

## FIELD EXPERIMENT HISTORY

**Title:** Plant Density and Row Spacing Effects on Corn Grain and Silage Yield.  
**Experiment:** 06PDxRS **Trial ID:** 6530 **Year:** 2021  
**Personnel:** Joe Lauer, Kent Kohn, Thierno Diallo  
**Location:** Arlington, WI **County:** Columbia  
**Supported By:** Stine Seeds

### Site Information

**Field:** ARS411 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam  
**Soil Test:** **Date:** 9 /1 /21 **pH** 6.8 **OM (%)** 3.8 **P (ppm)** 46 **K (ppm)** 78

### Plot Management

**Tillage Operations:** Field Cultivator

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
<b>Fertilizer:</b>			
<b>Preplant :</b>	32-0-0	149 lbs/A	N/A
<b>Starter :</b>	N/A	N/A	N/A
<b>Post plant :</b>	N/A	N/A	N/A
<b>Manure:</b>	N/A	N/A	N/A
<b>Herbicide:</b>	Resicore 2.5 qt/A	<b>Insecticide:</b> None	
<b>Irrigation:</b>	None	<b>Hybrid:</b> Treatment	
<b>Planting Date:</b>	5/13/21	<b>Planting Depth:</b> 1.5"	<b>Row Width:</b> See Treatments
<b>Target Plant Density:</b>	See Treatments	<b>Planting Method:</b>	Kinze InterRow Planter
<b>Harvest Date:</b>	S: 9/20/21 G: 10/22/21	<b>Harvest Method:</b>	S:USDA Kemper G:MF 8XP

### Experimental Design

**Design:** Factorial **Replications:** 3  
**Plot Size Seeded:** 10' x 50' **Experiment Size:** 1.6 Acre  
**Harvest Plot Size:** S:3.75' x 25'  
G:5' x 25' **Harvest Plant Density:** 35196

### Factors/Treatments:

#### Treatments: (Hybrid) (Plant Density) (Row Space)

1 Stine 9709-G PD-32000 RS-30	15 Stine 9814-20 PD-32000 RS-30
2 Stine 9709-G PD-35000 RS-30	16 Stine 9814-20 PD-35000 RS-30
3 Stine 9709-G PD-38000 RS-30	17 Stine 9814-20 PD-38000 RS-30
4 Stine 9709-G PD-35000 RS-15	18 Stine 9814-20 PD-35000 RS-15
5 Stine 9709-G PD-40000 RS-15	19 Stine 9814-20 PD-40000 RS-15
6 Stine 9709-G PD-45000 RS-15	20 Stine 9814-20 PD-45000 RS-15
8 Stine 9655-G PD-32000 RS-30	22 Jung 53DP511 PD-32000 RS-30
9 Stine 9655-G PD-35000 RS-30	23 Jung 53DP511 PD-35000 RS-30
10 Stine 9655-G PD-38000 RS-30	24 Jung 53DP511 PD-38000 RS-30
11 Stine 9655-G PD-35000 RS-15	25 Jung 53DP511 PD-35000 RS-15
12 Stine 9655-G PD-40000 RS-15	26 Jung 53DP511 PD-40000 RS-15
13 Stine 9655-G PD-45000 RS-15	27 Jung 53DP511 PD-45000 RS-15

**Results: Table 2106-01.**

**Table: 2106-01. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield.  
Arlington, WI - 2021.**

Treatment number	Hybrid	Target Density plants/A	Row spacing inches	Grain										
				Harvest Density plants/A	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Plant height inches	*AGR \$5.22 \$/A		
								Total %	Stalk %	Root %				
1	Stine 9709-G	32000	30	29621	240	24.9	54	1	1	0	201	102	1152	
2	Stine 9709-G	35000	30	36590	248	22.9	54	6	6	0	201	107	1200	
3	Stine 9709-G	38000	30	41121	255	21.6	54	7	7	0	201	103	1243	
4	Stine 9709-G	35000	15	28808	220	21.8	55	1	1	0	200	101	1072	
5	Stine 9709-G	40000	15	32873	257	21.3	54	1	1	0	200	99	1255	
6	Stine 9709-G	45000	15	40888	261	20.8	55	2	2	0	200	103	1274	
8	Stine 9655-G	32000	30	31131	227	21.0	56	2	1	1	199	100	1107	
9	Stine 9655-G	35000	30	36823	244	19.2	57	2	1	1	199	95	1199	
10	Stine 9655-G	38000	30	42747	251	19.4	56	1	1	0	200	100	1233	
11	Stine 9655-G	35000	15	29969	218	21.0	57	2	2	0	199	96	1062	
12	Stine 9655-G	40000	15	34964	247	20.5	56	1	1	0	199	99	1207	
13	Stine 9655-G	45000	15	38100	267	19.8	56	1	1	0	199	101	1308	
15	Stine 9814-20	32000	30	31363	263	27.4	56	0	0	0	206	117	1251	
16	Stine 9814-20	35000	30	37752	271	28.1	55	0	0	0	208	113	1282	
17	Stine 9814-20	38000	30	42398	266	28.1	55	1	1	0	208	118	1259	
18	Stine 9814-20	35000	15	28575	265	28.8	56	3	2	1	205	116	1252	
19	Stine 9814-20	40000	15	35313	281	26.6	55	1	1	0	207	117	1341	
20	Stine 9814-20	45000	15	36242	268	28.0	55	0	0	0	207	121	1271	
22	Jung 53DP511	32000	30	27995	252	20.8	57	2	2	0	199	101	1226	
23	Jung 53DP511	35000	30	36010	234	16.6	57	3	3	0	199	97	1161	
24	Jung 53DP511	38000	30	41934	208	18.1	57	14	14	0	200	107	1028	
25	Jung 53DP511	35000	15	29272	205	18.0	58	5	5	0	199	103	1011	
26	Jung 53DP511	40000	15	34848	212	17.0	58	8	7	0	199	107	1053	
27	Jung 53DP511	45000	15	39378	230	16.8	57	4	4	0	199	104	1141	
Mean				35196	245	22.0	56	3	3	0	201	105	1191	
<b>Probability(%)</b>														
Treatment				0.0	0.1	0.0	0.0	3.0	3.1	66.9	0.0	0.0	0.5	
<b>LSD (0.10)</b>														
Treatment				3431	31	2.7	2	5	5	NS	1	8	144	

Continued

\*AGR (Adjusted Gross Return)

Weighted Price per Bushel = \$3.58 per bushel = (50% December Average Cash price) + (25% March CBOT Futures price) + (25% July CBOT Futures price).  
December Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

**Table: 2106-01. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield.**

(continued)

**Arlington, WI - 2021.**

Treatment number	Hybrid	Target Density plants/A	Row spacing inches	Whole Plant															
				Harvest Density 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 Digest %		Starch %	Milk per Ton lbs/T, Acre lbs/A		
1	Stine 9709-G	32000	30	29040	11.0	52	21.7	1.1	1.3	2.4	7.2	16.1	32.3	88.2	63.5	38.9	3404	37261	
2	Stine 9709-G	35000	30	36590	11.2	50	11.7	0.6	0.8	1.4	7.0	16.2	32.5	87.8	62.6	38.4	3335	37352	
3	Stine 9709-G	38000	30	39494	10.6	49	23.3	1.2	1.0	2.2	6.8	16.3	33.2	87.1	61.2	37.6	3269	34534	
4	Stine 9709-G	35000	15	28692	10.5	54	15.0	0.7	1.4	2.2	7.2	16.0	31.9	88.6	64.3	39.6	3453	36377	
5	Stine 9709-G	40000	15	30899	11.3	51	18.3	0.9	1.3	2.2	7.4	13.5	29.6	89.7	65.2	41.4	3465	38981	
6	Stine 9709-G	45000	15	41469	12.1	46	10.0	0.5	0.8	1.3	6.7	15.8	32.4	87.5	61.6	39.9	3353	40473	
8	Stine 9655-G	32000	30	31596	10.4	52	13.3	0.7	1.4	2.0	7.1	15.4	31.5	88.3	62.8	39.5	3358	34952	
9	Stine 9655-G	35000	30	36358	11.2	49	20.0	1.0	1.2	2.2	7.0	14.4	30.8	88.6	63.1	41.7	3414	37803	
10	Stine 9655-G	38000	30	42050	11.4	48	10.0	0.5	0.8	1.3	6.9	16.7	33.3	87.8	63.3	37.9	3334	37905	
11	Stine 9655-G	35000	15	29040	10.5	53	23.3	1.2	1.1	2.3	7.4	16.0	32.3	87.9	62.7	37.5	3334	35136	
12	Stine 9655-G	40000	15	32641	10.9	52	13.3	0.7	0.5	1.1	7.2	16.4	32.5	87.8	62.6	38.0	3310	35999	
13	Stine 9655-G	45000	15	39146	12.5	47	8.3	0.4	0.9	1.3	6.7	16.8	33.2	87.3	61.8	38.4	3317	41495	
15	Stine 9814-20	32000	30	30666	11.2	61	48.3	2.4	1.9	4.3	7.8	19.2	36.3	85.6	60.3	30.5	3190	35747	
16	Stine 9814-20	35000	30	36242	11.0	60	55.0	2.8	2.1	4.9	7.4	19.6	36.7	85.6	60.7	31.4	3236	35719	
17	Stine 9814-20	38000	30	42166	11.2	60	50.0	2.5	1.8	4.3	7.5	20.9	38.4	84.3	59.1	29.5	3139	35216	
18	Stine 9814-20	35000	15	28459	11.1	61	51.7	2.6	2.2	4.8	7.8	19.4	37.1	85.1	59.9	30.7	3221	35870	
19	Stine 9814-20	40000	15	32989	11.6	62	51.7	2.6	2.0	4.6	7.7	20.3	37.5	85.0	60.0	30.6	3249	37734	
20	Stine 9814-20	45000	15	39262	11.5	61	55.0	2.8	2.3	5.1	7.5	19.2	36.1	85.7	60.3	31.5	3211	37056	
22	Jung 53DP511	32000	30	29969	9.7	44	6.7	0.3	0.4	0.7	6.6	14.9	30.3	88.9	63.7	41.5	3385	32702	
23	Jung 53DP511	35000	30	35080	10.0	41	1.7	0.1	0.3	0.4	6.4	14.5	30.3	88.9	63.2	43.0	3421	34241	
24	Jung 53DP511	38000	30	40191	10.7	39	1.7	0.1	0.3	0.4	6.8	14.7	30.9	88.7	63.5	42.1	3417	36628	
25	Jung 53DP511	35000	15	29505	11.1	43	3.3	0.2	0.1	0.3	6.7	15.3	31.7	87.8	61.5	41.1	3333	36852	
26	Jung 53DP511	40000	15	34732	10.9	44	8.3	0.4	0.5	0.9	6.6	14.3	29.6	88.8	62.2	43.8	3415	37390	
27	Jung 53DP511	45000	15	39611	10.4	40	5.0	0.2	0.1	0.4	6.5	16.7	32.5	87.8	62.5	39.8	3351	34878	
Mean				34829	11.0	51	21.9	1.1	1.1	2.2	7.1	16.6	33.0	87.4	62.2	37.7	3330	36596	
<b>Probability(%)</b>																			
Treatment				0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	3.3	11.9	
<b>LSD (0.10)</b>																			
Treatment				2116	1.0	4	12.9	0.6	0.8	1.3	0.5	2.7	3.4	1.9	2.3	4.1	151	NS	