continued) **Arlington, WI - 2010.†**

Row Spacing inches	Hybrid	Density		Moisture %	Yield							CP	ADF	NDF	NDFD	ADL	Lignin %	Glucan	Xylan	Cell	Hem
		Target plants / A	Harvest		Stover g/plant	TEP T/A	TE G/T	Etoh G/A	Etoh g/L												
Probability (%)																					
Hybrid (H)		34.1		0.0	83.4	55.2	0.0	54.1	2.1	37.2	0.1	0.0	16.4	0.3	25.8	0.1	0.0	7.2	0.1		
Population (D)		0.0		0.0	0.0	12.0	0.2	2.4	76.5	12.5	0.0	0.3	0.2	0.4	15.4	0.2	17.3	0.0	1.6		
Row Spacing (S)		26.0		10.4	1.5	6.5	9.5	10.8	57.6	49.7	19.2	32.5	47.0	74.6	80.6	14.3	17.2	10.4	24.2		
H x D		51.2		94.4	5.3	42.0	16.8	32.4	5.3	69.5	27.2	24.7	62.5	0.8	3.0	26.6	12.3	28.5	19.8		
H x S		52.8		9.3	6.3	9.0	63.2	11.5	22.7	9.9	95.4	69.7	10.6	26.3	81.9	36.2	92.3	97.1	3.5		
D x S		49.6		57.9	3.6	25.2	1.8	42.6	21.7	29.0	13.8	35.9	59.2	39.5	9.8	1.3	7.6	23.4	45.4		
H x D x S		57.9		34.6	20.2	53.9	42.6	58.0	14.2	32.1	37.7	48.8	34.5	65.2	12.3	38.8	56.4	57.4	73.7		
LSD (0.05)																					
Hybrid (H)		NS		4.6	NS	NS	1.0	NS	0.3	NS	0.7	0.8	NS	0.5	NS	0.4	0.3	NS	0.7		
Population (D)		1490		6.6	6.0	NS	1.5	27.8	NS	NS	1.0	1.1	2.0	0.8	NS	0.6	NS	0.9	1.0		
Row Spacing (S)		NS		NS	6.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
H x D		NS		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.0	0.7	NS	NS	NS	NS		
H x S		NS		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.0		
D x S		NS		NS	8.4	NS	2.1	NS	NS	NS	NS	NS	NS	NS	NS	0.8	NS	NS	NS		
H x D x S		NS		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		

† TEP, Theoretical ethanol potential; TE, Theoretical ethanol; Etoh, ethanol; CP, crude protein; ADF, acid detergent fiber; NDF; neutral detergent fiber; NDFD, neutral detergent fiber digestibility; ADL, acid detergent lignin; Cell, cellulose; Hem, hemicellulose