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2020 Annual Research Report – Lauer, Kohn, and Diallo

2020
Wisconsin Research Report of

STUDIES ON CULTURAL PRACTICES AND MANAGEMENT SYSTEMS FOR CORN

Department of Agronomy
College of Agriculture and Life Sciences
University of Wisconsin - Madison

2020 Wisconsin Research Report of Studies on Cultural Practices and Management Systems for Corn

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The information presented in this report is for the purpose of informing cooperators in industry of the results of research conducted during 2020. The cooperation of other faculty and staff and the support of funding agencies and industry are gratefully acknowledged. The information presented in this report does not constitute recommendation or endorsement. This information is **NOT FOR PUBLICATION** unless prior approval is received.

The assistance of the following people in conducting these studies is acknowledged.

Cooperating Faculty: Shawn Conley – Agronomy, Natalia de-Leon – Agronomy, Randy Shaver – Dairy Science, Carrie Laboski – Soil Science

Cooperating UWEX County Agents and ARS Staff: Nick Baker, Jerry Clark, Mike Bertram, Arin Crooks, Paul Sytsma, and John Zander

Cooperating Farmers: Ken Congdon, Jason Biddick, Jason Beaseman, Mike Maass, Ed Montsma, and Dale Wagner

Cooperating Academic Staff: John Gaska and Adam Roth

Project Crew: Brock Huffar and Evan Dorsch

Wisconsin Corn
Agronomy Research Sites

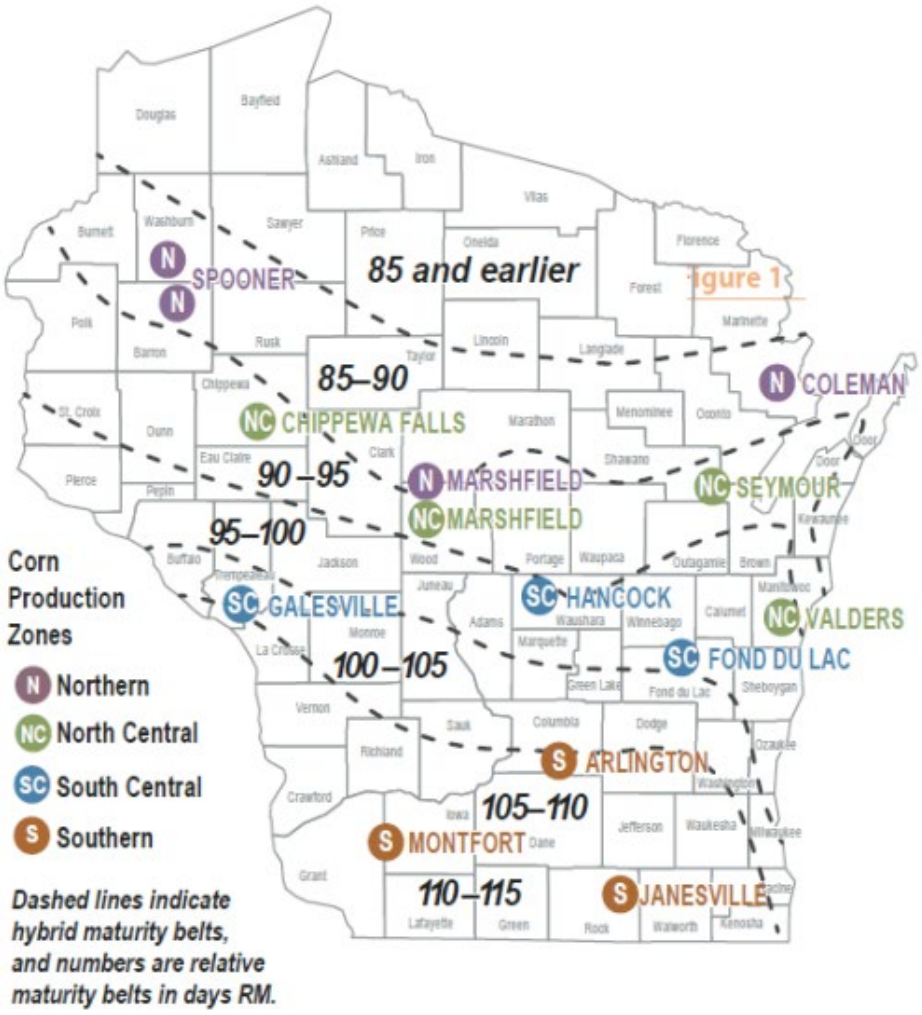

Figure 1

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We wish to thank the following companies and organizations that have generously supported our research through financial and/or material donations.

UW College of Agriculture and Life Sciences-Hatch Program
AgriGold Seeds
Cornelius Seeds
Dairyland Seeds
FS InVision
Federal Seeds
Jung Seed Genetics
LG Seeds
Legacy Seeds
Monsanto
National Crop Insurance Services
ProHarvest Seeds
Renk Seed
Syngenta Seeds
Wisconsin Corn Growers Association
Wisconsin Fertilizer Research Council
Wyffels Hybrids

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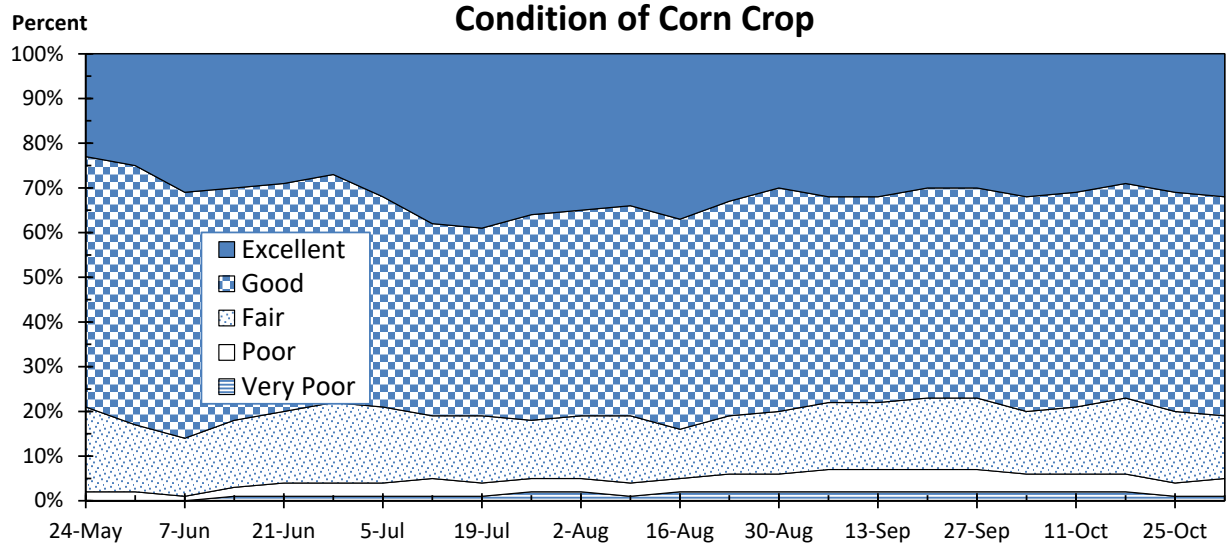
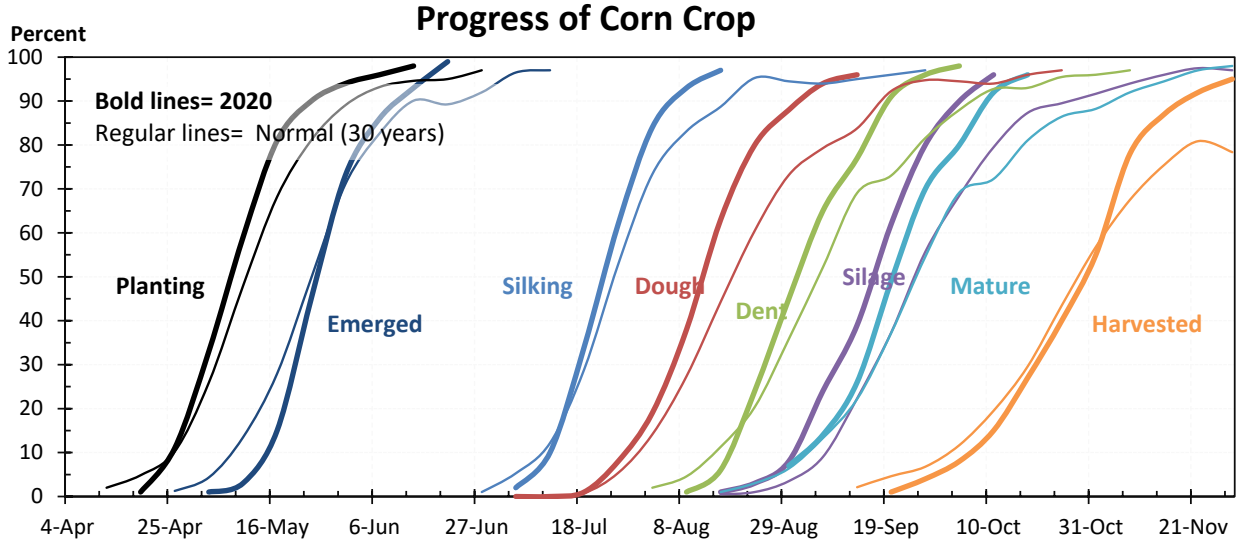
2020 Corn Crop Summary for Wisconsin

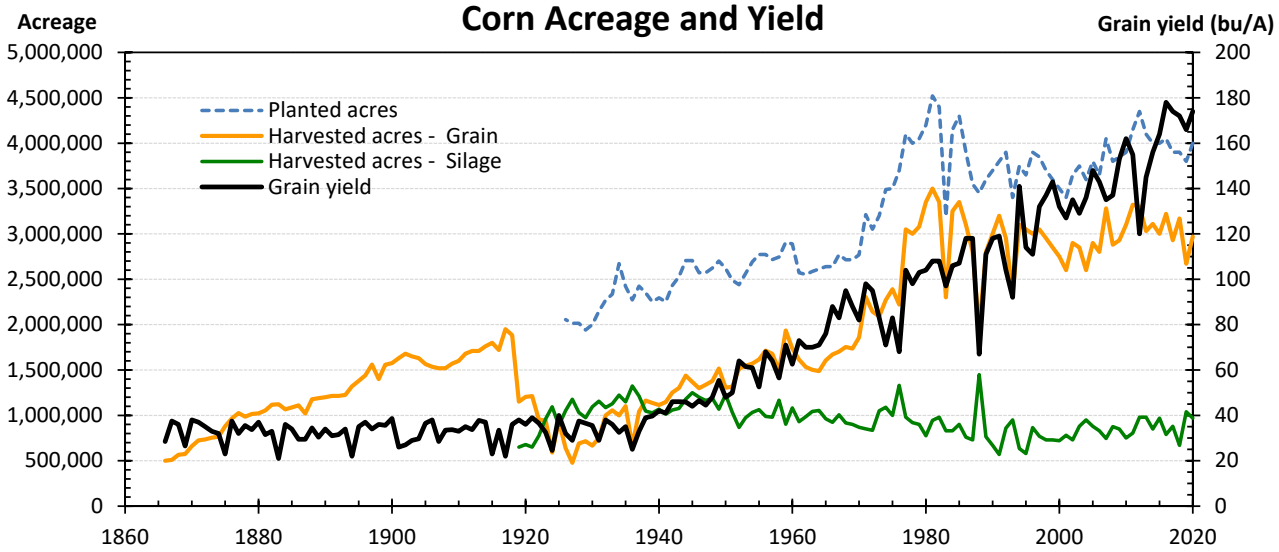
Condition of Corn Crop



Progress of Corn Crop



Corn Acreage and Yield



Crop Progress Review of 2020

Derived from USDA-NASS report at:
https://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Crop_Progress_&_Condition/

Above normal temperatures and low snow cover in March allowed farmers to harvest crops left in fields at the end of the very slow 2019 harvest season. Topsoil moisture was rated 38% surplus on April 5, 2020 compared to 45% surplus on April 7, 2019. Below normal precipitation in April lowered soil moistures quickly, allowing planting to start in line with the 5- year average and accelerate. Spring fieldwork progressed ahead of the 5-year average through May and was three to four weeks ahead of planting compared to 2019. Crop emergence, however, was slowed by below normal temperatures, progressing only slightly ahead of the average. Overwintered crops were slow to break dormancy though reporters noted this may have spared crops from damage due to late frosts. Temperatures and precipitation were both above normal in June and July. Dry, sunny periods alternated with soaking rains, supporting crop growth while allowing plenty of days suitable for fieldwork. Short soil moisture conditions in August and September facilitated haying and small grains harvest but stressed crops in some areas. Topsoil moistures were 43% short to very short on August 23, the driest rating of the season. Below normal temperatures during September pushed crops toward maturity. Northern Wisconsin saw the first frost of the year during the week ending September 13 while the rest of the state had a first frost during the week ending October 4. Conditions in October and November swung between clear, warm spells and cold but brief storm systems. Fieldwork was interrupted by snow and heavy rain in some areas but resumed quickly in most cases. There were lots of days suitable for fieldwork between these precipitation events, allowing harvest to progress ahead of average. Warm, sunny days with adequate soil moisture left fall plantings and perennial crops in good shape to overwinter. Little to no frozen soil allowed fall tillage and manure spreading to continue through the end of the month. Fall tillage was 84% complete on November 29, compared to 43% complete the previous year and a 5-year average of 73%. Many farmers were able to complete fall fieldwork and store their equipment before the end of November. Overall, this season was excellent for crop progress and condition, especially in contrast to the extremely delayed progress of 2019.

The average temperature for June through September was 66.1 degrees, compared to 65.6 degrees in 2019 and a normal of 64.9 degrees. April, May and September had below normal temperatures while June, July and August had above normal temperatures. March was 3.8 degrees above normal. October was 5.3 degrees below normal and November was 5.6 degrees above normal.

The statewide precipitation total for April through September was 23.34 inches, compared to 29.09 inches the previous year and a normal of 22.43 inches. April, August and September had below normal precipitation while May, June and July had above normal precipitation. July precipitation was 1.53 inches above normal. All other months this growing season had departures from normal of less than one inch.

Corn

Many fields of corn were left standing over the winter due to very wet and snowy conditions in fall 2019. Low snow cover during March allowed most of these acres to be harvested, however, so spring fieldwork could begin on time. Corn planting reached 98% complete on June 14, 4 days ahead of the 5 -year average and 19 days ahead of 2019. Corn progress remained slightly ahead of average and weeks ahead of the previous year throughout the season. Corn condition averaged 80% good to excellent for the season, compared to 62% good to excellent in 2019. Dry conditions in some areas during August and early September led farmers to start chopping silage about a week earlier than the 5 -year average. The silage harvest progressed rapidly as a cold and dry September caused corn to mature quickly. Silage chopping reached 96% complete on October 11, three weeks ahead of the 5 -year average. The grain harvest started right in line with the 5 -year average during the week ending September 20 but then raced ahead of

average thanks to ideal harvest conditions in October and November. Corn harvested for grain was 95% complete on November 29, compared to 63% the previous year and a 5 -year average of 85%.

Soybean

There were a few reports of soybeans left standing over the winter due to very wet conditions in the fall of 2019. As with corn, these acres were harvested during March and early April and did not delay other fieldwork. Plenty of days suitable for fieldwork in April allowed soybean planting to begin about a week ahead of the 5 -year average. Soybeans development maintained a one to two week lead over the average throughout the summer and early fall. Soybeans condition averaged 82% good to excellent for the season, compared to 66% the previous year. Harvesting began in line with the 5 -year average during the week ending September 20 and progressed quickly as frosty nights pushed soybeans to maturity. On November 8, 96% of soybeans were harvested, more than 4 weeks ahead of the previous year and 20 days ahead of the average.

Oats

Oats planting tracked just ahead of the 5 -year average in April, finishing up in early June. Below normal temperatures in April and May slowed emergence but not enough to cause crop development to fall behind average. Warm weather and abundant soil moisture in June and July caused oat maturity to progress ahead of average. Oats condition averaged 81% good to excellent, compared to 70% the previous year. Dry weather in August allowed the harvest to progress quickly. Oats harvested was 97% complete on September 6, well over a month ahead of 2019 and 2 weeks ahead of the average.

Winter wheat

Below normal temperatures in April and late frosts in May meant winter wheat was slow to green up this year. Wheat conditions then ramped up with more favorable weather in June. Overall condition averaged 72% good to excellent for the spring and summer, compared to 51% the previous year. Winter wheat development and harvest trended close to the 5 -year average, with harvest reaching 98% complete on August 23.

The early start and rapid progress of the corn silage and soybean harvests allowed winter wheat planting to trend well ahead of average also. Winter Wheat planting reached 97% complete on November 1, compared to 73% the previous year and a 5 -year average of 89%. Above normal fall temperatures gave wheat plantings plenty of time to establish themselves before winter. Condition averaged 82% good to excellent from mid -October through the end of November.

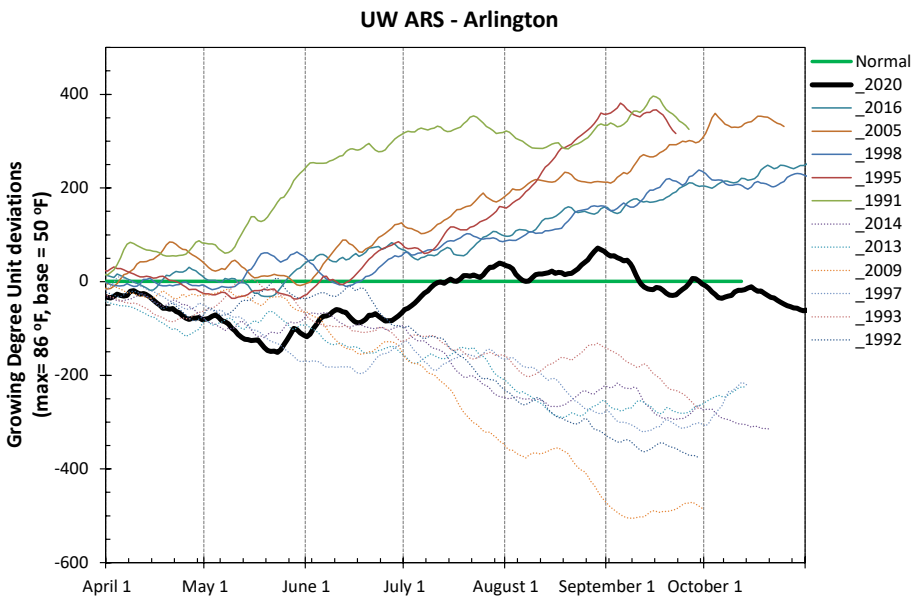
Hay

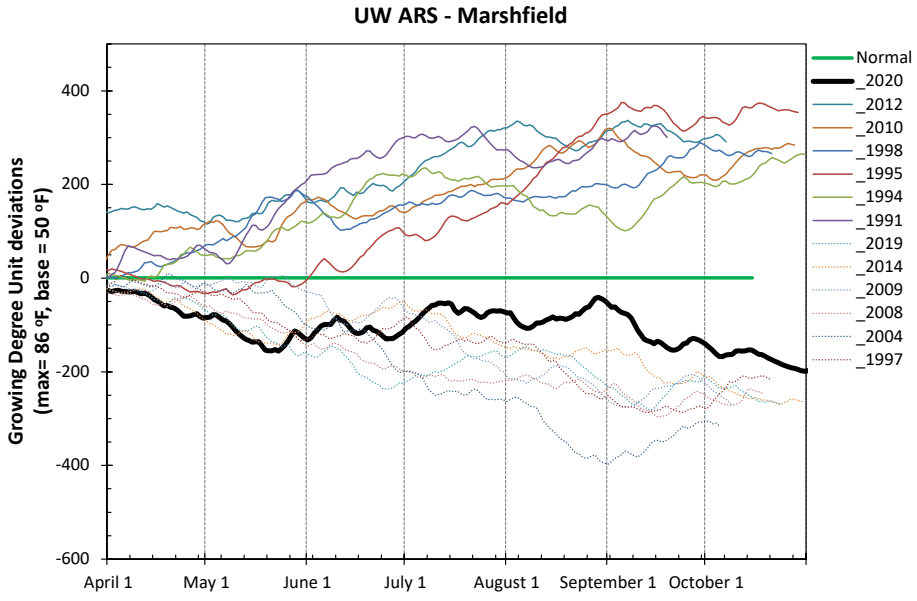
Hay was slow to break dormancy due to below normal temperatures in April and May. As of June 14, winter freeze damage to alfalfa was rated 2% severe, 5% moderate and 34% light. There was reportedly no damage to the remaining 59% of alfalfa, 19 percentage points more than the previous year. Reporters noted hay stands' extended dormancy may have helped reduce damage from late frosts. This extended dormancy also delayed hay harvest. The first cutting was only 11% harvested on May 31, well below the 5-year average of 32%. Nearly 40% of the first cutting was harvested in the next week, however, and first cutting hay was completed about a week ahead of average. This pattern of a delayed start, rapid progress and early finish persisted across every hay cutting this season. Farmers were able to bale and store plenty of dry hay this year thanks to ideal haying conditions in late summer and abundant days suitable for fieldwork. Hay condition averaged 71% good to excellent compared to 49% good to excellent in 2019. Above normal temperatures and adequate soil moisture in October and November bulked up hay stands for the winter.

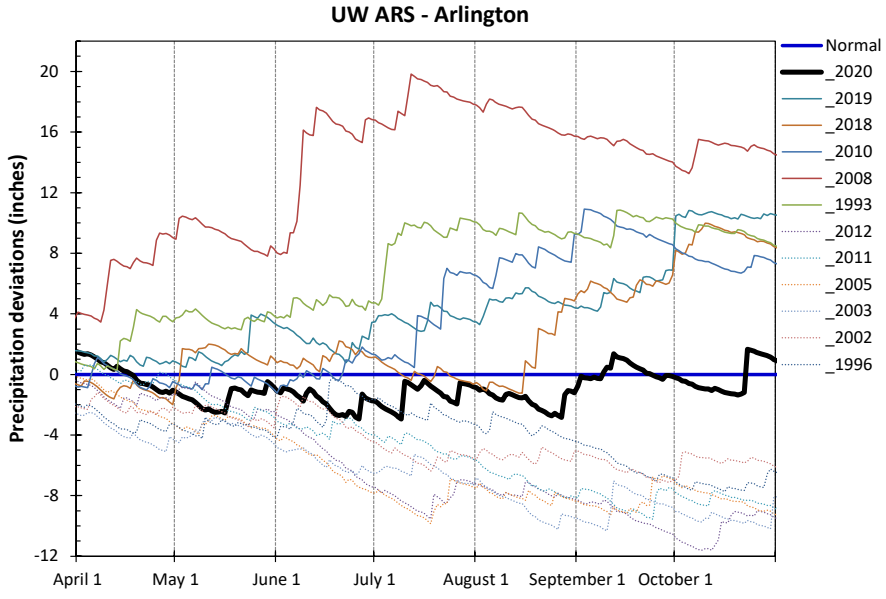
Pasture

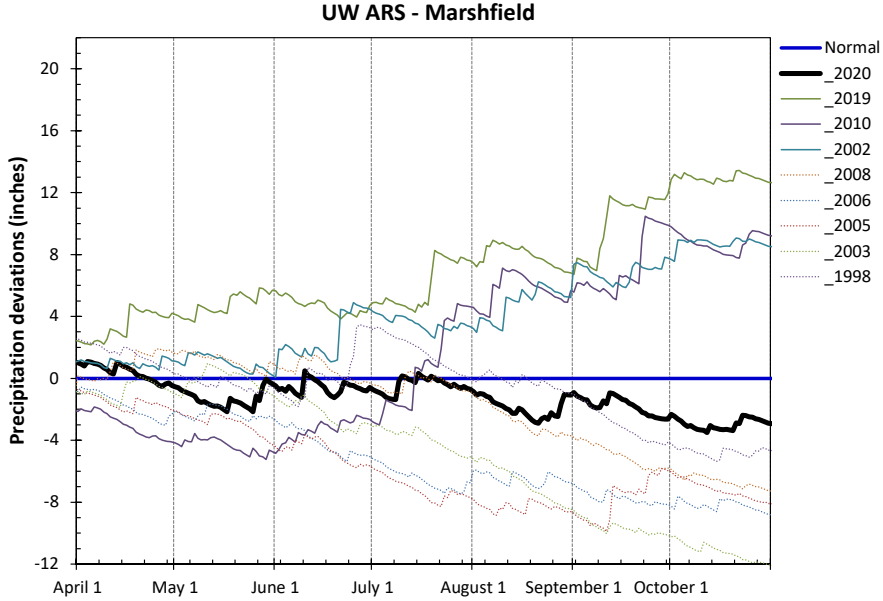
Pasture condition rated 46% good to excellent on April 19, the lowest rating of the season. Condition climbed steadily through May and were rated 75% or higher good to excellent throughout June and July. Dry conditions in August and September brought somewhat lower pasture conditions. They rebounded slightly in late September then fell again as frosts began in October. On average, 68% of pastures were in good to excellent condition from May through October, compared to 57% in 2019. A warm November helped pastures bulk up and prepare to overwinter.

2020 Seasonal Growing Degree Unit and Precipitation Deviations from April 1 to the current date (or fall killing frost date ≤ 28 °F or October 31).
Years were selected using ± 1 standard deviation of the 30-year normal.



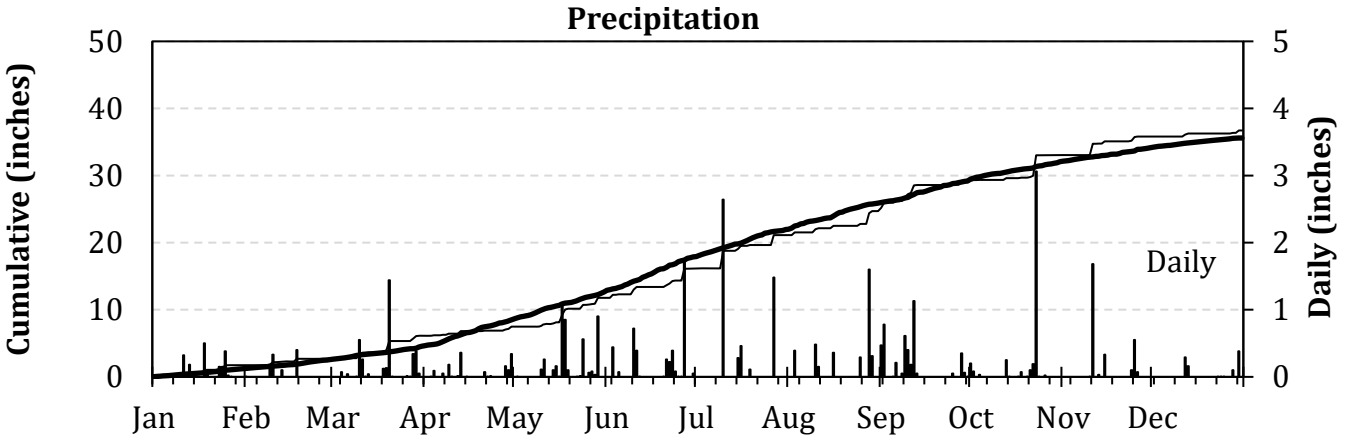


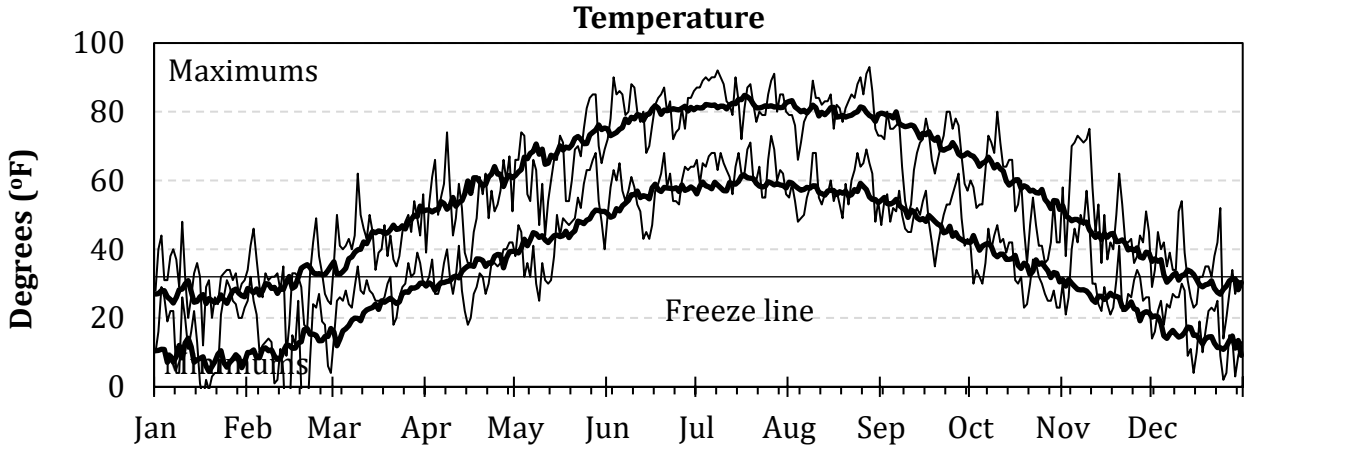


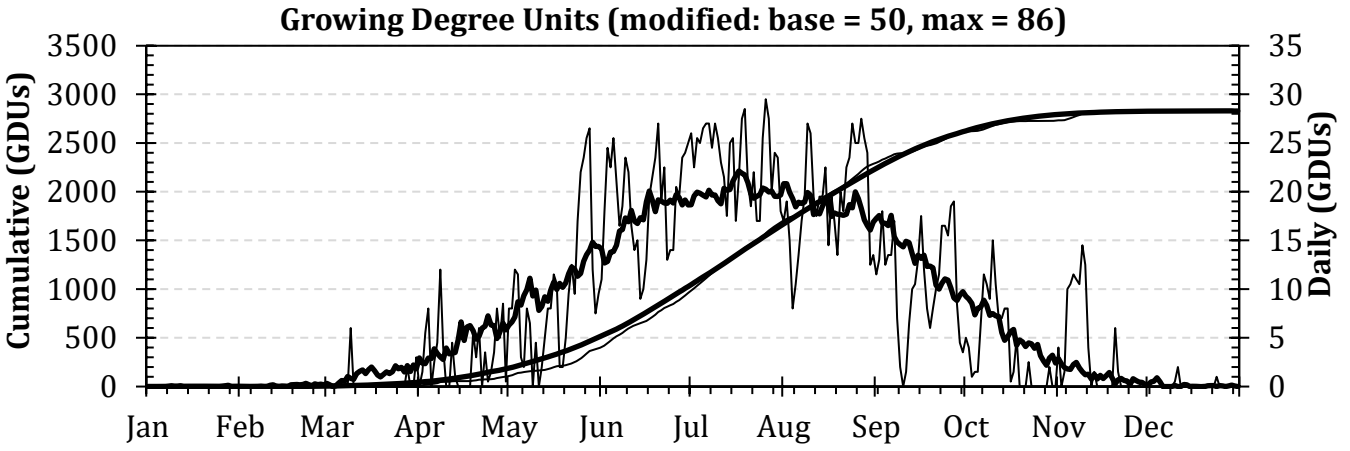


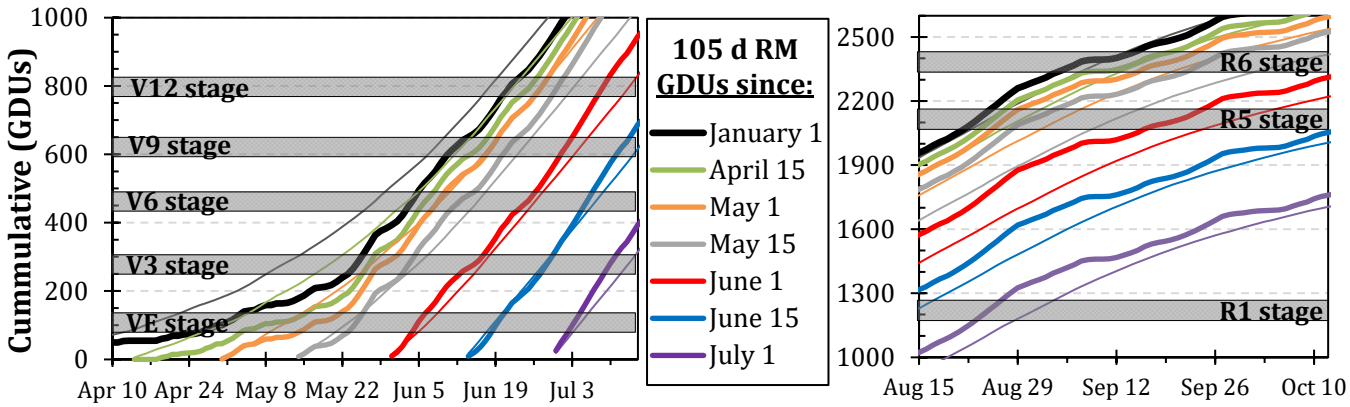
2020 Weather Summary for UW ARS - Arlington, WI

Bold Line = 30 year Normal









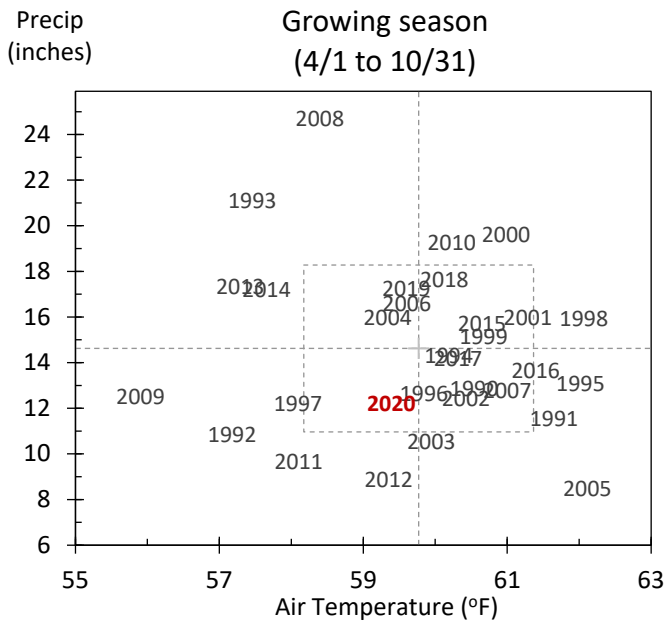
Lauer

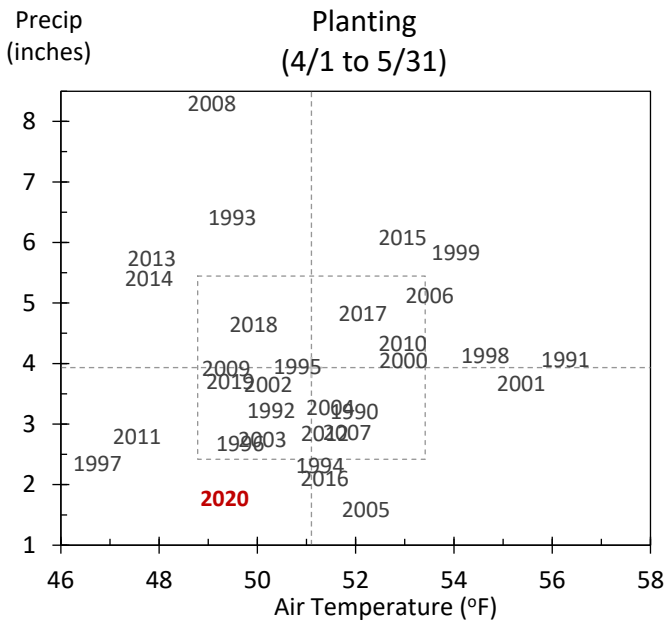
Data Source: Midwest Regional Climatological Center

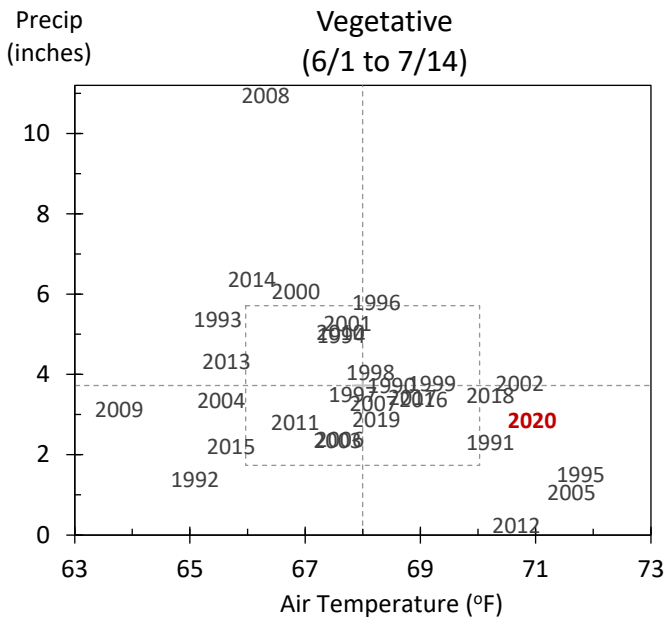
Last updated on 2021-01-25

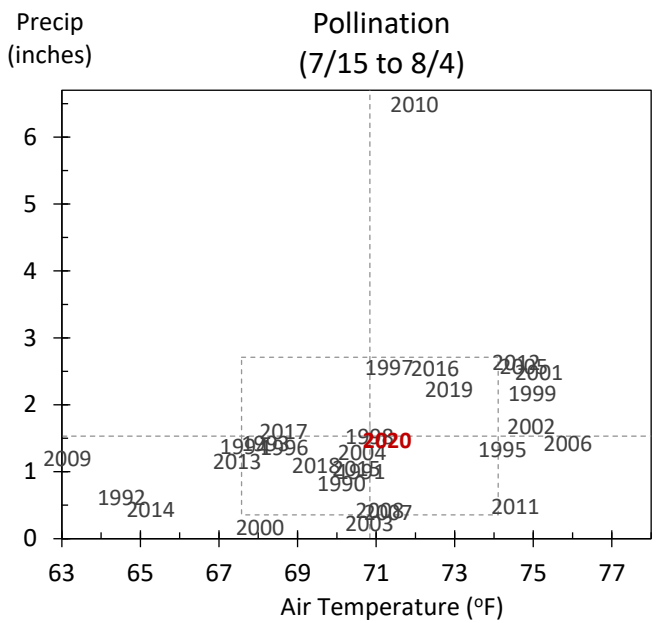
Average Temperature and Precipitation

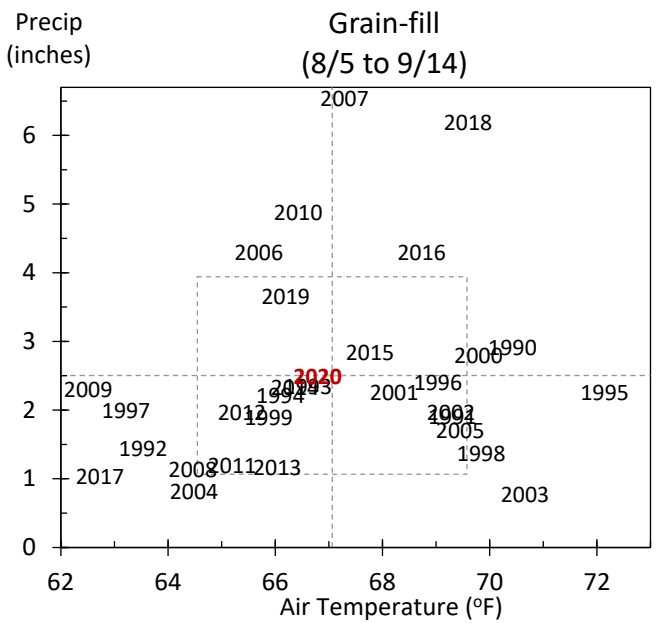
Dashed lines = 30-yr Normal; Dashed box = ± one standard deviation

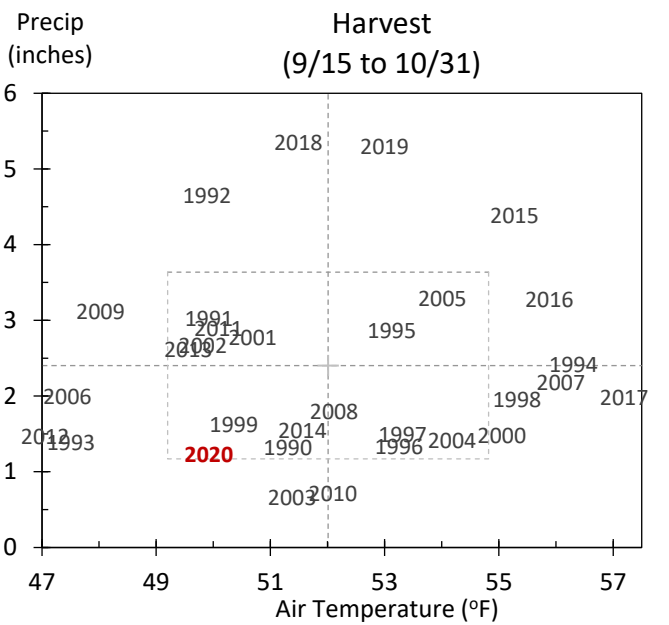












Lauer, UW-ARS Arlington

Table A-1. Monthly and total precipitation (inches) data for the Arlington Research Station.

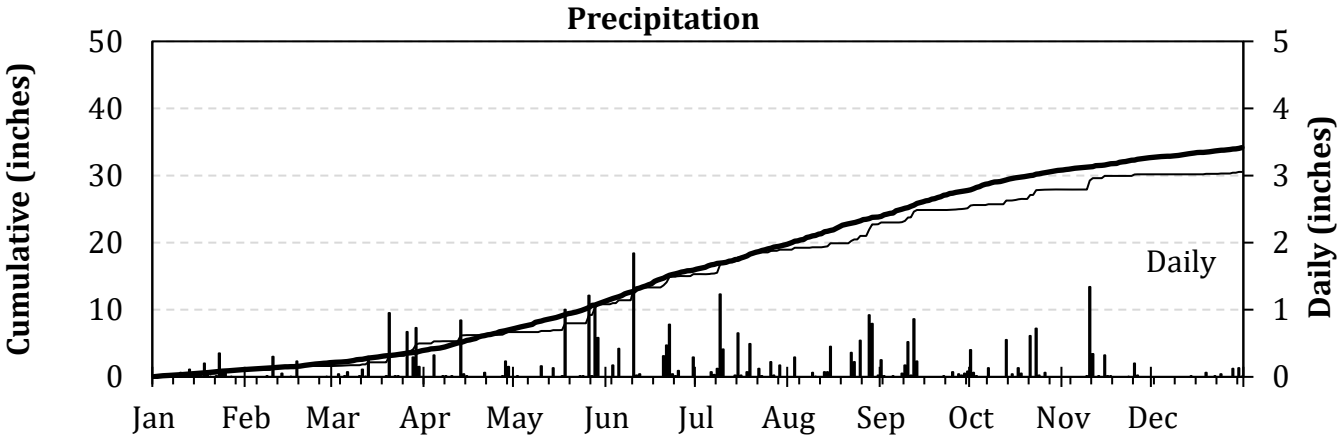
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1991	1.0	0.4	3.0	4.5	1.9	2.6	3.8	1.8	4.7	6.8	3.6	1.4	35.4
1992	0.5	1.6	1.7	4.0	1.2	1.2	5.8	1.9	7.5	1.3	5.2	2.8	34.6
1993	1.6	1.0	2.3	7.1	4.5	6.1	9.4	3.2	4.2	1.2	1.6	0.2	42.3
1994	0.9	2.0	0.1	2.3	2.0	7.9	6.1	4.0	4.7	0.5	2.8	0.8	34.0
1995	1.3	0.1	2.2	3.4	6.0	2.2	2.8	5.0	1.8	4.2	2.4	0.7	31.9
1996	1.8	0.5	0.3	2.6	3.2	7.8	2.4	2.8	0.9	3.3	0.8	1.6	28.0
1997	0.7	2.8	2.2	2.0	3.3	4.9	6.3	3.2	1.6	1.4	1.0	0.8	30.0
1998	1.2	0.9	3.3	4.0	4.1	6.8	2.1	6.7	3.0	3.4	1.6	0.3	37.4
1999	2.8	1.2	0.6	6.0	3.9	5.3	3.4	2.5	1.4	1.4	1.3	1.0	30.9
2000	1.0	2.3	1.4	3.4	10.5	7.2	3.4	3.3	3.1	0.7	1.5	1.5	39.3
2001	0.8	1.4	0.4	3.1	4.7	7.0	2.9	5.3	5.2	1.7	1.7	1.4	35.8
2002	0.5	1.1	0.8	3.4	3.2	4.3	2.9	3.7	1.9	4.0	2.1	0.6	28.7
2003	0.4	0.2	1.4	2.2	3.8	3.3	3.3	1.8	4.0	1.3	5.3	1.9	28.9
2004	0.3	1.2	2.7	1.9	10.3	4.1	4.3	3.0	0.5	3.3	1.6	1.6	34.8
2005	1.5	1.2	1.8	0.8	3.4	1.5	4.4	3.1	4.7	0.6	3.8	1.0	27.6
2006	1.6	0.6	2.1	5.1	4.3	4.5	4.1	6.1	5.4	3.2	1.7	0.9	39.6
2007	0.5	1.5	3.2	3.3	1.2	3.3	2.9	11.3	2.8	2.3	0.5	3.3	36.3
2008	2.9	2.6	2.8	9.3	3.3	13.8	5.1	1.9	1.6	3.4	1.3	1.8	49.8
2009	0.4	1.7	4.8	4.3	3.6	4.3	2.3	3.2	2.4	4.6	1.3	2.8	35.5
2010	1.7	1.1	1.0	3.7	4.2	7.6	9.3	4.7	4.5	1.7	1.4	1.7	42.5
2011	0.6	0.7	3.4	3.5	1.6	4.1	2.5	1.5	3.9	1.6	3.3	2.4	28.9
2012	0.8	1.0	2.5	3.1	2.9	0.3	4.3	2.9	1.0	4.0	1.1	2.5	26.3
2013	2.3	1.9	2.4	5.4	6.0	7.5	3.0	1.8	3.0	1.5	2.6	1.1	38.5
2014	0.7	1.0	1.0	6.4	2.8	9.3	1.9	3.7	1.8	2.7	1.7	1.1	34.3
2015	0.4	1.0	0.4	6.4	4.4	3.1	3.2	4.3	5.7	2.0	4.9	3.4	39.1
2016	0.8	0.4	4.3	1.5	3.4	4.4	6.5	5.5	6.2	3.4	1.6	1.3	39.2
2017	2.5	1.6	2.8	5.3	3.3	6.1	3.7	1.7	0.8	3.7	0.7	0.6	32.7
2018	1.5	1.7	0.8	2.6	7.1	5.3	2.4	9.4	4.4	5.3	1.5	1.6	43.6
2019	2.1	3.0	1.0	2.9	7.0	4.1	5.4	4.9	5.7	6.5	2.4	1.9	46.8
2020	1.7	1.0	3.4	1.4	4.3	4.4	5.0	3.6	4.3	4.0	2.8	0.9	36.7
30-year Average	1.2	1.3	2.0	3.8	4.2	5.1	4.2	3.9	3.4	2.8	2.2	1.5	35.6

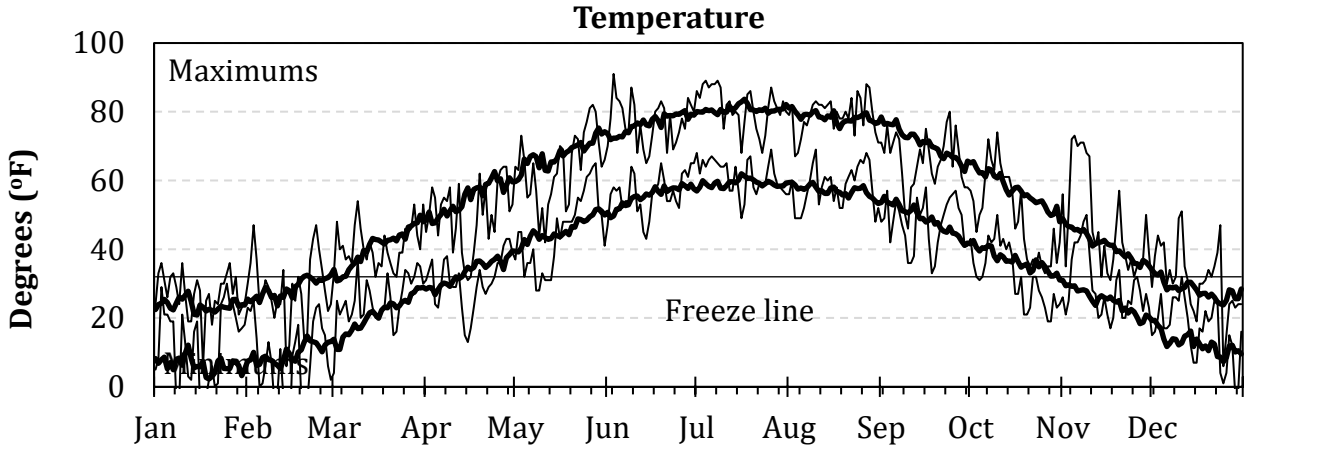
Table A-2. Average monthly and annual temperature (oF) data for the Arlington Research Station.

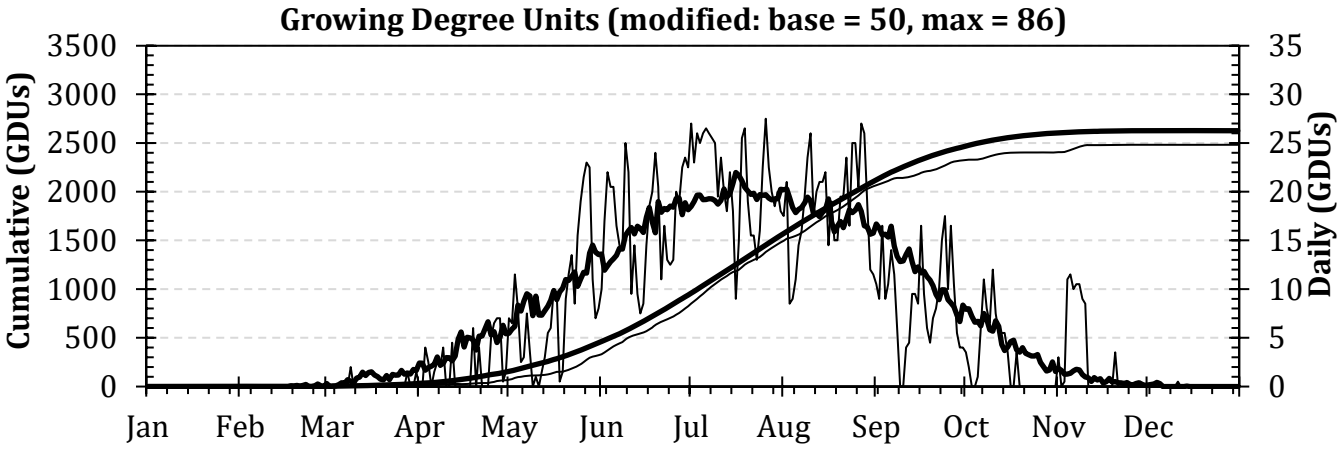
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1991	14	26	36	50	63	70	71	70	59	49	29	24	47
1992	24	28	33	43	58	64	66	64	59	47	31	22	45
1993	19	19	29	42	57	64	69	69	55	46	33	23	44
1994	6	13	33	46	56	68	67	67	64	53	40	28	45
1995	20	23	37	44	57	72	73	76	60	52	29	21	47
1996	16	22	29	44	55	68	69	70	62	51	30	23	45
1997	17	24	33	42	51	68	69	65	61	50	32	27	45
1998	23	33	33	48	62	66	71	71	65	51	39	30	50
1999	15	30	35	48	60	68	75	67	59	48	43	25	48
2000	20	29	41	45	61	65	69	71	62	54	34	10	47
2001	20	17	30	51	59	67	72	71	59	48	46	31	48
2002	26	27	29	46	54	69	75	70	64	44	34	27	47
2003	17	17	32	44	56	66	71	72	61	49	35	28	46
2004	14	22	37	47	56	65	69	64	65	50	39	24	46
2005	17	27	30	50	54	72	73	70	65	50	36	17	47
2006	29	21	34	50	57	66	73	69	58	44	38	29	48
2007	21	13	37	43	60	68	70	70	62	53	33	17	46
2008	15	14	27	45	53	66	70	67	61	47	34	14	43
2009	8	21	31	43	56	64	63	64	60	42	38	18	42
2010	14	19	36	49	57	66	71	70	58	50	36	15	45
2011	13	18	28	41	54	65	73	68	57	49	36	27	44
2012	21	27	46	44	59	68	76	67	58	45	34	25	47
2013	16	17	22	39	56	64	68	67	60	46	31	13	42
2014	6	8	22	41	55	67	65	69	60	48	28	27	41
2015	18	9	33	47	59	66	69	68	66	51	41	34	47
2016	18	25	38	45	58	69	71	71	64	52	43	21	48
2017	22	30	32	49	55	68	70	65	64	52	34	21	47
2018	17	19	32	35	64	69	71	71	64	47	30	27	46
2019	15	16	28	45	54	66	73	67	64	47	29	29	45
2020	24	21	36	43	56	69	74	70	60	44	42	25	47
30-year Average	17	21	33	45	57	67	71	69	61	49	35	23	46

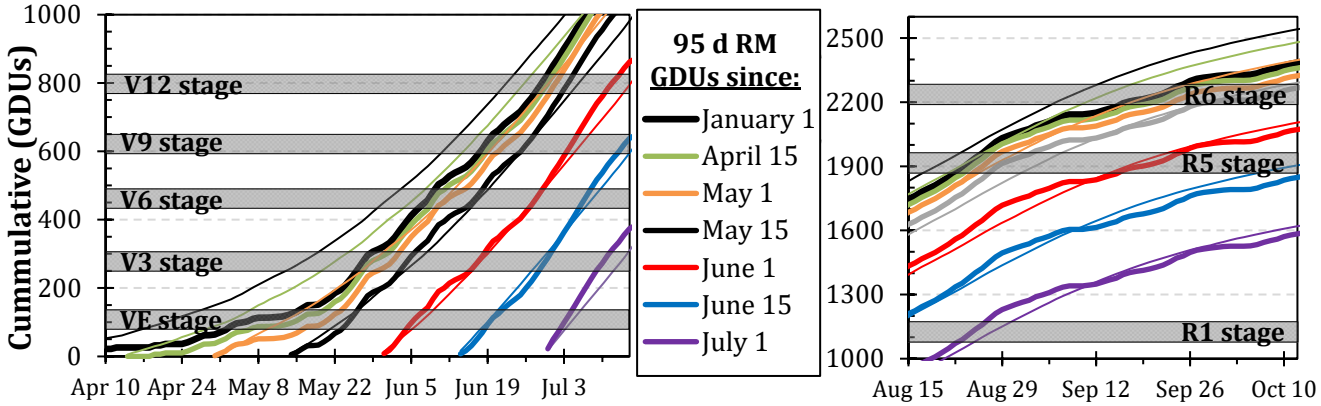
2020 Weather Summary for UW ARS - Marshfield, WI

Bold Line = 30 year Normal









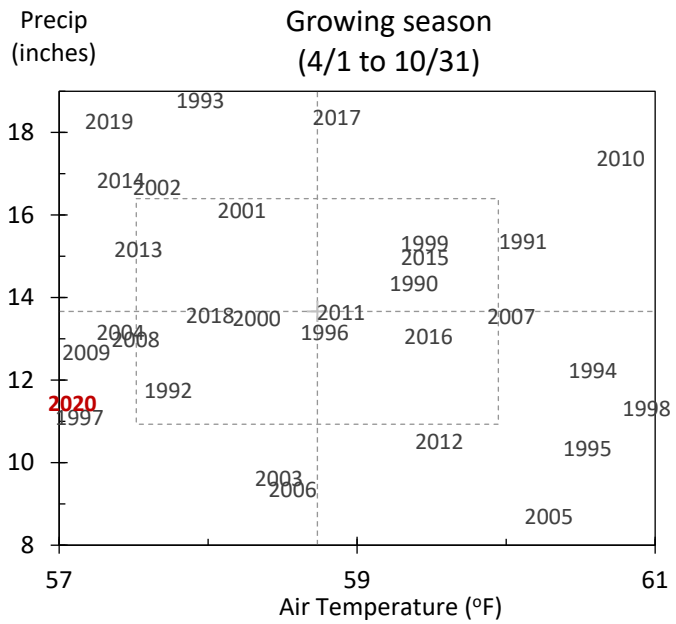
Lauer

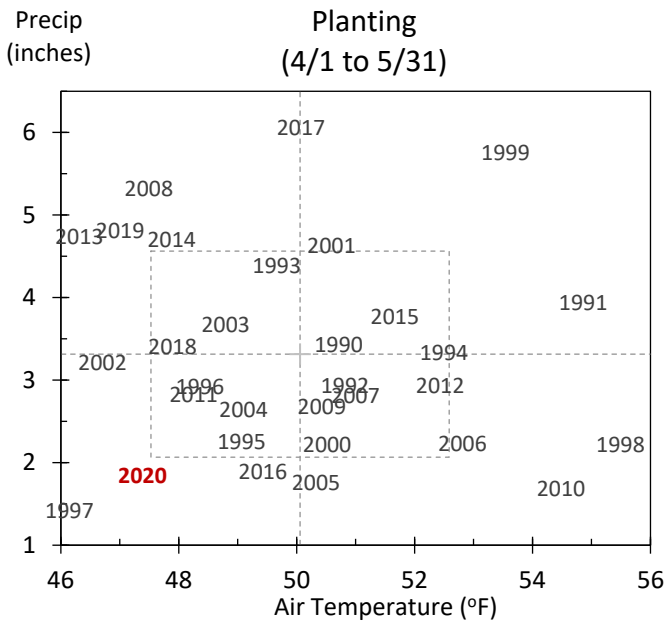
Data Source: Midwest Regional Climatological Center

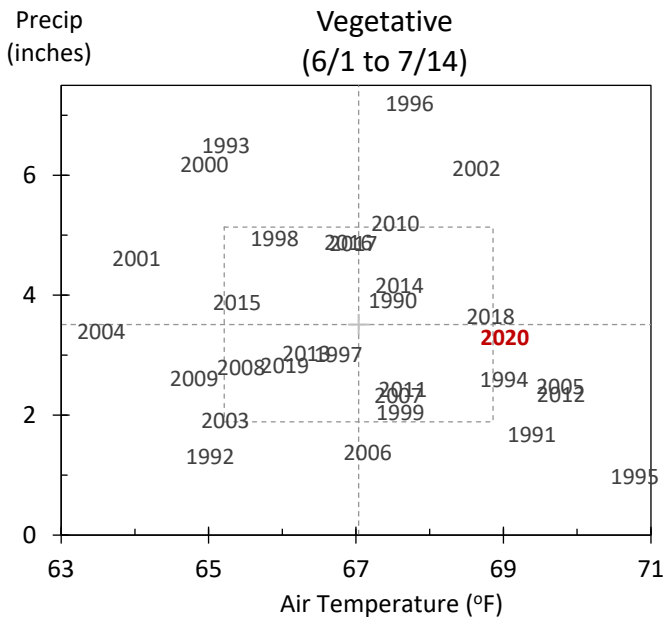
Last updated on 2021-01-25

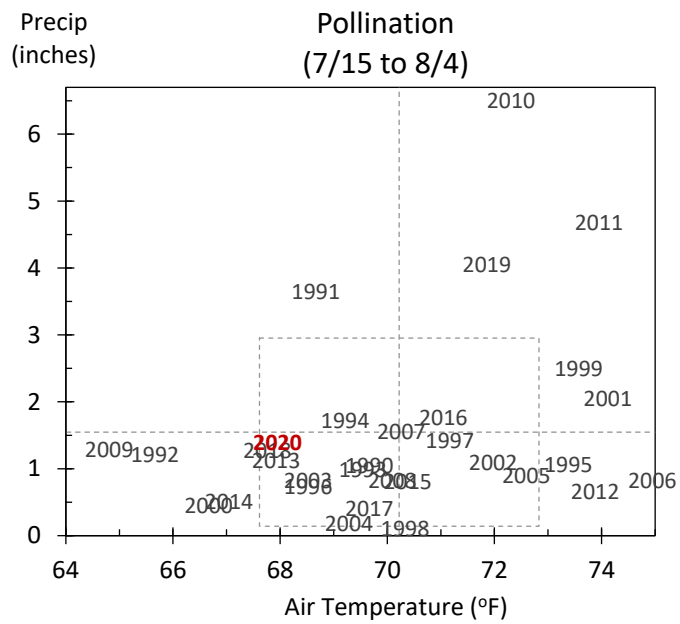
Average Temperature and Precipitation

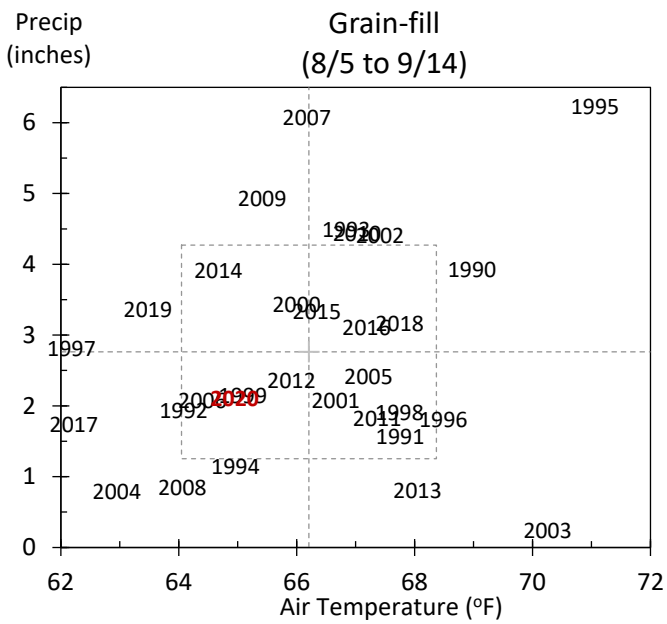
Dashed lines = 30-yr Normal; Dashed box = ± one standard deviation

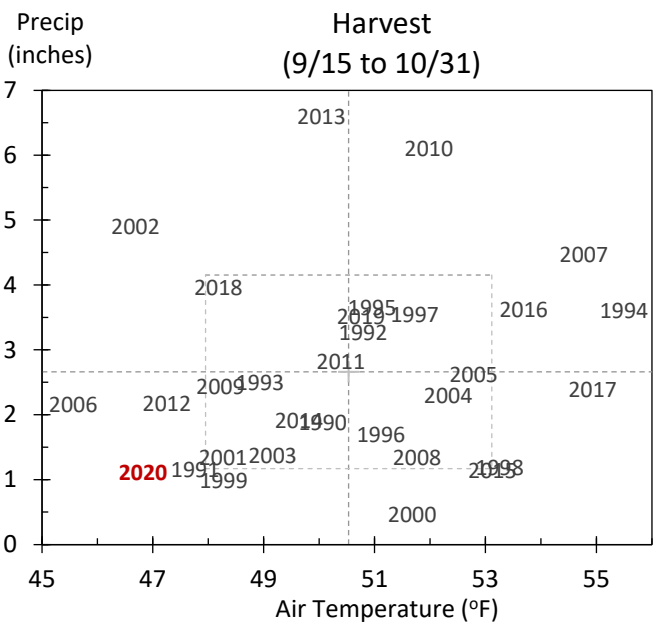












Lauer, UW-ARS Marshfield

Table A-3. Monthly and total precipitation (inches) data for the Marshfield Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1991	0.4	0.7	2.5	4.4	6.5	2.2	5.7	2.1	5.1	1.8	5.8	1.5	38.6
1992	0.5	0.7	2.1	2.8	3.8	1.8	4.0	2.7	8.0	1.0	4.0	1.5	33.1
1993	1.4	0.2	1.6	4.1	5.2	8.7	3.5	6.5	3.8	2.0	1.7	0.4	39.2
1994	0.8	0.6	0.3	4.4	1.0	2.3	7.7	2.1	4.9	1.4	2.5	0.3	28.3
1995	0.6	0.4	2.5	2.3	2.8	1.1	2.2	8.9	2.2	5.1	1.8	0.5	30.2
1996	2.5	0.5	1.8	3.1	2.6	8.6	2.0	2.0	2.8	3.1	2.8	1.4	33.1
1997	1.8	0.4	2.0	0.5	3.0	3.4	5.1	6.5	3.1	3.2	0.3	0.6	29.9
1998	1.8	1.7	2.2	1.9	3.1	8.6	0.5	3.2	0.6	2.8	1.5	0.3	28.0
1999	1.9	1.0	0.2	5.7	3.5	1.8	8.3	3.7	1.4	1.2	1.8	0.4	30.9
2000	1.4	0.5	2.0	1.9	3.7	7.5	2.3	4.0	4.7	0.3	2.0	1.3	31.5
2001	0.9	1.2	0.6	3.6	5.7	6.1	3.2	3.9	4.1	1.9	2.5	1.1	34.8
2002	0.3	1.9	2.7	3.3	3.1	9.0	2.7	6.0	6.5	3.8	0.1	0.3	39.8
2003	0.4	0.8	1.9	3.1	3.9	2.8	1.5	0.9	2.2	1.1	2.1	1.5	22.4
2004	0.7	1.4	2.8	1.3	8.7	4.2	1.9	2.5	1.6	4.2	1.6	1.8	32.6
2005	0.8	1.2	1.2	1.8	1.9	3.3	1.7	3.2	6.7	0.9	2.9	0.7	26.3
2006	0.9	0.4	1.6	1.6	4.1	2.2	2.1	4.2	2.5	2.5	1.3	2.1	25.5
2007	0.9	1.0	1.7	1.9	4.7	2.7	3.3	9.7	3.8	4.8	0.1	1.0	35.7
2008	1.3	1.1	0.6	5.8	3.3	3.4	3.2	1.3	1.9	1.6	2.0	2.2	27.8
2009	0.4	0.7	1.3	3.3	3.9	3.7	2.5	7.3	0.4	6.2	0.5	1.8	31.8
2010	0.9	0.3	0.7	1.0	3.6	6.8	11.1	4.4	9.0	2.4	2.9	2.0	45.0
2011	0.7	0.6	1.9	3.0	3.2	4.1	8.2	2.7	3.6	2.3	0.9	1.3	32.5
2012	1.2	1.1	1.3	2.3	3.8	3.6	1.3	4.1	1.7	5.8	1.2	1.7	29.1
2013	1.3	1.4	1.8	4.3	6.6	4.7	2.4	1.1	3.3	7.2	1.9	1.3	37.3
2014	1.4	1.5	0.8	5.2	4.8	5.2	3.0	6.9	3.1	3.5	2.2	1.6	39.1
2015	0.5	0.2	0.4	3.6	5.0	5.2	2.9	3.1	6.6	2.3	2.7	5.0	37.3
2016	0.7	0.7	4.8	1.8	2.9	6.6	4.3	3.9	6.0	2.2	1.9	2.1	37.6
2017	2.3	1.4	2.2	6.0	5.7	6.9	4.1	2.9	1.2	4.2	0.8	0.8	38.5
2018	1.3	2.5	0.7	2.5	4.1	5.5	2.6	4.5	4.9	5.0	1.8	1.3	36.6
2019	1.1	3.7	1.6	4.5	5.6	3.6	7.2	3.4	8.6	4.2	1.6	3.4	48.5
2020	1.0	0.6	3.4	1.7	4.2	4.5	3.6	3.8	2.4	2.8	2.3	0.4	30.5
30-year Average	1.1	1.0	1.7	3.1	4.1	4.7	3.8	4.0	3.9	3.0	1.9	1.4	33.7

Table A-4. Average monthly and annual temperature (oF) data for the Marshfield Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1991	12	23	33	49	61	70	69	69	57	47	27	20	45
1992	20	26	30	42	59	64	66	66	59	48	32	21	44
1993	17	19	30	42	57	63	70	70	55	48	32	22	44
1994	6	15	34	46	59	69	69	66	63	52	38	27	46
1995	19	20	35	41	57	71	73	74	59	49	26	18	45
1996	12	18	25	42	54	68	68	70	60	49	27	19	43
1997	13	23	28	42	50	67	68	64	60	48	30	26	43
1998	20	31	32	48	62	64	71	69	64	49	37	25	48
1999	12	26	32	48	59	67	73	67	58	46	40	22	46
2000	15	24	38	43	58	63	68	68	58	51	32	8	44
2001	19	13	27	45	56	63	71	70	57	46	43	27	45
2002	23	26	24	43	51	67	73	67	62	42	32	23	44
2003	13	11	29	43	55	64	69	71	60	46	32	25	43
2004	10	20	32	45	53	62	68	62	64	48	36	19	43
2005	13	24	27	48	53	70	71	68	63	50	33	17	45
2006	26	17	31	49	56	66	73	68	56	42	36	25	46
2007	19	11	34	43	59	67	69	68	61	53	32	14	45
2008	13	11	23	42	53	64	69	67	60	47	34	12	41
2009	6	20	30	44	57	65	65	66	62	42	40	19	43
2010	16	22	38	51	58	66	72	71	57	51	35	18	46
2011	12	18	27	41	55	65	74	70	57	50	36	24	44
2012	19	25	45	45	59	67	75	68	58	45	34	24	47
2013	16	16	24	37	56	64	70	68	61	47	30	12	42
2014	5	5	18	40	56	68	67	67	59	46	25	24	40
2015	14	7	31	46	57	65	69	66	65	48	39	31	45
2016	14	21	36	42	56	66	70	69	62	50	42	19	46
2017	18	26	28	47	53	66	70	65	62	49	30	16	44
2018	14	22	30	33	63	67	70	69	61	43	27	24	44
2019	13	11	25	42	52	64	72	66	62	44	28	21	42
2020	20	18	33	40	54	67	71	69	57	41	38	24	44
30-year Average	15	19	30	44	56	66	70	68	60	47	33	21	44

Observations and Data Collected

STATISTICAL ANALYSIS

All data are analyzed using generally accepted statistical tests. In most cases the probabilities of main effects and interactions are shown. The number listed is a percent probability that the effect difference is due to chance (i.e. not due to treatment). A Fisher's Protected Least Significant Difference (LSD) is calculated for all main effect probabilities of 10 percent or less.

Table B-1. Observations and Data Collected

Corn Measurements

AGI (Adjusted Gross Income)	Units	$/acre
	Formula	(weighted price per bushel x yield) - (yield x (handling + hauling + trucking)) -(storage x 0.02) - (yield x (grain moisture-15.5) x drying).
	Determination	Handling cost = $0.02 per bushel Hauling cost = $0.04 per bushel Trucking cost = $0.11 $ per bushel (100 miles) On-farm drying cost = $0.02 per point per bushel Storage = (yield*0.25 *4) + (yield*0.25*8); On-farm $0.02/bu. 3 days 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.
Grain Yield	Units	Bu/acre
	Formula	(43560/(plot width * plot length in feet)) * weight of sample in lbs.* ((100-sample moisture)/(100-15.5{moisture standard}))/56 lb/bu
Moisture	Units	%
	Determination	GRAIN: determined by Harvest Master unit on combine or wet weight method and adjusted to standard corn moisture 15.5% WHOLE PLANT: moisture of subsample of chopped whole plant moisture of subsample of chopped stover (whole plant less ears)
Test Weight	Units	lbs/bushel
	Determination	weight of known volume converted to lbs/bushel
Plant Height	Units	inches or centimeters
	Determination	plant height from soil surface to top leaf (flag) canopy.
	Observations	average of several plants in each plot
Ear Height	Units	inches
	Determination	height from soil surface to base of ear
	Observations	average of several plants in each plot
Broken Stalks	Units	%
	Determination	at harvest
	Observations	number of stalks broken below the ear + number of plants lodged at >45% from the whole plot (22' x 2 rows)
	Formula	(broken stalks + lodged plants)/total stalks x 100%

Table B-1. Observations and Data Collected

Kernel Mass	Units	mg/seed
	Determination	weight of 100 seeds converted to mg/seed
Plant Density	Units	plants per acre
	Determination	Early = plants at v3-v5 stage Late = just prior to harvest
	Observations	plant counts on whole plot (22' x 2 rows)
Ear Density	Units	Ears per acre
	Determination	Just prior to harvest
	Observations	Ear counts are taken from whole plot (22' x 2 rows)
Leaf Development	Units	none
	Determination	count of leaf number
	Observations	LEAF COLLARS: total number of visible leaf collars HAIL ADJUSTERS: total number of drooping leaves TOTAL: total number of leaves visible
Starch (Grain)	Units	%
	Determination	Near Infra-Red Transmittance Spectroscopy using a global calibration equation from Foss
	Observations	Plot subsample
Protein (Grain)	Units	%
	Determination	Near Infra-Red Transmittance Spectroscopy using a global calibration equation from Foss
	Observations	Plot subsample
Oil (Grain)	Units	%
	Determination	Near Infra-Red Transmittance Spectroscopy using a global calibration equation from Foss
	Observations	Plot subsample
Ethanol (Grain)	Units	%
	Determination	Near Infra-Red Transmittance Spectroscopy using a global calibration equation from Pioneer
	Observations	Plot subsample
Diseases ratings	Units	Rating score = 1-9 1,2,3= Worst; 4,5,6= Mid; 7,8,9= Best
	Determination	Based on amount of disease on plant part of interest
	Observations	Plot measured in the field
Forage Yield (Whole Plant)	Units	Tons of dry mater per acre
	Formula	weight of sample in lbs.* (43560/(2000*plot width * plot length in feet)).* ((100-sample moisture)/100)
Kernel Milk	Units	%
	Determination	percent milk remaining in kernel at harvest
	Observations	visual average of three ears from a non-harvest row
Kernel Milk Rating (KMR)	Formula	% Kernel Milk x 5
	Scale	0-5
Stover Moisture	Formula	% Greenness x Leaf Rating (Leaf Rating scale 1-5, Based on % of

Table B-1. Observations and Data Collected		
Rating (SMR)		upright leaves)
	Scale	0-5
Visual Moisture Rating (VMR)	Formula	KMR + SMR
	Scale	0-10
Crude Protein (CP)	Units	%
	Determination	wet lab or NIRS procedure on plot sub sample
Neutral Detergent Fiber	Units	%
	Determination	wet lab or NIRS procedure on plot sub sample
Neutral Detergent Fiber Digestibility	Units	%
	Determination	wet lab or NIRS procedure on plot sub sample
Acid Detergent Fiber	Units	%
	Determination	wet lab or NIRS procedure on plot sub sample
***In Vitro* Digestibility**	Units	%
	Determination	In vitro wet lab or NIRS procedure on plot sub sample
Starch content	Units	%
	Determination	wet lab or NIRS on plot sub sample
Kernel Rot	Units	none
	Determination	visual average of 5 plants at V2-V4
	Scale	1=deterioration 2=no deterioration
Emergence	Units	%
	Formula	Early stand / late stand count x 100%
Residue cover	Units	%
	Determination	Point transects centered on row.
% Survival	Units	%
	Formula	Early stand / late stand count x 100%
Root Rating	Determination	The ISU 0 to 3 node-injury root rating scale was used. A rating of 0.50 or below is considered acceptable economic root protection.
	Scale	0-3
Soybean Measurements		
AGI (Adjusted Gross Income)	Units	$/acre
	Formula	(weighted price per bushel x yield) - (yield x (handling + hauling + trucking)) -(storage x 0.02).
	Determination	Handling cost = $0.02 per bushel Hauling cost = $0.04 per bushel Trucking cost = $0.11 $ per bushel (100 miles) Storage = (yield*0.25*4)+ (yield*0.25*8); On-farm $0.02/bu. 30 days. Weighted Price per Bushel = $10.21 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 B-1. Observations and Data Collected		
Grain Yield	Units	Bu/acre
	Formula	(43560/(plot width * plot length in feet)) * weight of sample in lbs.* ((100-sample moisture)/(100-13{moisture standard}))/60 lb/bu
Grain Moisture	Units	%
	Determination	determined by detector on combine 13% is standard soybean moisture
Plant Height	Units	inches
	Determination	plant height from soil surface to tip of main stem
	Observations	average of several plants in each plot
Plant Lodging	Units	none
	Determination	based on average erectness of main stem of plant
	Observations	whole plot is assessed
	Scale	1=ALL PLANTS ERECT 2=SLIGHT LODGING 3=PLANTS LODGED AT 45 DEGREE ANGLE 4=PLANTS LODGED AT 60-80 DEGREE ANGLE
Seed Weight	Units	seeds/lb
	Determination	weight of 300 seeds converted to seeds/lb
Plant Density	Units	plants per acre
	Determination	early = plants at V3 to V5 stage late = just prior to harvest
	Observations	plants counts are taken from 5 linear feet of plot X the harvested area
% Survival	Units	%
	Formula	Early stand / late stand count x 100%
Wheat Measurements		
AGI (Adjusted Gross Income)	Units	$/acre
	Formula	(weighted price per bushel x yield) – (yield x (handling + hauling + trucking)) -(storage x 0.02).
	Determination	Handling cost = $0.02 per bushel Hauling cost = $0.04 per bushel Trucking cost = $0.11 $ per bushel (100 miles) Storage = (yield*0.25*4)+ (yield*0.25*8); On-farm $0.02/bu. 30 days. Weighted Price per Bushel = $5.22 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.
Grain Yield	Units	Bu/acre
	Formula	(43560/(plot width * plot length in feet)) * weight of sample in lbs.* ((100-sample moisture)/(100-13.5{moisture standard}))/60 lb/bu
Grain Moisture	Units	%
	Determination	Determined by sensor on combine 13.5% is standard wheat moisture

Soils Information

Table B-2.

Location Lat - Long	Soil Series	Soil Family	Soil Subgroup
Arlington ARS 43 ° 18 ’- 89º 21’	Plano silt loam (predominant soil)	Fine-silty, mixed, mesic	Typic Agriudoll
	Ringwood silt loam	Fine-loamy, mixed, mesic	Typic Argiudoll
	Saybrook silt loam	Fine-silty, mixed, mesic	Typic Argiudoll
	Radford silt loam	Fine-silty, mixed, mesic	Fluvaquentic Hapludoll
	Sable silt loam	Fine-silty, mixed, mesic	Typic Haplaquoll
	Huntsville silt loam	Fine-silty, mixed, mesic	Cumulic Hapludoll
	Elburn silt loam	Fine-silty, mixed mesic	Aquic Argiudoll
	Channahon silt loam	Loamy, mixed, mesic	Lithic Argiudoll
Hancock ARS 44 ° 7 ‘ - 89 ° 32 ‘	Plainfield loamy sand (Predominant soil)	Mixed, mesic	Typic Udipsamment
	Sparta loamy sand	Sandy, mixed, mesic	Entic Hapludoll
Lancaster ARS 42 ° 50 ‘ - 90 ° 47 ‘	Fayette silt loam	Fine-silty, mixed, mesic	Typic Hapludalf
	Rozetta silt loam	Fine-silty, mixed, mesic	Typic Hapludalf
	Dubuque silt loam	Fine-silty, mixed, mesic	Typic Hapludalf
Marshfield ARS 44 ° 39 ‘ - 90 ° 8 ‘	Withee silt loam (Predominant soil)	Fine-loamy, mixed	Aquic Glossoboralf
	Marshfield silt loam	Fine-loamy, mixed, frigid	Typic Ochraqualf
Spooner ARS 45 ° 49 ‘ - 91 ° 53 ‘	Chetek sandy loam	Coarse-loamy, mixed	Eutric Glossaboralf
	Pence sandy loam	Sandy, mixed, frigid	Entic Haplorthod
	Omega loamy sand	Sandy, mixed, frigid	Typic Udipsamment
	Antigo silt loam	Well drained silt loam-sandy loam soils	

FIELD EXPERIMENT HISTORY

Title: **Corn Hybrid Growth and Development**

Experiment: 01GD **Trial ID:** 6428 **Year:** 2020

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:** 10/1 /20 **pH** 6.1 **OM (%)** 2.8 **P (ppm)** 60 **K (ppm)** 119

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:	**Preplant Analysis:**	32-0-0	**Rate lbs/A:** 113	**Date:**	N/A
	Starter Analysis:	9-11-30-6S-1Z	**Rate lbs/A:** 200 lbs/	**Date:**	4 /28/20
	Post plant Analysis	N/A	**Rate lbs/A:** N/A	**Date:**	N/A
	Manure: 13543 gal/A				

Herbicide: Resicore 80 oz/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** Factor

Planting Date: 4/28/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/9/15 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.3 acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 33587 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Dekalb DKC31-10 (81)
2) Legacy L2347VT2PRIB (83)
3) Renk RK287VT2P (85)
4) Jung 36DP318 (86)
5) Jung 39DP338 (89)
6) NK Brand NK9175-3110A (91)
7) ProHarvest 4340VT2PRIB (93)
8) Dairyland DS-3550AM (95)
9) LG Seeds LG5465 VT2PRIB (97)
10) ProHarvest 4990VT2PRIB (99)
11) Federal 5280VT2P (103)
12) Wyffels W4196RIB (105)
13) AgriGold A638-74VT2RIB (108)
14) FS InVision 60UX1RIB (110)
15) AgriGold A642-47STX (112)
16) Dekalb DKC65-94 (115)

Results: Table 2001-01 & 2001-02.

Table: 2001-01. Determining Corn Hybrid Maturity - Comparison of Hybrids. Arlington, WI - 2020.

Hybrid	Relative maturity	Grain yield	Grain moisture	Test wt	Lodged			AGI	Silking date
					Total	Stalk	Root		
		bu/A	%	lb/bu	%	%	%	$/A	doy
Dekalb DKC31-10	81	158	15.2	58	10	0	10	530	190
Legacy L2347VT2PRIB	83	214	15.7	60	9	0	9	717	192
Renk RK287VT2P	85	210	16.9	58	17	0	17	697	194
Jung 36DP318	86	224	17.0	59	14	1	12	744	193
Jung 39DP338	89	245	15.3	56	7	2	5	820	193
NK Brand NK9175-3110A	91	117	18.6	59	79	0	79	384	195
ProHarvest 4340VT2PRIB	93	241	17.6	58	10	0	10	796	197
Dairyland DS-3550AM	95	270	17.7	55	3	0	3	893	196
LG Seeds LG5465 VT2PRIB	97	258	18.6	59	6	0	6	847	198
ProHarvest 4990VT2PRIB	99	255	18.2	59	10	0	10	842	198
Federal 5280VT2P	103	257	18.4	56	17	0	17	847	199
Wyffels W4196RIB	105	291	23.4	56	1	0	1	930	198
AgriGold A638-74VT2RIB	108	263	24.9	56	4	0	4	831	203
FS InVision 60UX1RIB	110	245	25.5	55	36	0	36	773	203
AgriGold A642-47STX	112	240	30.8	53	17	0	17	731	204
Dekalb DKC65-94	115	263	29.3	54	17	0	17	810	203
Mean		235	20.2	57	16	0	16	762	197
Probability(%)									
Hybrid (H)		0.0	0.0	0.0	0.0	14.1	0.0	0.0	0.0
LSD(0.10)									
Hybrid (H)		21	2.0	2	13	NS	13	69	1

Table: 2001-02. Determining Corn Hybrid Maturity - Comparison of Hybrids. Arlington, WI - 2020.

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
		153	2.3	4.0	4.4	4.9
		167	5.9	7.8	10.0	19.1
		181	10.3	12.4	14.7	58.2
		195	16.8	17.1	17.8	104.6
		209	19.0	19.0	19.0	112.0
Dekalb DKC31-10	81		10.8	11.8	13.1	62.5
LG Seeds LG5465 VT2PRIB	83		11.1	12.3	13.3	59.8
Renk RK287VT2P	85		11.2	12.2	13.6	62.1
Jung 36DP318	86		11.0	12.1	13.1	61.0
Jung 39DP338	89		11.6	12.7	13.6	60.5
NK Brand NK9175-3110A	91		10.3	11.3	12.4	52.9
ProHarvest 4340VT2PRIB	93		10.8	12.0	13.0	59.2
Dairyland DS-3550AM	95		10.8	12.1	13.3	61.4
Legacy L2347VT2PRIB	97		11.2	12.5	13.5	59.5
ProHarvest 4990VT2PRIB	99		11.1	12.3	13.6	62.1
FS InVision 60UX1RIB	103		10.8	11.9	13.0	55.3
Wyffels W4196RIB	105		10.5	11.8	12.8	62.4
AgriGold A638-74VT2RIB	108		9.6	11.0	12.0	63.2
Federal 5280VT2P	110		11.1	12.1	13.6	61.9
AgriGold A642-47STX	112		11.2	12.5	13.8	57.0
Dekalb DKC65-94	115		10.7	12.2	13.3	55.5
Dekalb DKC31-10	81	153	2.2	4.0	4.7	5.4
LG Seeds LG5465 VT2PRIB	83	153	2.5	4.0	4.3	5.2
Renk RK287VT2P	85	153	2.7	4.0	5.0	5.7
Jung 36DP318	86	153	2.5	4.0	4.7	5.2
Jung 39DP338	89	153	3.0	4.5	5.0	5.3
NK Brand NK9175-3110A	91	153	2.0	3.7	4.0	4.7
ProHarvest 4340VT2PRIB	93	153	2.0	3.7	4.0	4.5
Dairyland DS-3550AM	95	153	2.8	4.2	5.0	4.8
Legacy L2347VT2PRIB	97	153	2.7	4.2	4.8	5.5
ProHarvest 4990VT2PRIB	99	153	2.7	4.0	4.5	5.2
FS InVision 60UX1RIB	103	153	1.8	3.8	3.8	3.8
Wyffels W4196RIB	105	153	2.0	4.0	4.0	5.0
AgriGold A638-74VT2RIB	108	153	2.0	4.0	4.2	4.7
Federal 5280VT2P	110	153	2.5	4.0	4.8	5.4
AgriGold A642-47STX	112	153	2.0	4.0	4.0	4.3
Dekalb DKC65-94	115	153	1.7	3.3	3.8	4.0

continued

Table: 2001-02. Determining Corn Hybrid Maturity - Comparison of Hybrids. Arlington, WI - 2020.
(continued)

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
Dekalb DKC31-10	81	167	6.0	7.5	10.3	18.5
LG Seeds LG5465 VT2PRIB	83	167	5.8	7.8	10.0	20.5
Renk RK287VT2P	85	167	5.8	7.8	10.5	19.7
Jung 36DP318	86	167	6.3	8.7	10.7	19.3
Jung 39DP338	89	167	7.0	9.0	11.3	21.0
NK Brand NK9175-3110A	91	167	6.0	7.8	9.3	18.7
ProHarvest 4340VT2PRIB	93	167	5.8	7.7	9.7	18.3
Dairyland DS-3550AM	95	167	6.0	8.0	10.3	18.7
Legacy L2347VT2PRIB	97	167	6.0	8.5	11.0	20.8
ProHarvest 4990VT2PRIB	99	167	6.0	7.7	10.3	19.5
FS InVision 60UX1RIB	103	167	5.8	7.2	9.0	18.0
Wyffels W4196RIB	105	167	5.7	7.8	9.3	17.8
AgriGold A638-74VT2RIB	108	167	5.2	7.0	9.2	19.2
Federal 5280VT2P	110	167	6.0	7.8	10.2	21.3
AgriGold A642-47STX	112	167	6.0	7.5	10.0	18.3
Dekalb DKC65-94	115	167	5.7	7.5	9.5	16.0
Dekalb DKC31-10	81	181	10.3	11.8	14.8	61.5
LG Seeds LG5465 VT2PRIB	83	181	10.7	13.3	15.2	57.0
Renk RK287VT2P	85	181	10.7	12.3	15.0	59.0
Jung 36DP318	86	181	11.0	12.8	15.2	62.3
Jung 39DP338	89	181	11.7	13.7	15.5	60.2
NK Brand NK9175-3110A	91	181	9.8	11.0	13.7	57.3
ProHarvest 4340VT2PRIB	93	181	9.8	12.5	14.3	53.7
Dairyland DS-3550AM	95	181	10.3	13.0	15.0	59.3
Legacy L2347VT2PRIB	97	181	11.2	13.8	15.7	61.5
ProHarvest 4990VT2PRIB	99	181	10.2	13.0	15.0	59.0
FS InVision 60UX1RIB	103	181	10.0	11.2	14.0	52.3
Wyffels W4196RIB	105	181	10.0	12.3	14.8	63.3
AgriGold A638-74VT2RIB	108	181	9.0	11.7	13.2	62.5
Federal 5280VT2P	110	181	10.2	11.8	14.8	60.7
AgriGold A642-47STX	112	181	10.0	12.3	14.7	54.2
Dekalb DKC65-94	115	181	9.5	12.2	14.0	47.8
Dekalb DKC31-10	81	195	17.7	17.7	17.7	111.8
LG Seeds LG5465 VT2PRIB	83	195	17.0	17.0	17.7	102.8
Renk RK287VT2P	85	195	18.0	18.2	18.5	111.7
Jung 36DP318	86	195	17.5	17.5	17.5	111.2
Jung 39DP338	89	195	18.0	18.0	18.0	107.2
NK Brand NK9175-3110A	91	195	15.7	16.2	17.2	90.3
ProHarvest 4340VT2PRIB	93	195	17.2	17.3	18.2	105.8

continued

Table: 2001-02. Determining Corn Hybrid Maturity - Comparison of Hybrids. Arlington, WI - 2020.
(continued)

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
Dairyland DS-3550AM	95	195	16.3	16.8	17.8	109.8
Legacy L2347VT2PRIB	97	195	18.0	18.0	18.0	106.2
ProHarvest 4990VT2PRIB	99	195	17.2	17.5	18.5	108.8
FS InVision 60UX1RIB	103	195	16.2	16.8	17.8	94.3
Wyffels W4196RIB	105	195	16.0	16.0	17.0	109.2
AgriGold A638-74VT2RIB	108	195	13.7	14.2	15.0	104.0
Federal 5280VT2P	110	195	17.2	17.3	18.3	107.2
AgriGold A642-47STX	112	195	16.8	17.7	19.0	100.0
Dekalb DKC65-94	115	195	15.7	17.0	18.3	93.5
Dekalb DKC31-10	81	209	18.0	18.0	18.0	115.5
LG Seeds LG5465 VT2PRIB	83	209	19.3	19.3	19.3	113.7
Renk RK287VT2P	85	209	18.8	18.8	18.8	114.7
Jung 36DP318	86	209	17.7	17.7	17.7	106.8
Jung 39DP338	89	209	18.2	18.2	18.2	108.8
NK Brand NK9175-3110A	91	209	17.8	17.8	17.8	93.3
ProHarvest 4340VT2PRIB	93	209	19.0	19.0	19.0	113.7
Dairyland DS-3550AM	95	209	18.3	18.3	18.3	114.3
Legacy L2347VT2PRIB	97	209	18.0	18.0	18.0	103.3
ProHarvest 4990VT2PRIB	99	209	19.5	19.5	19.5	118.0
FS InVision 60UX1RIB	103	209	20.3	20.3	20.3	108.2
Wyffels W4196RIB	105	209	19.0	19.0	19.0	116.8
AgriGold A638-74VT2RIB	108	209	18.3	18.3	18.3	125.7
Federal 5280VT2P	110	209	19.7	19.7	19.7	115.0
AgriGold A642-47STX	112	209	21.2	21.2	21.2	108.0
Dekalb DKC65-94	115	209	20.8	20.8	20.8	116.2
Mean			10.9	12.1	13.2	59.8
Probability(%)						
Hybrid (H)			0.0	0.0	0.0	0.0
Day Of Year (D)			0.0	0.0	0.0	0.0
H x D			0.0	0.0	0.0	0.0
LSD(0.10)						
Hybrid (H)			0.3	0.3	0.3	2.3
Day Of Year (D)			0.2	0.2	0.2	1.3
H x D			0.6	0.7	0.7	5.1

FIELD EXPERIMENT HISTORY

Title: **Corn Hybrid Growth and Development**

Experiment: 01GD **Trial ID:** 6498 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Marshfield, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Fenwood Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 6.9 **OM (%)** 3.3 **P (ppm)** 24 **K (ppm)** 146

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:	**Preplant Analysis:**	N/A	**Rate lbs/A:**	N/A	**Date:**	N/A
	Starter Analysis:	9-11-30-6S-1Z	**Rate lbs/A:**	200 lbs/	**Date:**	5 /1 /20
	Post plant Analysis	30-0-0-2.6S	**Rate lbs/A:**	117	**Date:**	N/A
	Manure: 25 ton					
Herbicide:	Instigate 6 oz/A Breakfree 3.8 pt/A		**Insecticide:**	Force 3G 4.4 lbs/A		
			Hybrid:	Factor		
Irrigation:	None					

Planting Date: 5/1/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/9/15 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.3 acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 33787 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Dekalb DKC31-10 (81)
2) Legacy L2347VT2PRIB (83)
3) Renk RK287VT2P (85)
4) Jung 36DP318 (86)
5) Jung 39DP338 (89)
6) NK Brand NK9175-3110A (91)
7) ProHarvest 4340VT2PRIB (93)
8) Dairyland DS-3550AM (95)
9) LG Seeds LG5465 VT2PRIB (97)
10) ProHarvest 4990VT2PRIB (99)
11) Federal 5280VT2P (103)
12) Wyffels W4196RIB (105)
13) AgriGold A638-74VT2RIB (108)
14) FS InVision 60UX1RIB (110)
15) AgriGold A642-47STX (112)
16) Dekalb DKC65-94 (115)

Results: Table 2001-03.

Table: 2001-03. Determining Corn Hybrid Maturity - Comparison of Hybrids. Marshfield, WI - 2020.

Hybrid	Relative maturity	Grain yield	Grain moisture	Test weight	Lodging			AGI
					Total	Stalk	Root	$3.58
		bu/A	%	lb/bu	%	%	%	$/A
Dekalb DKC31-10	81	203	23.8	53	0	0	0	646
Legacy L2347VT2PRIB	83	210	23.0	53	1	0	0	672
Renk RK287VT2P	85	195	26.6	50	1	1	0	610
Jung 36DP318	86	206	26.3	51	0	0	0	646
Jung 39DP338	89	225	23.6	51	0	0	0	718
NK Brand NK9175-3110A	91	202	25.4	51	0	0	0	636
ProHarvest 4340VT2PRIB	93	209	26.9	49	0	0	0	652
Dairyland DS-3550AM	95	194	32.5	45	1	1	1	585
LG Seeds LG5465 VT2PRIB	97	204	28.7	49	0	0	0	629
ProHarvest 4990VT2PRIB	99	200	27.8	50	1	1	0	622
Federal 5280VT2P	103	208	32.7	48	0	0	0	627
Wyffels W4196RIB	105	205	33.0	48	1	1	0	616
AgriGold A638-74VT2RIB	108	159	41.5	50	3	3	0	449
FS InVision 60UX1RIB	110	148	47.7	50	1	0	1	400
AgriGold A642-47STX	112	149	48.0	49	0	0	0	405
Dekalb DKC65-94	115	138	47.9	52	2	1	1	374
Mean		191	32.2	50	1	1	0	580
Probability(%)								
Hybrid (H)		0.0	0.0	0.0	1.1	0.2	65.5	0.0
LSD(0.10)								
Hybrid (H)		22	3.6	1	1	1	NS	74

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6449 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Arlington, WI **County:** Columbia

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 6.1 **OM (%)** 2.8 **P (ppm)** 60 **K (ppm)** 119

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	350 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	4 /28/20
Post plant	N/A	N/A	N/A
Manure:	Dairy	13543 gal/A	N/A

Herbicide: Resicore 80.0 oz/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** Factor

Planting Date: 4/28/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/14/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.12 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 36580 **plants per acre**

Hybrids:

90771	SK6758
90921	SL6177
91089	SL6768
91384	SL7117
91480	SL7918
91482	SM6664
SK6167	

Results: Table 2001-04.

Table: 2001-04. Syngenta Corn Silage Evaluation Study.

Arlington, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90771	13.0	66.8	7.9	22.7	41.0	81.6	55.2	25.4	2935	38270
90921	12.2	66.5	7.6	21.9	40.0	82.7	57.0	30.3	3289	40292
91089	13.0	68.7	8.0	21.1	39.1	83.2	56.9	29.1	3186	41445
91384	12.4	66.6	8.2	20.4	38.3	84.3	59.3	31.1	3346	41695
91480	11.1	71.3	7.0	23.8	42.5	80.6	54.9	24.8	2871	32520
91482	11.5	68.1	7.5	24.1	42.1	81.4	55.8	27.6	3146	36405
SK6167	12.3	69.1	8.1	22.7	41.3	82.1	56.6	25.9	3038	37477
SK6758	11.8	69.6	8.1	23.8	43.3	80.8	55.7	21.3	2737	32186
SL6177	10.2	70.3	7.9	23.2	42.2	82.5	58.5	24.5	2999	30578
SL6768	10.4	70.0	8.2	23.0	42.3	81.3	55.9	22.0	2758	28661
SL7117	10.8	68.8	7.7	21.4	39.2	82.2	54.5	30.5	3217	34914
SL7918	12.2	69.6	7.9	19.8	37.5	84.7	59.3	29.9	3217	39496
SM6664	10.7	68.4	7.4	22.1	40.2	82.2	55.9	28.3	3112	33436
Mean	11.7	68.8	7.8	22.3	40.7	82.3	56.6	27.0	3066	35952
Probability (%)										
Hybrid (H)	12.5	39.1	2.6	77.8	66.8	65.2	28.2	6.3	1.9	16.9
LSD (0.10)										
Hybrid (H)	NS	NS	0.5	NS	NS	NS	NS	5.5	288	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6450 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Chippewa Falls, WI **County:** Chippewa

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Sattre Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 5.5 **OM (%)** 1.6 **P (ppm)** 69 **K (ppm)** 117

Plot Management

Tillage Operations: Spring Chisel Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	21-0-0-24S	52 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /4 /20
Post plant	46-0-0	200 lbs/A	N/A
Manure:	Dairy	10000 gal/A	N/A

Herbicide: Acuron 3.0 qt/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** Factor

Planting Date: 5/4/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/11/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.05 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 32954 **plants per acre**

Hybrids:

90771
SH4397
SH4688
SK6167
SL5367

Results: Table 2001-05.

Table: 2001-05. Syngenta Corn Silage Evaluation Study.

Chippewa Falls, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90771	11.4	63.6	6.6	20.5	37.8	84.4	58.7	31.5	3251	37160
SH4397	10.3	64.1	7.2	17.7	34.8	87.5	64.2	32.4	3328	34292
SH4688	10.5	62.9	7.4	18.7	35.7	85.2	58.4	31.7	3198	33560
SK6167	10.4	68.9	6.8	22.5	40.3	82.0	55.9	27.7	3039	31918
SL5367	11.0	62.4	7.0	17.2	34.3	87.5	63.6	34.6	3423	37497
Mean	10.7	64.4	7.0	19.3	36.6	85.3	60.2	31.6	3248	34885
Probability (%)										
Hybrid (H)	56.3	6.0	4.8	11.1	9.6	10.0	6.9	13.1	11.1	44.8
LSD (0.10)										
Hybrid (H)	NS	3.7	0.4	NS	3.9	NS	5.2	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6451 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Fond du Lac, WI **County:** Fond du Lac

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Virgil Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 6.6 **OM (%)** 3.0 **P (ppm)** 20 **K (ppm)** 117

Plot Management

Tillage Operations: Strip-Till

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	107 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /5 /20
Post plant	32-0-0	397 lbs/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Acuron 3.0 qt/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** Factor

Planting Date: 5/5/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/18/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.04 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 24495 **plants per acre**

Hybrids:

90594
90771
SK6758
SL5367

Results: Table 2001-06.

Table: 2001-06. Syngenta Corn Silage Evaluation Study.

Fond du Lac, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90594	8.8	66.1	6.0	19.8	37.8	87.1	66.3	27.8	3131	27828
90771	8.1	65.4	5.4	19.1	36.4	86.7	63.6	30.8	3210	26134
SK6758	8.2	62.7	6.0	16.7	33.3	89.3	68.0	34.2	3384	27564
SL5367	9.0	66.1	5.3	20.4	38.1	86.1	63.7	28.7	3123	28163
Mean	8.5	65.1	5.7	19.0	36.4	87.3	65.4	30.4	3212	27422
Probability (%)										
Hybrid (H)	81.7	15.1	9.7	12.6	11.1	17.0	20.6	11.5	19.9	96.0
LSD (0.10)										
Hybrid (H)	NS	NS	0.6	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6452 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Galesville, WI **County:** Trempeleau

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Downs Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 5.2 **OM (%)** 4.6 **P (ppm)** 65 **K (ppm)** 113

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0 21-0-0-24S 18-46-0	217 lbs/A 100 lbs/A 100 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	4 /29/20
Post plant	N/A	N/A	N/A
Manure:	Dairy	N/A	N/A

Herbicide: Dual II Mag 3.0 pt/A
Callisto 3.0 oz/A **Insecticide:** Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 4/29/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/3/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.04 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 33636 **plants per acre**

Hybrids:

90594
90771
SK6758
SL5367

Results: Table 2001-07.

Table: 2001-07. Syngenta Corn Silage Evaluation Study.

Galesville, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90594	11.2	69.9	6.6	23.5	40.7	81.8	55.3	28.7	3096	34771
90771	13.2	68.9	7.0	22.4	39.7	82.7	56.5	28.5	3085	40905
SK6758	12.1	68.3	7.2	23.9	42.9	81.7	57.3	24.6	2958	35679
SL5367	8.7	70.2	7.6	23.3	41.2	83.5	60.0	26.6	3127	27176
Mean	11.3	69.3	7.1	23.3	41.1	82.4	57.3	27.1	3066	34633
Probability (%)										
Hybrid (H)	5.7	68.3	20.6	60.1	15.5	25.1	3.9	7.5	20.5	8.2
LSD (0.10)										
Hybrid (H)	2.5	NS	NS	NS	NS	NS	2.3	2.7	NS	8102

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6453 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Marshfield, WI **County:** Marathon

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Fenwood Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 6.9 **OM (%)** 3.3 **P (ppm)** 24 **K (ppm)** 146

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /1 /20
Post plant	30-0-02.6S	390 lbs/A	N/A
Manure:	Dairy	25 ton	N/A

Herbicide: Instigate 6.0 oz/A
Breakfree 3.8 pt/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/1/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/23/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.05 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 32954 **plants per acre**

Hybrids:

90771
SH4397
SH4688
SK6167
SL5367

Results: Table 2001-08.

Table: 2001-08. Syngenta Corn Silage Evaluation Study.

Marshfield, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90771	9.6	70.6	6.1	24.3	43.4	80.5	55.2	24.4	2825	27060
SH4397	8.8	72.0	6.6	24.9	43.4	81.5	57.3	25.4	3002	26523
SH4688	8.6	72.1	7.0	23.5	41.9	81.3	55.6	25.8	2949	25536
SK6167	8.7	73.6	6.5	24.6	44.2	80.9	56.7	21.9	2734	23844
SL5367	7.9	72.8	6.3	27.0	47.0	80.2	57.8	19.5	2681	21280
Mean	8.7	72.2	6.5	24.8	44.0	80.8	56.5	23.4	2838	24849
Probability (%)										
Hybrid (H)	12.2	44.6	6.8	68.6	54.6	95.5	48.6	26.8	33.6	31.4
LSD (0.10)										
Hybrid (H)	NS	NS	0.5	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6454 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Montfort, WI **County:** Iowa

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Dodgeville Silt Loam

Soil Test: **Date:** 9 /1 /20 **pH** 5.3 **OM (%)** 3.2 **P (ppm)** 10 **K (ppm)** 130

Plot Management

Tillage Operations: Strip-Till

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	443 lbs/A	N/A
	12-0-026S	108 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	4 /27/20
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Explorer 3.0 oz/A
Zidua 3.25 oz/A
Atrazine 4L 32.0 oz/A
Roundup 25.6 oz/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 4/27/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/15/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.12 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 32348 **plants per acre**

Hybrids:

90771	SK6758
90921	SL6177
91089	SL6768
91384	SL7117
91480	SL7918
91482	SM6664
SK6167	

Results: Table 2001-09.

Table: 2001-09. Syngenta Corn Silage Evaluation Study.

Montfort, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90771	10.8	69.1	7.5	21.8	39.4	83.0	57.1	28.0	3080	33329
90921	11.2	67.7	7.2	21.6	38.5	83.4	56.7	31.1	3250	36420
91089	8.2	73.9	7.2	26.5	44.9	78.1	51.3	22.8	2756	22736
91384	12.6	66.9	7.7	20.3	38.2	84.5	59.5	30.2	3264	41116
91480	12.5	68.0	6.7	20.2	37.4	84.4	58.4	30.3	3135	39386
91482	11.9	68.8	7.1	22.3	39.5	82.5	55.6	30.9	3248	38777
SK6167	10.5	70.7	6.9	21.3	39.1	82.3	54.8	30.1	3138	32806
SK6758	11.1	69.2	7.0	23.8	42.7	81.1	55.8	24.3	2870	31884
SL6177	10.3	71.4	7.0	24.7	43.2	80.7	55.4	23.6	2829	29135
SL6768	10.9	70.4	7.6	22.2	40.7	83.9	60.3	23.0	2824	30855
SL7117	11.7	68.7	6.7	22.7	40.2	81.5	54.4	28.0	2986	34963
SL7918	10.6	71.8	7.7	21.9	40.0	82.8	57.1	27.0	3045	32405
SM6664	9.8	68.5	7.0	20.8	37.7	84.1	57.8	30.2	3159	31056
Mean	10.9	69.6	7.2	22.3	40.1	82.5	56.5	27.6	3045	33451
Probability (%)										
Hybrid (H)	0.4	0.1	0.0	2.2	3.4	2.3	0.7	0.3	0.2	0.1
LSD (0.10)										
Hybrid (H)	1.5	2.3	0.3	2.7	3.5	2.7	3.2	4.0	216	5574

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6455 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Valders, WI **County:** Manitowoc

Supported By: Syngenta

Site Information

Field: **Previous Crop:** Alfalfa **Soil Type:** Kewaunee Clay Loam

Soil Test: **Date:** 9 /1 /20 **pH** 7.1 **OM (%)** 3.1 **P (ppm)** 12 **K (ppm)** 71

Plot Management

Tillage Operations: Chisel Plow Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /6 /20
Post plant	32-0-0	443 lbs/A	N/A
Manure:	Dairy	10000 gal/A	N/A

Herbicide: TripleFlex 3.0 qt/A
Realm Q 4.0oz/A
Atrazine 1.0 lb/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/6/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 35000 **plants per acre** **Planting Method:** Almaco Plot Planter

Harvest Date: 9/17/20 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.05 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 32070 **plants per acre**

Hybrids:

90771
SH4397
SH4688
SK6167
SL5367

Results: Table 2001-10.

Table: 2001-10. Syngenta Corn Silage Evaluation Study.

Valders, WI - 2020.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
90771	11.0	64.6	5.2	22.3	40.1	82.3	56.0	29.9	3067	33589
SH4397	9.0	64.7	6.2	19.9	36.9	85.8	61.7	33.3	3359	30519
SH4688	9.3	63.7	6.7	20.5	37.5	83.8	57.0	30.9	3109	28973
SK6167	9.2	66.4	6.1	21.6	40.0	82.4	56.2	29.2	3087	28675
SL5367	9.3	65.3	6.4	21.1	38.9	84.7	60.8	28.9	3132	29197
Mean	9.6	64.9	6.1	21.1	38.7	83.8	58.3	30.4	3151	30190
Probability (%)										
Hybrid (H)	32.1	67.9	0.4	78.9	71.2	32.8	3.0	66.6	31.9	76.2
LSD (0.10)										
Hybrid (H)	NS	NS	0.5	NS	NS	NS	3.3	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain and Silage Performance**

Experiment: 02PD **Trial ID:** 6426 **Year:** 2020

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:** 9 /15/20 **pH** 6.1 **OM (%)** 2.8 **P (ppm)** 60 **K (ppm)** 119

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	32-0-0	350 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	4 /28/20
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	13543 gal/A	N/A

Herbicide: Resicore 80.0 oz/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 4/28/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: S: 9/14/20 **Harvest Method:** S: New Holland 707
G: Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

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:** 33438

Factors/Treatments:

Target Plant Density:

1) 20000
2) 26000
3) 32000
4) 38000
5) 44000
6) 50000

Hybrid:

1) Jung 48DP420 98RM
2) Jung 56SS538 106RM

Results: Tables 2002-01 & 2002-02.

Table: 2002-01. Plant Density and Hybrid Influence on Corn Grain. Arlington, WI - 2020.

	Target	Density				Test	Lodged			AGR
Hybrid	density	Harvest	Ears	Yield	Moisture	weight	Total	Stalk	Root	$3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		33627	34238	250	18.1	56	11.9	3.0	8.9	825
Jung 56SS538		33249	35016	269	24.4	56	19.2	0.5	18.7	854
	20000	19634	25694	225	22.3	55	0.3	0.3	0.0	722
	26000	26010	26894	260	20.8	56	0.7	0.7	0.0	841
	32000	30808	30871	273	20.2	55	2.5	0.4	2.1	889
	38000	35921	36047	269	22.1	56	3.5	0.7	2.8	865
	44000	41792	41792	276	21.0	56	23.4	0.0	23.4	895
	50000	46464	46464	255	21.1	57	62.8	8.3	54.5	825
Jung 48DP420	20000	19570	22222	204	18.6	56	0.0	0.0	0.0	670
Jung 48DP420	26000	25883	26767	244	17.7	56	0.5	0.5	0.0	806
Jung 48DP420	32000	30934	30934	264	17.2	55	1.7	0.4	1.3	876
Jung 48DP420	38000	36489	36616	260	19.5	56	3.1	0.3	2.8	850
Jung 48DP420	44000	42929	42929	277	17.7	57	8.9	0.0	8.9	916
Jung 48DP420	50000	45959	45959	252	17.9	58	57.0	16.7	40.3	832
Jung 56SS538	20000	19697	29166	246	26.0	54	0.6	0.6	0.0	773
Jung 56SS538	26000	26136	27020	275	23.8	56	0.9	0.9	0.0	876
Jung 56SS538	32000	30681	30808	282	23.2	54	3.3	0.4	2.9	903
Jung 56SS538	38000	35353	35479	278	24.6	57	3.9	1.1	2.9	880
Jung 56SS538	44000	40656	40656	275	24.2	55	37.9	0.0	37.9	874
Jung 56SS538	50000	46969	46969	258	24.3	57	68.6	0.0	68.6	819
Mean		33438	34627	260	21.2	56	15.5	1.7	13.8	840
Probability(%)										
Hybrid (H)		60.1	43.9	0.3	0.0	40.1	3.9	38.4	1.3	13.4
Plant Density (D)		0.0	0.0	0.0	6.4	20.5	0.0	50.0	0.0	0.0
Hybrid x Plant Density		81.4	15.9	30.5	74.0	52.9	12.6	42.1	4.9	28.9
LSD (0.10)										
Hybrid (H)		NS	NS	10	0.7	NS	5.7	NS	6.2	NS
Plant Density (D)		2123	2940	17	1.2	NS	10.0	NS	10.8	56
Hybrid x Plant Density		NS	NS	NS	NS	NS	NS	NS	15.3	NS

Table: 2002-02. Plant Density and Hybrid Influence on Silage Preformance.

Arlington WI - 2020.

Hybrid	Target density	Harvest density	Dry Matter Yield	Moist	Kernel milk	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein	*In Vitro* ADF	*In Vitro* NDF	*In Vitro* Digest	*In Vitro* NDFD	*In Vitro* Starch	Milk per Ton	Milk per Acre
	plants/A	plants/A	T/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
Jung 48DP420		35479	12.1	59.4	17.8	0.9	0.3	1.2	6.5	18.6	35.4	85.7	59.5	32.3	3102	37615
Jung 56SS538		35479	12.5	65.2	21.9	1.1	1.3	2.4	6.6	18.5	35.2	86.1	60.7	30.3	3092	38643
	20000	22727	11.1	63.7	17.0	0.9	1.0	1.8	7.2	17.4	34.2	86.6	60.8	30.8	3093	34544
	26000	26515	12.0	62.8	27.5	1.4	1.2	2.6	6.7	17.5	34.3	87.2	63.0	31.6	3167	38244
	32000	31944	12.6	62.6	24.2	1.2	0.6	1.8	6.6	18.5	35.2	86.1	60.4	31.7	3129	39418
	38000	37247	12.5	63.2	16.7	0.8	0.7	1.5	6.4	19.9	36.6	84.9	58.8	30.9	3097	38862
	44000	43686	13.0	61.4	17.2	0.9	0.5	1.4	6.2	19.2	35.9	85.3	58.9	31.2	3046	39637
	50000	50757	12.6	60.0	16.7	0.8	0.6	1.5	6.3	18.9	35.8	85.2	58.8	31.5	3047	38070
Jung 48DP420	20000	21969	10.1	61.4	19.0	1.0	0.3	1.3	7.4	17.2	34.1	86.6	60.8	31.7	3140	31830
Jung 48DP420	26000	27525	10.9	62.0	21.7	1.1	0.5	1.6	6.7	18.6	35.8	85.9	60.5	30.3	3067	33427
Jung 48DP420	32000	32828	12.4	58.6	26.7	1.3	0.5	1.9	6.5	18.1	34.8	86.3	60.7	33.7	3188	39520
Jung 48DP420	38000	37373	12.2	59.7	13.3	0.7	0.1	0.8	6.3	19.1	35.6	85.2	58.4	33.2	3156	38443
Jung 48DP420	44000	43434	13.2	57.5	11.0	0.6	0.0	0.6	6.0	18.8	35.3	85.3	58.4	33.7	3093	40956
Jung 48DP420	50000	49747	14.0	57.1	15.0	0.7	0.0	0.8	6.1	19.9	36.9	84.6	58.4	31.0	2966	41514
Jung 56SS538	20000	23485	12.2	65.9	15.0	0.8	1.6	2.4	7.0	17.5	34.3	86.5	60.7	29.9	3047	37257
Jung 56SS538	26000	25505	13.2	63.6	33.3	1.7	1.9	3.6	6.8	16.4	32.8	88.6	65.4	32.9	3267	43061
Jung 56SS538	32000	31060	12.8	66.6	21.7	1.1	0.7	1.8	6.6	18.9	35.5	85.8	60.1	29.8	3070	39317
Jung 56SS538	38000	37121	12.9	66.7	20.0	1.0	1.3	2.3	6.4	20.7	37.6	84.6	59.2	28.6	3038	39280
Jung 56SS538	44000	43939	12.8	65.2	23.3	1.2	1.0	2.1	6.4	19.5	36.4	85.3	59.5	28.7	2999	38318
Jung 56SS538	50000	51767	11.2	62.9	18.3	0.9	1.2	2.1	6.6	18.0	34.8	85.8	59.1	32.0	3129	34626
Mean		35479	12.3	62.3	19.9	1.0	0.8	1.8	6.6	18.6	35.3	85.9	60.1	31.3	3097	38129
Probability(%)																
Hybrid (H)		100.0	52.2	1.0	39.8	39.9	1.2	3.6	27.3	84.6	84.3	53.7	38.5	22.6	87.3	60.7
Plant Density (D)		0.0	33.9	1.4	14.0	14.0	0.2	0.4	0.0	10.6	39.3	1.6	0.0	99.5	78.8	56.3
Hybrid x Density (H x D)		25.4	6.4	3.6	35.4	35.4	1.6	4.1	14.6	29.5	37.8	15.2	4.6	31.5	33.8	12.7
LSD (0.10)																
Hybrid (H)		2783	1	2	11	1	0	1	0.3	2	2	2	3.1	3	161	4966
Plant Density (D)		1695	1.5	2	8	0	0.3	0.5	0.3	2	2	1	1	3	165	5081
Hybrid x Density (H x D)		2583	2	2	12	1	0	1	0	2	3	2	2	5	233	7185

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6508 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Chippewa Falls, WI **County:** Chippewa, WI

Supported By: HATCH

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Sattre Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 5.5 **OM (%)** 1.6 **P (ppm)** 69 **K (ppm)** 117

Plot Management

Tillage Operations: Spring Chisel Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	21-0-0-24S	52 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /4 /20
	Post plant :	46-0-0	200 lbs/A	N/A
	Manure:	Dairy	10000 gal/A	N/A

Herbicide: Acuron 3.0 qt/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: Irrigated **Hybrid:** See Factors

Planting Date: 5/4/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/13/20 **Harvest Method:** Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 33091

Factors/Treatments:

Target Plant Density:

1) 20000
2) 26000
3) 32000
4) 38000
5) 44000
6) 50000

Hybrid:

1) Dekalb DKC43-75RIB 93RM
2) Jung 48DP420 98RM

Results: Tables 2002-03.

Table: 2002-03. Plant Density and Hybrid Influence on Corn Grain. Chippewa Falls, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC43-75RIB		32996		260	17.2	59	0.5	0.0	0.5	862
Jung 48DP420		33186		258	19.0	56	0.4	0.0	0.3	846
	20000	21275		207	18.3	57	0.9	0.0	0.9	684
	26000	27399		246	18.1	57	0.2	0.0	0.2	812
	32000	30618		255	17.8	57	0.6	0.0	0.6	842
	38000	35669		280	18.1	57	0.0	0.0	0.0	923
	44000	40782		280	18.3	58	0.3	0.1	0.2	922
	50000	42802		286	17.8	58	0.6	0.0	0.6	944
Dekalb DKC43-75RIB	20000	22601		219	17.9	59	1.2	0.0	1.2	723
Dekalb DKC43-75RIB	26000	28409		243	17.3	58	0.0	0.0	0.0	806
Dekalb DKC43-75RIB	32000	31818		254	16.8	59	1.2	0.0	1.2	845
Dekalb DKC43-75RIB	38000	36237		287	16.7	58	0.0	0.0	0.0	956
Dekalb DKC43-75RIB	44000	39520		278	17.4	59	0.3	0.0	0.3	922
Dekalb DKC43-75RIB	50000	39393		278	17.0	59	0.3	0.0	0.3	923
Jung 48DP420	20000	19949		196	18.7	55	0.7	0.0	0.7	645
Jung 48DP420	26000	26389		249	18.9	56	0.5	0.0	0.5	819
Jung 48DP420	32000	29419		256	18.8	56	0.0	0.0	0.0	840
Jung 48DP420	38000	35101		272	19.4	57	0.0	0.0	0.0	890
Jung 48DP420	44000	42045		282	19.3	57	0.3	0.3	0.0	922
Jung 48DP420	50000	46211		293	18.7	57	0.8	0.0	0.8	964
Mean		33091		259	18.1	57	0.4	0.0	0.4	854
Probability(%)										
Hybrid (H)		79.1		70.2	0.0	0.0	72.1	32.8	61.2	35.2
Plant Density (D)		0.0		0.0	45.4	54.5	68.6	44.1	62.5	0.0
Hybrid x Plant Density		0.4		29.0	10.9	87.4	67.1	44.1	65.9	30.8
LSD (0.10)										
Hybrid (H)		NS		NS	0.3	1	NS	0.1	NS	NS
Plant Density (D)		2100		15	0.5	NS	NS	0.1	NS	50
Hybrid x Plant Density		2970		NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6509 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Coleman, WI **County:** Marinette

Supported By: HATCH

Site Information

Field: **Previous Crop:** Alfalfa **Soil Type:** Oconto Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 6.5 **OM (%)** 3.8 **P (ppm)** 185 **K (ppm)** 353

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	18-46-0	27 lbs/A	N/A
		21-0-0-24S	76 lbs/A	N/A
		46-0-0	153 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /6 /20
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	5000 gal/A	N/A

Herbicide: Accent Q 5.0 oz/A
Status 5.0 oz/A
Cavallo 4SC 3.0 oz/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/6/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/19/20 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 31739

Factors/Treatments:

Target Plant Density:

1) 20000
2) 26000
3) 32000
4) 38000
5) 44000
6) 50000

Hybrid:

1) Dekalb DKC43-75RIB 93RM
2) Jung 48DP420 98RM

Results: Tables 2002-04.

Table: 2002-04. Plant Density and Hybrid Influence on Corn Grain. Coleman, WI - 2020.

	Target	Density				Test	Lodged			AGR
Hybrid	density	Harvest	Ears	Yield	Moisture	weight	Total	Stalk	Root	$3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC43-75RIB		30113		236	26.6	57	3.9	3.5	0.4	738
Jung 48DP420		33364		263	28.7	54	1.8	1.8	0.1	813
	20000	21149		200	28.5	56	7.5	7.5	0.0	619
	26000	28661		240	26.6	55	1.9	1.3	0.6	750
	32000	31376		253	28.1	56	1.0	1.0	0.0	785
	38000	33617		265	27.4	56	1.5	1.3	0.3	824
	44000	36363		275	26.8	55	2.0	1.9	0.2	858
	50000	39267		264	28.5	55	3.1	2.9	0.2	816
Dekalb DKC43-75RIB	20000	17550		182	27.4	58	9.9	9.9	0.0	567
Dekalb DKC43-75RIB	26000	25126		223	25.4	57	3.8	2.6	1.1	704
Dekalb DKC43-75RIB	32000	30303		242	27.6	58	0.9	0.9	0.0	752
Dekalb DKC43-75RIB	38000	33901		248	25.8	58	1.9	1.4	0.6	782
Dekalb DKC43-75RIB	44000	39962		271	25.2	57	2.7	2.4	0.4	855
Dekalb DKC43-75RIB	50000	33838		247	28.0	56	4.0	4.0	0.0	769
Jung 48DP420	20000	24747		219	29.6	54	5.1	5.1	0.0	671
Jung 48DP420	26000	32197		256	27.8	53	0.0	0.0	0.0	796
Jung 48DP420	32000	32449		265	28.6	55	1.2	1.2	0.0	818
Jung 48DP420	38000	33333		281	29.1	55	1.1	1.1	0.0	866
Jung 48DP420	44000	32765		279	28.3	53	1.3	1.4	0.0	861
Jung 48DP420	50000	44696		280	29.0	54	2.1	1.8	0.4	864
Mean		31739		249	27.6	56	2.8	2.7	0.2	775
Probability(%)										
Hybrid (H)		22.3		0.7	0.3	0.0	32.1	37.9	20.8	2.4
Plant Density (D)		1.0		0.2	34.1	34.4	42.7	35.5	65.9	0.3
Hybrid x Plant Density		47.9		95.5	86.8	83.8	97.2	97.2	44.8	95.8
LSD (0.10)										
Hybrid (H)		NS		16	1.1	1	NS	NS	NS	52
Plant Density (D)		7733		28	NS	NS	NS	NS	NS	91
Hybrid x Plant Density		NS		NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6510 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Fond du Lac, WI **County:** Fond du Lac

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Virgil Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 6.6 **OM (%)** 3.0 **P (ppm)** 20 **K (ppm)** 117

Plot Management

Tillage Operations: Strip-Till

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	28-0-0	107 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /5 /20
	Post plant :	32-0-0	397 lbs/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Acuron 3.0 qt/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/5/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/9/20 **Harvest Method:** Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 30292

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Jung 48DP420 98RM
2) 26000	2) Jung 56SS538 106RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-05.

Table: 2002-05. Plant Density and Hybrid Influence on Corn Grain. Fond du Lac, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		31439		208	24.1	52	0.3	0.3	0.0	663
Jung 56SS538		29145		201	31.0	56	0.4	0.3	0.0	612
	20000	18055		168	27.4	53	0.3	0.3	0.0	523
	26000	20896		190	27.1	52	0.0	0.0	0.0	592
	32000	28156		221	27.1	52	0.0	0.0	0.0	688
	38000	32007		209	27.4	61	0.5	0.5	0.0	651
	44000	38762		216	27.7	51	0.6	0.6	0.0	673
	50000	43876		225	28.7	53	0.6	0.4	0.1	696
Jung 48DP420	20000	18813		176	23.8	53	0.0	0.0	0.0	560
Jung 48DP420	26000	19570		186	24.7	52	0.0	0.0	0.0	591
Jung 48DP420	32000	27904		217	23.5	51	0.0	0.0	0.0	692
Jung 48DP420	38000	36237		220	23.5	52	1.0	1.0	0.0	701
Jung 48DP420	44000	38131		221	24.2	51	0.6	0.6	0.0	701
Jung 48DP420	50000	47979		231	24.9	52	0.0	0.0	0.0	731
Jung 56SS538	20000	17298		160	31.0	53	0.7	0.7	0.0	486
Jung 56SS538	26000	22222		193	29.4	52	0.0	0.0	0.0	594
Jung 56SS538	32000	28409		225	30.7	54	0.0	0.0	0.0	684
Jung 56SS538	38000	27777		198	31.3	69	0.0	0.0	0.0	602
Jung 56SS538	44000	39393		212	31.2	52	0.6	0.6	0.0	645
Jung 56SS538	50000	39772		219	32.5	53	1.1	0.8	0.3	660
Mean		30292		205	27.6	54	0.3	0.3	0.0	637
Probability(%)										
Hybrid (H)		5.3		22.9	0.0	17.3	61.1	75.7	32.8	1.0
Plant Density (D)		0.0		0.0	36.2	43.2	53.5	60.6	44.1	0.0
Hybrid x Plant Density		2.7		59.6	45.6	50.2	24.8	36.0	44.1	54.2
LSD (0.10)										
Hybrid (H)		1926		NS	0.8	NS	NS	NS	NS	31
Plant Density (D)		3336		17	NS	NS	NS	NS	NS	54
Hybrid x Plant Density		4717		NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6511 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Galesville, WI **County:** Trempeau

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Downs Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 5.2 **OM (%)** 4.6 **P (ppm)** 65 **K (ppm)** 113

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	46-0-0 21-0-0-24S 18-46-0	217 lbs/A 100 lbs/A 100 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	4 /29/20
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Dual II Mag 3.0 pt/A
Callisto 3.0 oz/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 4/29/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/13/20 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32428

Factors/Treatments:

Target Plant Density:

1) 20000
2) 26000
3) 32000
4) 38000
5) 44000
6) 50000

Hybrid:

1) Jung 48DP420 98RM
2) Jung 56SS538 106RM

Results: Tables 2002-06.

Table: 2002-06. Plant Density and Hybrid Influence on Corn Grain. Galesville, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		33396		251	20.3	57	0.1	0.0	0.1	816
Jung 56SS538		31460		271	24.5	58	1.0	0.8	0.2	861
	20000	19507		204	22.3	58	0.0	0.0	0.0	656
	26000	26515		249	21.9	57	0.2	0.2	0.0	803
	32000	30050		272	22.1	57	0.6	0.4	0.2	875
	38000	34911		277	22.5	57	0.4	0.2	0.2	888
	44000	40151		280	22.7	57	1.1	1.0	0.2	896
	50000	43434		284	22.7	56	1.0	0.6	0.4	911
Jung 48DP420	20000	20075		201	19.7	57	0.0	0.0	0.0	656
Jung 48DP420	26000	27651		232	20.0	56	0.0	0.0	0.0	757
Jung 48DP420	32000	29924		259	20.2	57	0.4	0.0	0.4	843
Jung 48DP420	38000	36742		269	20.6	57	0.0	0.0	0.0	873
Jung 48DP420	44000	41919		270	20.4	55	0.0	0.0	0.0	878
Jung 48DP420	50000	44065		273	20.7	56	0.3	0.0	0.3	887
Jung 56SS538	20000	18939		207	24.9	58	0.0	0.0	0.0	655
Jung 56SS538	26000	25378		267	23.9	57	0.5	0.5	0.0	849
Jung 56SS538	32000	30176		285	24.1	58	0.8	0.8	0.0	906
Jung 56SS538	38000	33080		284	24.3	57	0.8	0.4	0.4	903
Jung 56SS538	44000	38383		289	25.0	59	2.3	1.9	0.3	915
Jung 56SS538	50000	42802		296	24.7	57	1.8	1.2	0.6	936
Mean		32428		261	22.4	57	0.6	0.4	0.2	838
Probability(%)										
Hybrid (H)		0.3		0.0	0.0	4.4	0.1	0.4	44.7	0.1
Plant Density (D)		0.0		0.0	66.7	79.9	8.1	31.8	42.4	0.0
Hybrid x Plant Density		36.8		28.1	71.3	50.9	12.1	31.8	48.7	36.8
LSD (0.10)										
Hybrid (H)		996		6	0.5	1	0.4	0.4	NS	21
Plant Density (D)		1724		10	NS	NS	0.7	NS	NS	36
Hybrid x Plant Density		NS		NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6512 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Hancock, WI **County:** Waushara

Supported By: HATCH

Site Information

Field: **Previous Crop:** Potato **Soil Type:** Plainfield Sand

Soil Test: **Date:** 9 /15/20 **pH** 5.7 **OM (%)** 0.9 **P (ppm)** 48 **K (ppm)** 117

Plot Management

Tillage Operations: Soil Finisher

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	11-52-0	100 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	4 /30/20
	Post plant :	21-0-024S	152 lbs/A	N/A
		32-0-0	331 lbs/A	N/A
		46-0-0	126 lbs/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Prowl 2.0 pt/A
Laudis 3.0 oz/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: Irrigated **Hybrid:** See Factors

Planting Date: 4/30/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/9/20 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 34259

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Jung 48DP420 98RM
2) 26000	2) Jung 56SS538 106RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-07.

Table: 2002-07. Plant Density and Hybrid Influence on Corn Grain. Hancock, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		34511	34722	224	19.9	54	0.4	0.2	0.2	732
Jung 56SS538		33712	33796	221	26.2	53	0.9	0.4	0.5	693
	20000	19949	20265	189	23.3	55	0.0	0.0	0.0	602
	26000	26704	26957	216	23.2	55	0.2	0.2	0.0	691
	32000	32197	32197	229	22.8	53	0.2	0.2	0.0	735
	38000	36363	36363	225	22.9	53	1.6	0.5	1.1	722
	44000	42361	42676	236	22.9	53	0.0	0.0	0.0	756
	50000	47095	47095	240	23.1	53	1.6	0.8	0.8	768
Jung 48DP420	20000	20075	20581	189	20.9	56	0.0	0.0	0.0	613
Jung 48DP420	26000	27020	27525	212	20.5	55	0.0	0.0	0.0	689
Jung 48DP420	32000	32197	32197	231	19.3	54	0.4	0.4	0.0	757
Jung 48DP420	38000	36363	36363	229	18.9	53	1.0	0.0	1.0	752
Jung 48DP420	44000	42929	43181	234	20.2	54	0.0	0.0	0.0	763
Jung 48DP420	50000	48484	48484	250	19.5	53	0.8	0.8	0.0	817
Jung 56SS538	20000	19823	19949	188	25.8	55	0.0	0.0	0.0	592
Jung 56SS538	26000	26389	26389	221	25.9	55	0.5	0.5	0.0	693
Jung 56SS538	32000	32197	32197	227	26.4	52	0.0	0.0	0.0	712
Jung 56SS538	38000	36363	36363	222	26.9	52	2.2	1.1	1.1	693
Jung 56SS538	44000	41792	42171	238	25.6	52	0.0	0.0	0.0	748
Jung 56SS538	50000	45706	45706	230	26.8	53	2.5	0.8	1.7	718
Mean		34111	34259	223	23.0	54	0.6	0.3	0.3	712
Probability(%)										
Hybrid (H)		4.4	3.1	33.2	0.0	2.1	23.9	23.2	32.3	0.2
Plant Density (D)		0.0	0.0	0.0	96.2	1.0	6.2	6.4	12.0	0.0
Hybrid x Plant Density		28.5	39.6	23.2	18.6	85.6	66.7	19.9	48.0	14.7
LSD (0.10)										
Hybrid (H)		643	691	NS	0.7	1	NS	NS	NS	19
Plant Density (D)		1114	1198	10	NS	1	1.2	0.5	NS	33
Hybrid x Plant Density		NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6513 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Janesville, WI **County:** Rock

Supported By: HATCH

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 6.0 **OM (%)** 3.0 **P (ppm)** 36 **K (ppm)** 113

Plot Management

Tillage Operations: Spring Chisel Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	28-0-0	678 lbs/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	4 /27/20
	Post plant :	32-0-0	56 lbs/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Acuron 3.0 qt/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 4/27/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/8/20 **Harvest Method:** Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32965

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Jung 48DP420 98RM
2) 26000	2) Jung 56SS538 106RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-08.

Table: 2002-08. Plant Density and Hybrid Influence on Corn Grain. Janesville, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		33354	33375	225	17.5	55	0.2	0.2	0.0	744
Jung 56SS538		32491	32554	247	25.3	55	1.6	1.6	0.0	779
	20000	19949	20202	191	21.9	54	0.3	0.3	0.0	614
	26000	25947	25947	218	21.7	55	1.0	1.0	0.0	703
	32000	29608	29608	232	21.1	55	1.8	1.8	0.0	751
	38000	34911	34911	250	20.9	55	1.8	1.8	0.0	810
	44000	41098	41098	263	21.1	55	0.0	0.0	0.0	849
	50000	46022	46022	261	21.8	55	0.6	0.4	0.1	842
Jung 48DP420	20000	19823	19949	181	17.9	55	0.7	0.7	0.0	598
Jung 48DP420	26000	26136	26136	210	17.8	55	0.0	0.0	0.0	693
Jung 48DP420	32000	30303	30303	226	17.2	55	0.0	0.0	0.0	749
Jung 48DP420	38000	35984	35984	236	17.6	56	0.0	0.0	0.0	781
Jung 48DP420	44000	41666	41666	248	17.0	56	0.0	0.0	0.0	822
Jung 48DP420	50000	46211	46211	249	17.6	55	0.3	0.3	0.0	823
Jung 56SS538	20000	20075	20454	200	26.0	54	0.0	0.0	0.0	629
Jung 56SS538	26000	25757	25757	227	25.5	55	2.0	2.0	0.0	714
Jung 56SS538	32000	28914	28914	238	25.0	55	3.5	3.5	0.0	754
Jung 56SS538	38000	33838	33838	264	24.2	55	3.5	3.5	0.0	839
Jung 56SS538	44000	40530	40530	278	25.2	55	0.0	0.0	0.0	876
Jung 56SS538	50000	45833	45833	274	25.9	55	0.8	0.6	0.3	861
Mean		32923	32965	236	21.4	55	0.9	0.9	0.0	762
Probability(%)										
Hybrid (H)		1.7	2.1	0.0	0.0	16.4	3.6	4.0	32.8	0.4
Plant Density (D)		0.0	0.0	0.0	38.6	66.1	54.1	51.4	44.1	0.0
Hybrid x Plant Density		38.0	29.0	62.4	69.0	84.1	32.8	30.5	44.1	70.0
LSD (0.10)										
Hybrid (H)		571	567	6	0.6	NS	1.1	1.1	NS	18
Plant Density (D)		990	982	10	NS	NS	NS	NS	NS	32
Hybrid x Plant Density		NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain and Silage Performance**

Experiment: 02PD **Trial ID:** 6514 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Marshfield, WI **County:** Wood

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Fenwood Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 6.9 **OM (%)** 3.3 **P (ppm)** 24 **K (ppm)** 146

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /1 /20
	Post plant :	30-0-02.6S	390 lbs/A	N/A
	Manure:	Dairy	25 ton	N/A

Herbicide: Instigate 6.0 oz/A
Breakfree 3.8 pt/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/1/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: S: 9/23/20 **Harvest Method:** S: New Holland 707
G: Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

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:** 35037

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Dekalb DKC43-75RIB 93RM
2) 26000	2) Jung 48DP420 98RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-09 & 2002-10.

Table: 2002-09. Plant Density and Hybrid Influence on Corn Grain. Marshfield, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC43-75RIB		34111	35164	203	25.2	49	2.6	1.3	1.3	642
Jung 48DP420		34469	34911	207	27.1	48	0.3	0.3	0.0	646
	20000	18876	22159	171	27.5	50	0.0	0.0	0.0	532
	26000	26578	27335	200	26.3	49	0.2	0.2	0.0	628
	32000	31186	31628	213	25.3	48	0.0	0.0	0.0	671
	38000	38068	38068	219	25.8	49	0.2	0.2	0.0	689
	44000	42297	42297	215	26.1	49	6.4	2.5	3.9	675
	50000	48737	48737	213	25.9	48	1.7	1.7	0.0	668
Dekalb DKC43-75RIB	20000	18560	22727	168	26.7	49	0.0	0.0	0.0	525
Dekalb DKC43-75RIB	26000	26389	27904	201	25.4	49	0.0	0.0	0.0	633
Dekalb DKC43-75RIB	32000	30808	31439	206	24.5	49	0.0	0.0	0.0	653
Dekalb DKC43-75RIB	38000	38510	38510	211	25.1	50	0.0	0.0	0.0	666
Dekalb DKC43-75RIB	44000	42424	42424	225	24.2	51	12.6	4.8	7.8	713
Dekalb DKC43-75RIB	50000	47979	47979	209	25.1	49	2.9	2.9	0.0	659
Jung 48DP420	20000	19192	21591	174	28.3	50	0.0	0.0	0.0	540
Jung 48DP420	26000	26767	26767	200	27.2	49	0.5	0.5	0.0	622
Jung 48DP420	32000	31565	31818	219	26.1	48	0.0	0.0	0.0	688
Jung 48DP420	38000	37626	37626	227	26.4	48	0.3	0.3	0.0	711
Jung 48DP420	44000	42171	42171	205	28.0	47	0.3	0.3	0.0	636
Jung 48DP420	50000	49494	49494	217	26.7	47	0.5	0.5	0.0	677
Mean		34290	35037	205	26.2	49	1.4	0.8	0.7	644
Probability(%)										
Hybrid (H)		30.5	63.4	23.7	0.0	0.9	28.6	23.9	32.8	72.1
Plant Density (D)		0.0	0.0	0.0	16.8	61.5	46.0	37.9	44.1	0.0
Hybrid x Plant Density		44.0	65.2	4.4	65.3	7.7	47.7	46.0	44.1	5.5
LSD (0.10)										
Hybrid (H)		NS	NS	NS	0.8	1	NS	NS	NS	NS
Plant Density (D)		1014	1556	9	NS	NS	NS	NS	NS	33
Hybrid x Plant Density		NS	NS	13	NS	2	NS	NS	NS	47

Table: 2002-10. Plant Density and Hybrid Influence on Silage Preformance.

Marshfield, WI - 2020.

Hybrid	Target density	Harvest density	Dry Matter Yield	Moist	Kernel milk	KMR 0-5	SMR 0-5	VMR 0-10	Crude protein	*In Vitro* ADF	*In Vitro* NDF	*In Vitro* Digest	*In Vitro* NDFD	*In Vitro* Starch	Milk per Ton	Milk per Acre
	plants/A	plants/A	T/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
Dekalb DKC43-75RIB		32533	9.6	64.4	59.2	3.0	1.0	4.0	6.0	19.8	38.3	85.4	62.0	29.0	3120	30046
Jung 48DP420		34259	9.9	66.6	61.7	3.1	1.0	4.1	6.0	21.4	40.1	84.3	61.0	25.6	2930	29019
	20000	19823	8.4	65.1	60.8	3.0	1.4	4.4	6.5	19.0	37.4	86.6	64.4	27.7	3078	25788
	26000	25883	9.3	65.9	57.5	2.9	1.3	4.1	6.2	20.0	38.5	85.3	62.0	28.2	3078	28735
	32000	30303	10.0	64.2	60.8	3.0	0.8	3.8	6.0	20.0	38.6	85.2	61.7	28.3	3067	30661
	38000	34974	10.1	66.2	63.3	3.2	0.9	4.1	5.8	20.7	39.3	84.6	60.9	27.3	3002	30325
	44000	42550	10.4	65.4	53.3	2.7	0.9	3.6	5.9	22.0	40.5	83.7	59.9	26.9	3002	31150
	50000	46843	10.4	66.3	66.7	3.3	0.8	4.1	5.7	22.0	40.8	83.7	60.1	25.5	2922	30537
Dekalb DKC43-75RIB	20000	19697	8.3	64.3	61.7	3.1	1.5	4.6	6.6	18.5	37.1	87.2	65.5	28.3	3132	25892
Dekalb DKC43-75RIB	26000	25000	8.7	66.6	55.0	2.8	1.4	4.2	6.1	20.3	38.8	85.0	61.6	27.4	3027	26256
Dekalb DKC43-75RIB	32000	30303	10.1	63.3	61.7	3.1	0.8	3.9	6.0	19.3	37.7	85.3	61.2	30.4	3174	31984
Dekalb DKC43-75RIB	38000	32828	10.0	65.0	68.3	3.4	0.8	4.2	5.8	18.7	36.8	86.0	62.1	32.1	3291	32895
Dekalb DKC43-75RIB	44000	41919	10.5	62.3	40.0	2.0	0.8	2.8	6.0	20.7	39.3	84.7	61.0	28.7	3091	32397
Dekalb DKC43-75RIB	50000	45454	10.3	64.9	68.3	3.4	0.7	4.1	5.7	21.2	39.9	84.3	60.6	27.0	3004	30854
Jung 48DP420	20000	19949	8.4	65.9	60.0	3.0	1.2	4.2	6.5	19.5	37.8	86.1	63.3	27.1	3024	25685
Jung 48DP420	26000	26767	10.0	65.3	60.0	3.0	1.1	4.1	6.2	19.7	38.1	85.6	62.5	28.9	3129	31214
Jung 48DP420	32000	30303	9.9	65.2	60.0	3.0	0.8	3.8	6.0	20.6	39.5	85.0	62.2	26.1	2960	29337
Jung 48DP420	38000	37121	10.2	67.5	58.3	2.9	1.1	4.0	5.7	22.8	41.7	83.1	59.6	22.4	2712	27755
Jung 48DP420	44000	43181	10.3	68.5	66.7	3.3	1.1	4.4	5.8	23.2	41.8	82.7	58.8	25.1	2913	29903
Jung 48DP420	50000	48232	10.6	67.6	65.0	3.3	0.9	4.1	5.6	22.8	41.7	83.1	59.5	24.1	2840	30220
Mean		33396	9.8	65.5	60.4	3.0	1.0	4.0	6.0	20.6	39.2	84.8	61.5	27.3	3025	29533
Probability(%)																
Hybrid (H)		15.7	27.5	8.1	64.7	64.7	79.2	63.5	47.1	14.9	17.6	21.1	32.9	10.9	11.2	43.5
Plant Density (D)		0.0	0.0	50.9	66.2	66.2	1.2	67.9	0.0	13.6	26.0	9.9	3.5	79.2	70.6	7.5
Hybrid x Density (H x D)		25.7	22.5	11.3	32.3	32.3	43.3	41.2	92.7	56.1	61.1	67.7	63.6	20.3	13.9	17.5
LSD (0.10)																
Hybrid (H)		2273	1	2	14	1	0	1	0.2	2	3	2	2.3	4	203	3101
Plant Density (D)		1649	0.5	2	14	1	0.3	0.9	0.2	2	3	2	2	4	196	3173
Hybrid x Density (H x D)		2433	1	3	20	1	0	1	0	3	4	3	3	5	279	4487

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6515 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Montfort, WI **County:** Iowa

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Dodgeville Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 5.3 **OM (%)** 3.2 **P (ppm)** 10 **K (ppm)** 130

Plot Management

Tillage Operations: Strip-Till

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	32-0-0 12-0-026S	443 lbs/A 108 lbs/A	N/A N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	4 /27/20
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Explorer 3.0 oz/A
Zidua 3.25 oz/A
Atrazine 4L 32.0 oz/A
Roundup 25.6 oz/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 4/27/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/15/20 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 30528

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Jung 48DP420 98RM
2) 26000	2) Jung 56SS538 106RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-11.

Table: 2002-11. Plant Density and Hybrid Influence on Corn Grain. Montfort, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 48DP420		31881		247	21.8	56	31.2	2.0	29.2	795
Jung 56SS538		29175		246	28.7	57	49.3	8.9	40.4	757
	20000	20454		218	24.7	56	30.8	1.3	29.5	689
	26000	23800		233	25.8	55	22.1	7.5	14.6	733
	32000	27967		259	24.3	57	30.0	5.8	24.2	821
	38000	32197		257	25.8	56	45.6	7.6	38.0	808
	44000	37373		257	25.7	57	54.3	5.5	48.8	809
	50000	41377		253	25.4	56	58.6	4.9	53.8	797
Jung 48DP420	20000	20959		218	21.9	55	11.8	0.0	11.8	704
Jung 48DP420	26000	25000		231	24.0	55	13.1	0.5	12.6	736
Jung 48DP420	32000	29040		253	20.6	57	19.6	0.5	19.2	821
Jung 48DP420	38000	34343		254	21.4	55	46.7	2.6	44.1	820
Jung 48DP420	44000	38636		275	21.7	56	37.8	5.2	32.6	886
Jung 48DP420	50000	43307		249	21.4	56	58.4	3.2	55.2	803
Jung 56SS538	20000	19949		217	27.5	57	49.8	2.6	47.2	674
Jung 56SS538	26000	22601		235	27.6	56	31.2	14.5	16.7	730
Jung 56SS538	32000	26894		265	28.0	57	40.4	11.1	29.3	820
Jung 56SS538	38000	30050		260	30.2	56	44.6	12.7	31.9	796
Jung 56SS538	44000	36111		239	29.8	59	70.8	5.8	65.0	732
Jung 56SS538	50000	39446		258	29.4	56	58.8	6.5	52.4	792
Mean		30528		246	25.3	56	40.3	5.4	34.8	776
Probability(%)										
Hybrid (H)		0.0		89.1	0.0	23.0	2.3	0.0	11.2	11.9
Plant Density (D)		0.0		1.9	47.9	72.7	5.6	2.7	2.7	1.7
Hybrid x Plant Density		68.9		46.3	9.4	96.2	55.1	0.8	27.6	40.7
LSD (0.10)										
Hybrid (H)		1073		NS	0.9	NS	12.7	1.9	NS	NS
Plant Density (D)		1858		22	NS	NS	22.0	3.2	20	69
Hybrid x Plant Density		NS		NS	2.3	NS	NS	4.5	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6516 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Seymour, WI **County:** Outagamie

Supported By: HATCH

Site Information

Field: **Previous Crop:** Soybean **Soil Type:** Onaway Silt Loam

Soil Test: **Date:** 9 /15/20 **pH** 7.1 **OM (%)** 2.4 **P (ppm)** 128 **K (ppm)** 128

Plot Management

Tillage Operations: Chisel Plow FieldCultivator

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	46-0-0 11-52-0	152 lbs/A 155 lbs/A	N/A N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /4 /20
	Post plant :	32-0-0	331 lbs/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Capreno 4.0 oz/A
Atrazine 0.75 lbs/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/4/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 10/19/20 **Harvest Method:** Massey 8XP

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 29850

Factors/Treatments:

Target Plant Density:

1) 20000
2) 26000
3) 32000
4) 38000
5) 44000
6) 50000

Hybrid:

1) Dekalb DKC43-75RIB 93RM
2) Jung 48DP420 98RM

Results: Tables 2002-12.

Table: 2002-12. Plant Density and Hybrid Influence on Corn Grain. Seymour, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC43-75RIB		29629		174	18.0	57	4.0	4.0	0.0	575
Jung 48DP420		30071		182	18.6	55	4.0	4.0	0.0	597
	20000	19949		173	18.8	56	0.0	0.0	0.0	568
	26000	25820		189	19.8	55	0.0	0.0	0.0	617
	32000	29166		175	17.7	55	1.3	1.3	0.0	577
	38000	31881		173	17.7	56	5.9	5.9	0.0	570
	44000	34722		181	18.1	56	6.6	6.6	0.0	598
	50000	37563		178	17.7	57	10.2	10.1	0.1	588
Dekalb DKC43-75RIB	20000	19949		170	18.2	58	0.0	0.0	0.0	559
Dekalb DKC43-75RIB	26000	26136		178	19.1	56	0.0	0.0	0.0	582
Dekalb DKC43-75RIB	32000	29545		181	17.6	56	0.4	0.4	0.0	598
Dekalb DKC43-75RIB	38000	31060		172	17.9	56	4.9	4.9	0.0	567
Dekalb DKC43-75RIB	44000	33207		172	17.3	57	6.4	6.4	0.0	570
Dekalb DKC43-75RIB	50000	37878		175	18.1	57	12.4	12.1	0.3	575
Jung 48DP420	20000	19949		176	19.5	54	0.0	0.0	0.0	577
Jung 48DP420	26000	25505		201	20.5	55	0.0	0.0	0.0	651
Jung 48DP420	32000	28787		169	17.9	55	2.2	2.2	0.0	557
Jung 48DP420	38000	32702		173	17.6	55	7.0	7.0	0.0	573
Jung 48DP420	44000	36237		191	18.9	55	6.8	6.8	0.0	625
Jung 48DP420	50000	37247		181	17.3	57	8.1	8.1	0.0	600
Mean		29850		178	18.3	56	4.0	4.0	0.0	586
Probability(%)										
Hybrid (H)		70.0		25.6	35.6	0.2	99.9	98.0	32.8	28.2
Plant Density (D)		0.0		64.5	34.6	38.6	1.1	1.3	44.1	70.9
Hybrid x Plant Density		90.0		66.0	83.6	23.6	91.1	93.0	44.1	67.0
LSD (0.10)										
Hybrid (H)		NS		NS	NS	1	NS	NS	NS	NS
Plant Density (D)		3372		NS	NS	NS	5.2	5.2	NS	NS
Hybrid x Plant Density		NS		NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Hybrid Influence on Corn Grain**

Experiment: 02PD **Trial ID:** 6517 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Valders, WI **County:** Manitowoc

Supported By: HATCH

Site Information

Field: **Previous Crop:** Alfalfa **Soil Type:** Kewaunee Clay Loam

Soil Test: **Date:** 9 /15/20 **pH** 7.1 **OM (%)** 3.1 **P (ppm)** 12 **K (ppm)** 71

Plot Management

Tillage Operations: Chisel Plow Field

		Analysis:	Rate lbs/A	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /6 /20
	Post plant :	32-0-0	443 lbs/A	N/A
	Manure:	Dairy	10000 gal/A	N/A

Herbicide: TripleFlex 3.0 qt/A
Realm Q 4.0oz/A
Atrazine 1.0 lb/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/6/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Almaco Plot Planter

Harvest Date: 9/17/20 **Harvest Method:** Massey 8XP

Notes:

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 29692

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Dekalb DKC43-75RIB 93RM
2) 26000	2) Jung 48DP420 98RM
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 2002-13.

Table: 2002-13. Plant Density and Hybrid Influence on Corn Grain. Valders, WI - 2020.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.58
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC43-75RIB		32154	32407	198	22.7	54	0.6	0.6	0.0	635
Jung 48DP420		27230	28030	207	24.8	52	0.4	0.4	0.0	655
	20000	19381	20391	181	24.9	53	0.6	0.6	0.0	572
	26000	24305	25000	207	22.9	53	0.0	0.0	0.0	664
	32000	27841	27967	209	22.9	54	0.0	0.0	0.0	669
	38000	31502	31881	210	23.7	53	0.4	0.4	0.0	671
	44000	35101	35606	213	23.4	53	0.5	0.5	0.0	681
	50000	40025	40467	193	24.8	53	1.5	1.5	0.0	613
Dekalb DKC43-75RIB	20000	20833	21212	172	24.6	54	1.3	1.3	0.0	546
Dekalb DKC43-75RIB	26000	25883	26262	209	21.6	54	0.0	0.0	0.0	673
Dekalb DKC43-75RIB	32000	30176	30176	198	21.0	55	0.0	0.0	0.0	642
Dekalb DKC43-75RIB	38000	31818	31944	198	22.8	55	0.5	0.5	0.0	635
Dekalb DKC43-75RIB	44000	40025	40530	218	23.4	55	0.3	0.3	0.0	697
Dekalb DKC43-75RIB	50000	44191	44318	192	22.6	53	1.4	1.4	0.0	615
Jung 48DP420	20000	17929	19570	189	25.1	52	0.0	0.0	0.0	597
Jung 48DP420	26000	22727	23737	206	24.1	52	0.0	0.0	0.0	654
Jung 48DP420	32000	25505	25757	220	24.7	52	0.0	0.0	0.0	696
Jung 48DP420	38000	31186	31818	223	24.7	52	0.3	0.3	0.0	706
Jung 48DP420	44000	30176	30681	208	23.4	51	0.7	0.7	0.0	665
Jung 48DP420	50000	35858	36616	195	26.9	52	1.6	1.6	0.0	610
Mean		29692	30218	202	23.7	53	0.5	0.5	0.0	645
Probability(%)										
Hybrid (H)		3.0	4.6	25.0	1.0	0.0	55.9	55.9	-	43.7
Plant Density (D)		0.0	0.0	15.2	48.5	95.0	1.9	1.9	-	13.5
Hybrid x Plant Density		80.5	73.9	71.3	54.0	41.5	46.3	46.3	-	77.6
LSD (0.10)										
Hybrid (H)		3647	3547	NS	1.3	1	NS	NS	-	NS
Plant Density (D)		6317	6144	NS	NS	NS	0.7	0.7	-	NS
Hybrid x Plant Density		NS	NS	NS	NS	NS	NS	NS	-	NS

FIELD EXPERIMENT HISTORY

Title: **Date of Planting and Hybrid Influence on Corn Forage and Corn Grain Yield**

Experiment: 03DOP **Trial ID:** 6497 **Year:** 2020

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: ARS392 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/1 /16 **pH** 6.6 **OM (%)** 2.8 **P (ppm)** 23 **K (ppm)** 89

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Rate lbs/A:	Date:
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	N/A	N/A

Herbicide: Dual II 1.5 pt/A
Hornet 4.0 oz/A

Insecticide: None

Hybrid: Factor

Irrigation: None

Planting Date: See Factors **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 34000 **plants per acre** **Planting Method:** JD1700 w RTK

Harvest Date: S: See Factors
G:10/29/20

Harvest Method: S: New Holland 707
G: Massey Ferguson 8XP

Experimental Design

Design: RCB split-plot (2 x 4 Factorial for split) **Replications:** 4

Plot Size Seeded: 10' x 30' **Experiment Size:** 1.7 A

Harvest Plot Size: S: 30' x 2.5'
G: 30' x 5'

Harvest Plant Density: 34550 **plants per acre**

Factors/Treatments:

Planting Date:
1) April 21
2) April 30
3) May 15
4) June 01
5) June 15

Hybrid:
1) Pioneer P9608Q
2) Jung 58SS529

Harvest Date:
1) September 01
2) September 24

Results: Tables 2003-01, 2003-02 & 2003-03.

Table: 2003-01. Planting Date Influence on Corn Grain Performance.
Arlington, WI - 2020.

		Grain													
Planting		Harvest			Test	Lodged			AGI	Silking	Early	Kernel Milk			Black
date	Hybrid	population	Yield	Moisture	weight	Total	Stalk	Root	$3.58	date	dent	75%	50%	25%	layer
		plants/A	bu/A	%	lbs/bu	%	%	%	$/A	doy	doy	doy	doy	doy	doy
	Jung 58SS529	34800	246	30.5	53	16	2	14	757	211	249	254	-	-	-
	Pioneer P9608Q	34300	239	21.8	57	9	2	7	771	205	240	245	252	256	257
April 21		34125	261	21.3	58	20	2	18	845	200	237	245	253	253	250
April 30		33750	261	22.3	57	17	2	15	840	201	238	247	255	258	252
May 15		34875	265	24.0	56	4	2	2	843	204	239	248	256	257	270
June 01		34625	252	27.6	54	5	2	2	784	210	248	257	-	-	-
Jun 15		35375	173	35.9	51	17	1	16	509	223	262	-	-	-	-
April 21	Jung 58SS529	34500	276	24.7	55	29	2	26	875	203	243	251	259	-	-
April 30	Jung 58SS529	34250	258	25.0	56	29	3	26	814	205	244	252	260	-	-
May 15	Jung 58SS529	35250	275	26.0	53	6	4	3	864	208	243	252	259	-	-
June 01	Jung 58SS529	34250	248	31.9	51	6	1	4	750	212	253	260	-	-	-
June 15	Jung 58SS529	35750	174	45.2	50	11	1	10	481	226	264	-	-	-	-
April 21	Pioneer P9608Q	33750	246	17.8	60	11	1	10	814	196	231	239	246	253	250
April 30	Pioneer P9608Q	33250	265	19.6	58	5	2	4	867	198	232	242	250	258	252
May 15	Pioneer P9608Q	34500	255	22.0	58	2	1	1	821	201	234	244	253	257	270
June 01	Pioneer P9608Q	35000	256	23.3	57	4	3	1	817	208	243	254	259	-	-
June 15	Pioneer P9608Q	35000	171	26.5	52	23	1	21	536	220	260	-	-	-	-
Mean		34550	242	26.2	55	12	2	11	764	208	245	249	255	256	257
Probability(%)															
Hybrid(H)		28.7	26.5	0.1	0.1	15.6	45.2	17.5	51.4	0.1	0.1	0.1	0.2	-	-
PlantDate(P)		10.5	0.0	0.0	0.0	0.4	67.7	0.3	0.0	0.0	0.0	0.0	0.0	5.7	-
HxP		62.0	15.8	0.0	5.7	0.8	29.5	1.4	13.2	13.6	0.4	12.3	8.8	-	-
LSD (0.10)															
Hybrid(H)		NS	NS	1.8	1	NS	NS	NS	NS	1	2	2	-	-	-
PlantDate(P)		NS	21	2.9	1	12	NS	12	74	2	3	2	3	4	-
HxP		NS	NS	2.1	1	8	NS	8	NS	NS	2	NS	2	-	-

Table: 2003-02. Planting Date and Harvest Timing Influence on Corn Silage Performance. Arlington, WI - 2020.

				Whole Plant													
Planting		Harvest	Plant	Dry Matter		Kernel	KMR	SMR	VMR	Crude	*In Vitro*					Milk per	
date	Hybrid	date	density	yield	Moisture	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
			plants/A	tons/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
	Jung 58SS529		36518	9.6	71.5	74	3.7	2.5	6.2	7.6	22.6	41.3	83.8	60.7	23.4	2911	28454
	P9608Q		35719	10.1	65.3	53	2.7	1.9	4.5	7.1	21.2	38.8	84.4	59.9	28.5	3066	31193
April 21			36191	9.9	63.6	48	2.4	1.4	3.8	6.9	19.8	37.0	85.2	59.8	30.3	3110	30795
April 30			36300	10.8	64.3	50	2.5	1.7	4.2	7.0	19.4	36.5	85.6	60.6	31.2	3199	34586
May 15			35175	10.4	66.2	53	2.7	1.2	3.9	7.0	20.1	37.6	85.3	60.7	29.9	3167	33098
June 1			36590	10.4	70.4	74	3.7	2.5	6.2	7.4	22.5	40.8	83.8	60.1	25.1	2976	31028
June 15			36336	7.7	77.5	94	4.7	4.0	8.7	8.2	27.8	48.4	80.7	60.4	13.1	2490	19611
		Sept 1	37041	9.0	73.6	82	4.1	3.1	7.2	7.8	24.3	43.5	83.2	61.8	21.7	2939	26958
		Sept 24	35196	10.7	63.2	45	2.3	1.2	3.5	6.8	19.5	36.6	85.0	58.8	30.2	3038	32689
April 21	Jung 58SS529		36227	9.2	67.6	64	3.2	1.9	5.1	6.9	20.7	38.4	84.6	60.0	27.4	3013	27497
April 30	Jung 58SS529		37171	10.4	68.9	63	3.1	2.1	5.2	7.4	20.0	37.7	85.3	61.1	28.9	3181	33344
May 15	Jung 58SS529		35138	10.4	68.4	66	3.3	1.5	4.8	7.1	21.0	39.0	84.7	60.7	27.8	3105	32280
June 1	Jung 58SS529		37679	10.2	73.4	84	4.2	3.0	7.2	7.8	23.5	42.5	83.0	60.0	21.8	2840	29184
June 15	Jung 58SS529		36373	7.9	79.1	95	4.8	4.0	8.8	8.6	27.8	49.0	81.1	61.9	10.9	2414	19964
April 21	P9608Q		36155	10.7	59.5	32	1.6	1.0	2.6	6.8	18.8	35.5	85.7	59.7	33.3	3207	34093
April 30	P9608Q		35429	11.2	59.8	37	1.9	1.3	3.1	6.7	18.7	35.3	85.9	60.2	33.6	3217	35827
May 15	P9608Q		35211	10.5	64.0	41	2.0	0.9	3.0	6.9	19.2	36.2	85.8	60.7	32.0	3228	33916
June 1	P9608Q		35501	10.6	67.3	64	3.2	2.1	5.3	7.1	21.5	39.0	84.5	60.3	28.4	3112	32872
June 15	P9608Q		36300	7.4	75.9	93	4.6	4.0	8.6	7.8	27.8	47.8	80.3	58.9	15.2	2565	19257
	Jung 58SS529	Sept 1	37258	8.7	76.2	87	4.3	3.4	7.8	8.1	25.5	45.5	82.6	62.0	18.0	2770	24605
	Jung 58SS529	Sept 24	35777	10.6	66.8	62	3.1	1.5	4.6	7.0	19.8	37.2	84.9	59.4	28.8	3052	32303
	P9608Q	Sept 1	36823	9.2	71.0	78	3.9	2.8	6.7	7.5	23.2	41.6	83.9	61.6	25.4	3107	29311
	P9608Q	Sept 24	34616	10.9	59.6	28	1.4	0.9	2.4	6.7	19.2	36.0	85.0	58.3	31.6	3024	33075
April 21		Sept 1	37099	9.4	69.1	72	3.6	2.3	5.9	7.2	20.7	38.5	85.4	62.1	28.9	3227	30266
April 21		Sept 24	35284	10.5	58.1	24	1.2	0.6	1.8	6.5	18.8	35.5	84.9	57.6	31.8	2993	31325
April 30		Sept 1	36518	10.4	69.5	78	3.9	2.6	6.5	7.4	20.6	38.5	86.0	63.6	29.0	3277	34119
April 30		Sept 24	36082	11.2	59.2	22	1.1	0.7	1.8	6.7	18.1	34.6	85.3	57.6	33.5	3122	35052
May 15		Sept 1	36155	9.5	71.2	79	3.9	1.9	5.8	7.4	22.4	40.7	84.8	62.6	26.3	3156	30108
May 15		Sept 24	34195	11.3	61.2	28	1.4	0.5	2.0	6.6	17.8	34.5	85.7	58.7	33.6	3178	36089
June 1		Sept 1	38188	9.1	76.1	86	4.3	3.7	8.0	8.0	24.9	44.1	83.3	62.3	20.8	2930	26744
June 1		Sept 24	34993	11.7	64.7	62	3.1	1.4	4.5	6.8	20.1	37.4	84.3	58.0	29.4	3021	35313
June 15		Sept 1	37244	6.4	82.1	98	4.9	5.0	9.9	8.9	33.1	56.0	76.8	58.5	3.5	2104	13554
June 15		Sept 24	35429	8.9	72.9	89	4.5	3.0	7.4	7.5	22.5	40.8	84.6	62.3	22.6	2875	25667

continued

Table: 2003-02. Planting Date and Harvest Timing Influence on Corn Silage Performance.

continued. **Arlington, WI - 2020.**

				Whole Plant														
Planting		Harvest	Plant	Dry Matter		Kernel	KMR	SMR	VMR	Crude	*In Vitro*					Milk per	
date	Hybrid	date	density	yield	Moisture	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
			plants/A	tons/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
April 21	Jung 58SS529	Sept 1	36881	8.8	72.5	80	4.0	2.8	6.8	7.3	22.2	40.5	84.5	61.8	24.9	3017	26577
April 21	Jung 58SS529	Sept 24	35574	9.5	62.7	48	2.4	0.9	3.3	6.5	19.3	36.3	84.8	58.1	29.8	3009	28418
April 30	Jung 58SS529	Sept 1	37462	10.2	72.8	83	4.1	3.2	7.3	7.8	21.6	40.2	85.5	64.0	25.6	3138	32085
April 30	Jung 58SS529	Sept 24	36881	10.7	65.0	43	2.1	1.0	3.2	7.0	18.4	35.2	85.2	58.1	32.2	3225	34603
May 15	Jung 58SS529	Sept 1	35864	9.2	74.2	81	4.1	2.1	6.1	7.7	23.6	42.8	84.2	63.4	22.6	3004	27711
May 15	Jung 58SS529	Sept 24	34412	11.5	62.6	51	2.6	0.9	3.4	6.6	18.3	35.2	85.2	58.0	33.1	3206	36849
June 1	Jung 58SS529	Sept 1	39640	8.9	78.1	91	4.6	4.1	8.6	8.6	26.1	46.3	82.3	61.8	16.7	2745	24490
June 1	Jung 58SS529	Sept 24	35719	11.5	68.7	76	3.8	1.9	5.7	7.0	21.0	38.7	83.8	58.2	26.9	2935	33878
June 15	Jung 58SS529	Sept 1	36445	6.2	83.3	99	4.9	5.0	9.9	9.1	33.8	57.7	76.4	59.2	0.0	1946	12163
June 15	Jung 58SS529	Sept 24	36300	9.6	74.8	91	4.6	3.0	7.6	8.1	21.8	40.4	85.7	64.7	21.8	2883	27766
April 21	P9608Q	Sept 1	37316	9.9	65.6	64	3.2	1.8	5.0	7.1	19.3	36.4	86.3	62.3	32.9	3436	33954
April 21	P9608Q	Sept 24	34993	11.5	53.5	0	0.0	0.3	0.3	6.4	18.4	34.6	85.1	57.0	33.8	2977	34232
April 30	P9608Q	Sept 1	35574	10.6	66.2	73	3.6	2.1	5.7	6.9	19.6	36.7	86.4	63.2	32.4	3416	36153
April 30	P9608Q	Sept 24	35284	11.8	53.4	2	0.1	0.4	0.5	6.4	17.8	33.9	85.5	57.2	34.8	3019	35501
May 15	P9608Q	Sept 1	36445	9.8	68.3	76	3.8	1.7	5.5	7.1	21.1	38.5	85.3	61.8	30.0	3307	32505
May 15	P9608Q	Sept 24	33977	11.2	59.8	5	0.2	0.2	0.5	6.7	17.4	33.9	86.3	59.5	34.0	3150	35328
June 1	P9608Q	Sept 1	36736	9.3	74.0	80	4.0	3.3	7.3	7.5	23.7	41.9	84.4	62.8	24.8	3116	28998
June 1	P9608Q	Sept 24	34267	11.8	60.7	48	2.4	0.9	3.3	6.7	19.3	36.1	84.7	57.8	31.9	3107	36747
June 15	P9608Q	Sept 1	38042	6.6	80.9	98	4.9	5.0	9.9	8.6	32.5	54.3	77.1	57.9	7.0	2262	14946
June 15	P9608Q	Sept 24	34558	8.2	70.9	88	4.4	2.9	7.3	7.0	23.2	41.2	83.4	59.9	23.5	2868	23568
Mean			36119	9.8	68.4	64	3.2	2.2	5.4	7.3	21.9	40.1	84.1	60.3	25.9	2988	29824
Probability(%)																	
Hybrid (H)			17.2	18.6	0.2	0.2	0.2	2.2	0.4	1.0	7.2	2.2	18.1	23.6	0.8	2.5	6.5
PlantDate(P)			33.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.9	0.0	0.0	0.0
HxP			35.6	20.2	2.3	0.4	0.4	33.4	2.2	7.7	41.5	66.4	36.9	33.4	71.9	36.8	21.7
HarvDate(D)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
HxD			39.7	63.4	11.6	0.0	0.0	78.6	0.1	11.7	3.5	0.8	10.7	51.7	0.1	0.0	3.8
PxD			38.7	9.1	81.4	0.0	0.0	8.9	0.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2
HxPxD			47.8	33.9	27.7	7.2	7.2	69.6	35.6	12.1	94.1	93.7	78.7	42.2	92.1	62.4	80.5
LSD(0.10)																	
Hybrid (H)			NS	NS	1.4	5	0.3	0.3	0.5	0.2	1.2	1.4	0.9	NS	1.9	88	2265
PlantDate(P)			NS	0.7	1.6	6	0.3	0.4	0.6	0.2	1.0	1.3	1.0	NS	1.8	99	2604
HxP			NS	NS	2.3	8	0.4	NS	0.8	0.3	NS	NS	NS	NS	NS	NS	NS
HarvDate(D)			716	0.4	1.0	4	0.2	0.2	0.3	0.1	0.6	0.8	0.6	0.9	1.1	52	1538
HxD			NS	NS	NS	5	0.3	NS	0.4	NS	1.0	1.2	NS	NS	1.7	79	2221
PxD			NS	0.9	NS	8	0.4	0.5	0.7	0.3	1.4	1.8	1.4	2.1	2.5	127	3536
HxPxD			NS	NS	NS	12	0.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 2003-03. Planting Date and Hybrid Influence on Corn Leaf Development. Arlington, WI - 2020.

Hybrid	Date of planting	Observation date	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
		153	1.8	3.5	3.9	4.2
		167	4.4	6.2	7.9	12.2
		181	7.0	9.5	10.7	31.6
		195	12.0	13.9	15.0	69.9
		209	16.6	17.3	17.7	98.3
	April 21		10.5	11.9	13.0	56.0
	April 30		9.8	11.5	12.3	52.0
	May 15		9.1	10.7	11.6	47.8
	June 1		8.6	10.5	11.6	46.3
	June 15		6.5	8.8	9.8	32.0
	April 21	153	2.4	4.1	4.7	4.9
	April 21	167	5.8	7.7	9.8	16.8
	April 21	181	9.5	12.3	14.0	51.0
	April 21	195	15.8	16.3	17.3	97.1
	April 21	209	19.1	19.1	19.1	110.3
	April 30	153	2.0	3.9	4.0	4.6
	April 30	167	5.1	7.2	8.8	15.0
	April 30	181	8.6	11.6	13.0	43.6
	April 30	195	14.7	15.9	16.9	89.9
	April 30	209	18.7	18.7	18.7	107.1
	May 15	153	1.0	2.5	3.0	3.1
	May 15	167	4.6	6.4	7.9	11.9
	May 15	181	8.1	11.0	12.5	36.4
	May 15	195	13.3	14.9	16.1	80.8
	May 15	209	18.6	18.6	18.6	107.0
	June 1	153	-	-	-	-
	June 1	167	2.3	3.6	5.1	5.0
	June 1	181	6.0	8.4	9.4	21.1
	June 1	195	10.1	13.6	14.6	58.5
	June 1	209	16.2	16.4	17.4	100.4
	June 15	153	-	-	-	-
	June 15	167	-	-	-	-
	June 15	181	2.8	3.9	4.8	6.0
	June 15	195	6.1	8.9	9.9	23.3
	June 15	209	10.6	13.5	14.6	66.9

Continued

Table: 2003-03. Planting Date and Hybrid Influence on Corn Leaf Development.
(continued) **Arlington, WI - 2020.**

Hybrid	Date of planting	Observation date	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
Jung 58SS529			9.4	11.2	12.1	47.4
Pioneer P9608Q			8.9	10.5	11.5	49.0
Jung 58SS529		153	1.8	3.5	3.8	4.1
Jung 58SS529		167	4.5	6.3	7.9	11.9
Jung 58SS529		181	7.0	9.6	10.8	31.1
Jung 58SS529		195	12.1	14.5	15.5	68.3
Jung 58SS529		209	17.4	18.1	18.5	97.3
Pioneer P9608Q		153	1.8	3.5	4.0	4.3
Pioneer P9608Q		167	4.3	6.1	7.9	12.4
Pioneer P9608Q		181	7.0	9.4	10.7	32.2
Pioneer P9608Q		195	11.9	13.4	14.5	71.6
Pioneer P9608Q		209	15.8	16.4	16.8	99.3
Jung 58SS529	April 21		10.6	12.1	13.1	52.9
Jung 58SS529	April 30		10.0	12.0	12.7	50.8
Jung 58SS529	May 15		9.6	11.3	12.1	48.0
Jung 58SS529	June 1		8.8	10.7	11.8	46.2
Jung 58SS529	June 15		6.6	9.0	10.0	33.2
Pioneer P9608Q	April 21		10.4	11.7	12.8	59.1
Pioneer P9608Q	April 30		9.6	10.9	11.9	53.2
Pioneer P9608Q	May 15		8.7	10.1	11.1	47.7
Pioneer P9608Q	June 1		8.5	10.3	11.4	46.3
Pioneer P9608Q	June 15		6.4	8.6	9.5	30.9
Jung 58SS529	April 21	153	2.3	3.9	4.4	4.5
Jung 58SS529	April 21	167	5.8	7.8	9.8	16.1
Jung 58SS529	April 21	181	9.3	12.0	13.9	48.3
Jung 58SS529	April 21	195	15.8	16.6	17.6	90.6
Jung 58SS529	April 21	209	20.0	20.0	20.0	105.1
Jung 58SS529	April 30	153	2.0	4.0	4.0	4.6
Jung 58SS529	April 30	167	5.1	7.4	8.8	14.8
Jung 58SS529	April 30	181	8.5	12.1	13.1	42.6
Jung 58SS529	April 30	195	14.8	16.8	17.8	86.8
Jung 58SS529	April 30	209	19.8	19.8	19.8	105.4

Continued

Table: 2003-03. Planting Date and Hybrid Influence on Corn Leaf Development.
(continued) **Arlington, WI - 2020.**

Hybrid	Date of planting	Observation date	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
Jung 58SS529	May 15	153	1.0	2.5	3.0	3.3
Jung 58SS529	May 15	167	5.0	6.5	7.9	11.9
Jung 58SS529	May 15	181	8.4	11.5	12.9	37.3
Jung 58SS529	May 15	195	13.5	16.0	17.0	81.1
Jung 58SS529	May 15	209	19.9	19.9	19.9	106.5
Jung 58SS529	June 1	153	-	-	-	-
Jung 58SS529	June 1	167	2.3	3.6	5.1	5.0
Jung 58SS529	June 1	181	6.0	8.4	9.4	20.6
Jung 58SS529	June 1	195	10.1	13.9	15.0	59.4
Jung 58SS529	June 1	209	16.8	16.9	17.9	99.9
Jung 58SS529	June 15	153	-	-	-	-
Jung 58SS529	June 15	167	-	-	-	-
Jung 58SS529	June 15	181	2.9	3.9	4.8	6.5
Jung 58SS529	June 15	195	6.3	9.0	10.1	23.4
Jung 58SS529	June 15	209	10.8	14.0	15.0	69.8
Pioneer P9608Q	April 21	153	2.5	4.3	5.0	5.3
Pioneer P9608Q	April 21	167	5.8	7.6	9.8	17.4
Pioneer P9608Q	April 21	181	9.8	12.6	14.1	53.8
Pioneer P9608Q	April 21	195	15.8	15.9	17.0	103.6
Pioneer P9608Q	April 21	209	18.3	18.3	18.3	115.4
Pioneer P9608Q	April 30	153	2.0	3.8	4.0	4.6
Pioneer P9608Q	April 30	167	5.0	7.0	8.9	15.3
Pioneer P9608Q	April 30	181	8.6	11.1	12.9	44.5
Pioneer P9608Q	April 30	195	14.6	15.0	16.1	93.0
Pioneer P9608Q	April 30	209	17.6	17.6	17.6	108.8
Pioneer P9608Q	May 15	153	1.0	2.5	3.0	2.9
Pioneer P9608Q	May 15	167	4.1	6.3	8.0	11.9
Pioneer P9608Q	May 15	181	7.8	10.5	12.1	35.6
Pioneer P9608Q	May 15	195	13.1	13.9	15.1	80.4
Pioneer P9608Q	May 15	209	17.3	17.3	17.3	107.5
Pioneer P9608Q	June 1	153	-	-	-	-
Pioneer P9608Q	June 1	167	2.4	3.6	5.0	5.0
Pioneer P9608Q	June 1	181	6.0	8.5	9.5	21.6
Pioneer P9608Q	June 1	195	10.0	13.3	14.3	57.6
Pioneer P9608Q	June 1	209	15.6	16.0	16.9	101.0

Continued

Table: 2003-03. Planting Date and Hybrid Influence on Corn Leaf Development.

(continued) **Arlington, WI - 2020.**

Hybrid	Date of planting	Observation date	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
Pioneer P9608Q	June 15	153	-	-	-	-
Pioneer P9608Q	June 15	167	-	-	-	-
Pioneer P9608Q	June 15	181	2.8	4.0	4.8	5.5
Pioneer P9608Q	June 15	195	6.0	8.8	9.8	23.1
Pioneer P9608Q	June 15	209	10.4	13.0	14.1	64.0
Mean			9.1	10.8	11.8	48.2
Probability(%)						
Hybrid(H)			7.9	2.9	4.4	49.4
Date of Planting (D)			0.0	0.0	0.0	0.0
HxD			0.3	0.0	0.0	0.0
Sample DOY (S)			0.0	0.0	0.0	0.0
H x S			0.0	0.0	0.0	16.0
DxS			0.0	0.0	0.0	0.0
HxDxS			17.4	51.7	31.0	53.9
LSD(0.10)						
Hybrid(H)			0.2	0.2	0.2	NS
Date of Planting (D)			0.2	0.2	0.2	1.6
HxD			0.3	0.3	0.2	2.2
Sample DOY (S)			0.2	0.2	0.2	1.6
H x S			0.3	0.3	0.2	NS
DxS			0.4	0.4	0.4	3.5
HxDxS			NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Row Spacing Effects on Yield and Quality of Corn Silage**

Experiment: 06PDxRS **Trial ID:** 6496 **Year:** 2020

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:** 9 /1 /20 **pH** 6.1 **OM (%)** 2.8 **P (ppm)** 60 **K (ppm)** 119

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	32-0-0	113 lbs/A	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	13543 gal/A	N/A

Herbicide: Resicore 80.0 oz/A
None

Insecticide: None

Hybrid: Dekalb DKC52-35RIB

Planting Date: 5/12/20 **Planting Depth:** 1.5" **Row Width:** See Factors

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

Harvest Date: S: 9/21/20
G: 10/14/20

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

Notes:

Experimental Design

Design: RCB **Replications:** 4

Plot Size Seeded: 10' x 75' **Experiment Size:** 1.0 Acre

Harvest Plot Size: S:3.75' x 23'
G:5' x 47'

Harvest Plant Density: 35281

Factors/Treatments:

Row Spacing:

1) 15 inch
2) 30 inch

Plant Density: (plants/A)

1) 26000
2) 32000
3) 38000
4) 44000

Results: Table 2006-01.

Table: 2006-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality Arlington, WI - 2020.

				Grain						
Target	Row	Harvest	Ear			Test	Lodged			AGI
Density	spacing	Density	Density	Yield	Moisture	weight	Total	Stalk	Root	$3.58
plants/A	inches	plants/A	Ear/A	bu/A	%	lbs/bu	%	%	%	$/A
15		34688	35188	260	23.8	54.0	0	0	0	829
30		35875	36375	263	24.5	53.9	1	0	1	833
	26000	26000	27375	239	25.5	53.6	0	0	0	754
	32000	32875	33375	264	24.1	53.9	0	0	0	840
	38000	38500	38625	267	23.7	54.2	2	1	1	850
	44000	43750	43750	276	23.5	54.0	1	0	1	879
15	26000	26250	27750	240	25.4	53.7	0	0	0	756
15	32000	33250	33500	263	23.4	54.3	0	0	0	838
15	38000	36000	36250	271	23.6	53.9	1	1	0	866
15	44000	43250	43250	268	23.1	54.1	0	0	0	857
30	26000	25750	27000	239	25.7	53.5	0	0	0	752
30	32000	32500	33250	266	24.8	53.6	0	0	0	842
30	38000	41000	41000	262	23.8	54.6	2	0	2	835
30	44000	44250	44250	283	23.8	54.0	2	1	2	902
Mean		35281	35781	261	24.2	53.9	1	0	0	831
Probability(%)										
Row Spacing (S)		4.5	8.1	54.7	7.0	75.5	30.8	38.5	17.2	77.1
Density (D)		0.0	0.0	0.0	0.2	31.8	21.3	15.2	58.2	0.0
S x D		0.5	2.8	15.8	61.1	22.7	53.5	4.8	58.2	21.2
LSD (0.10)										
Row Spacing (S)		959	1114	NS	0.6	NS	NS	NS	NS	NS
Density (D)		1356	1575	9	0.8	NS	NS	NS	NS	30
S x D		1918	2228	NS	NS	NS	NS	1	NS	NS

Continued

Table: 2006-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality

(continued) **Arlington, WI - 2020.**

		Whole Plant														
Target	Row	Dry Matter		Harvest	Kernel	KMR	SMR	VMR	Crude			*In Vitro*			Milk per	
Density	spacing	yield	Moisture	Density	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
plants/A	inches	tons/A	%	plants/A	%				%	%	%	%	%	%	lbs/T	lbs/A
15		11.8	57.0	35761	19.8	1.0	0.6	1.6	7.1	15.7	31.7	87.8	61.7	35.1	3169	37440
30		11.5	55.5	36093	22.8	1.1	0.7	1.9	7.1	14.7	30.3	88.9	63.5	37.0	3237	37307
	26000	11.0	56.7	26509	19.3	1.0	0.8	1.8	7.3	15.0	30.9	88.7	63.3	35.2	3175	34939
	32000	11.9	56.5	33272	23.4	1.2	0.6	1.7	7.3	14.6	30.3	89.0	63.8	36.8	3264	38773
	38000	11.4	55.3	39785	22.0	1.1	0.5	1.6	6.7	16.1	32.0	87.6	61.3	35.6	3143	35864
	44000	12.4	56.5	44141	20.4	1.0	0.8	1.8	7.1	15.2	30.8	88.2	61.9	36.7	3229	39918
15	26000	10.9	58.0	26883	10.3	0.5	0.7	1.2	7.5	15.1	31.1	88.5	63.0	34.3	3154	34403
15	32000	11.8	56.9	32193	24.3	1.2	0.5	1.7	7.3	14.8	30.8	88.7	63.4	35.9	3233	38052
15	38000	12.0	56.6	38499	22.5	1.1	0.6	1.7	6.6	16.7	32.7	87.0	60.4	34.5	3118	37552
15	44000	12.5	56.4	45468	22.0	1.1	0.7	1.8	6.9	16.1	32.0	87.2	59.9	35.7	3170	39752
30	26000	11.1	55.5	26136	28.3	1.4	0.9	2.3	7.2	14.8	30.6	88.8	63.6	36.0	3196	35475
30	32000	12.0	56.1	34350	22.5	1.1	0.7	1.8	7.3	14.3	29.7	89.4	64.2	37.6	3294	39494
30	38000	10.8	54.0	41071	21.5	1.1	0.5	1.6	6.8	15.4	31.2	88.2	62.2	36.7	3168	34175
30	44000	12.2	56.6	42813	18.8	0.9	0.8	1.8	7.3	14.2	29.6	89.3	63.9	37.6	3289	40084
Mean		11.7	56.2	35927	21.3	1.1	0.7	1.7	7.1	15.2	31.0	88.4	62.6	36.0	3203	37373
Probability(%)																
Row Spacing (S)		33.8	8.0	72.3	57.4	57.4	19.0	32.9	50.8	2.2	1.5	0.4	0.4	1.9	3.5	89.6
Density (D)		2.3	56.3	0.0	94.8	94.8	12.1	97.7	0.0	9.7	15.8	4.2	1.3	34.5	4.2	0.6
S x D		27.7	54.1	17.9	45.2	45.2	76.0	42.1	10.0	51.7	61.9	30.8	15.9	99.7	79.4	33.0
LSD (0.10)																
Row Spacing (S)		NS	1.3	NS	NS	NS	NS	NS	NS	0.7	0.9	0.6	1.0	1.3	52	NS
Density (D)		0.7	NS	2252	NS	NS	NS	NS	NS	1.0	NS	0.8	1.3	NS	73	NS
S x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Alfalfa - Corn Response to Rotation**

Experiment: 09AC **Trial ID:** 6494 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo,Kent Kohn

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: ARS333 **Previous Crop:** See Factors **Soil Type:** Plano Silt Loam

Soil Test Date: 11/12/18 **pH** 6.4 **OM (%)** 3.3 **P (ppm)** 11 **K (ppm)** 93

Plot Management

Tillage Operations: NT

		Analysis:	Product Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	32-0-0	CC: 593 CA: 500	6/22/20 6/22/20
Herbicide:	**Manure:**	N/A	N/A	N/A

C: Status @ 3 oz/A + Roundup PMx @ 32 oz/A 6/17/20
Rifle @ 16 oz/A 5/26/20
A: Roundup PMx @ 22 oz/A Lambda T-2 @ 1.6 oz/A 8/4/20
Durango @ 36 oz/A + Baythroid2 @ 2.8 oz/A 7/7/20
Durango DMA @ 36 oz/A 5/26/20

Insecticide: N/A

Hybrid: C: DKC54-65RIB
A: Dekalb DKA40-51RR

Irrigation: None

Planting Date: C:5/7/20
A:4/21/20

Planting Depth: C:1.5"
A: 0.25"

Row Width: 30"

Target Plant Density: 35000 plants/A

Planting Method: JD1700 w RTK
A: JD750 No-Till Drill

Harvest Date: C: 10/27/20
S: 9/22/20
A: 6/2; 7/1; 7/28; 8/26

Harvest Method: C: MF 8XP
S: Hagee harvester
Al: Almaco Harvester

Notes:

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 75' x 60

Experiment Size: 3.47 A

Harvest Plot Size: G:5' x 71'
S: 5' x 71'
A:4.33' x 71'

Factors/Treatments:

Rotation - 2020 Treatments:

1) AAACC-1A
2) AAACC-2A
3) AAACC-3A
4) AAACC-1C
5) AAACC-2C
6) AACC- 1C
7) AACC- 2C
8) AACC- 1A
9) AACC- 2A
10) AACC- 1C (Silage)
11) AACC- 2C
12) AACC- 1A
13) AACC- 2A (Silage)
14) CC- Grain & Silage (S/S,S/G,G/S,G/G)

Results: Tables 2009-01, 2009-02 & 1809-03

Table:2009-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2020.

Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest	*AGI
					Total	Stalk	Root	density	$3.54/bu
		bu/A	%	lbs/bu	%	%	%	plants/A	$/A
AAACC-1C		247	21.0	53.4	5.0	1.4	3.6	37222	789
AAACC-2C		217	23.9	52.9	1.9	1.2	0.7	36222	681
AACC-1C		258	21.3	53.9	6.5	0.0	6.5	36222	824
AACC-2C		212	23.4	52.8	2.0	1.1	0.9	35111	668
CC-CC		202	25.9	52.4	0.7	0.3	0.4	34278	626
	25000	221	22.9	53.4	1.6	0.0	1.6	25000	698
	30000	223	23.3	52.9	1.1	0.2	0.8	29400	704
	35000	231	23.4	53.0	1.7	0.6	1.1	34267	728
	40000	230	23.0	53.0	4.3	0.2	4.1	39533	729
	45000	232	22.6	53.4	5.4	2.2	3.2	41667	735
	50000	225	23.4	52.8	5.2	1.6	3.7	45000	712
AAACC-1C	25000	238	20.8	53.8	6.9	0.0	6.9	24667	763
AAACC-1C	30000	238	22.0	52.8	0.0	0.0	0.0	31667	758
AAACC-1C	35000	238	21.1	53.4	0.9	0.9	0.0	36667	761
AAACC-1C	40000	251	20.5	54.0	11.9	0.9	11.0	37667	807
AAACC-1C	45000	257	20.2	53.5	8.1	4.4	3.7	45000	825
AAACC-1C	50000	257	21.3	52.8	2.1	2.1	0.0	47667	821
AAACC-2C	25000	219	23.6	53.0	0.0	0.0	0.0	25667	689
AAACC-2C	30000	220	23.7	52.9	0.0	0.0	0.0	29667	691
AAACC-2C	35000	224	24.6	52.8	2.0	0.0	2.0	34000	699
AAACC-2C	40000	219	23.5	52.8	0.0	0.0	0.0	41667	691
AAACC-2C	45000	213	23.4	53.0	2.9	2.9	0.0	40333	670
AAACC-2C	50000	207	24.5	52.7	6.5	4.3	2.2	46000	647
AACC-1C	25000	233	22.0	53.8	0.0	0.0	0.0	26000	742
AACC-1C	30000	246	21.7	53.4	4.2	0.0	4.2	28333	783
AACC-1C	35000	257	22.3	53.2	3.5	0.0	3.5	35000	814
AACC-1C	40000	265	20.9	53.8	8.5	0.0	8.5	40000	848
AACC-1C	45000	274	20.3	54.9	8.0	0.0	8.0	41333	881
AACC-1C	50000	272	20.6	54.4	14.7	0.0	14.7	46667	873
AACC-2C	25000	216	21.9	53.8	1.3	0.0	1.3	24333	686
AACC-2C	30000	210	23.0	52.7	1.2	1.2	0.0	28667	663
AACC-2C	35000	215	24.1	52.0	0.0	0.0	0.0	33333	676
AACC-2C	40000	209	23.8	52.4	0.0	0.0	0.0	39667	658
AACC-2C	45000	213	23.4	53.3	8.0	3.7	4.3	41000	671
AACC-2C	50000	208	23.9	52.8	1.4	1.4	0.0	43667	655
CC-CC	25000	197	26.4	52.5	0.0	0.0	0.0	24333	609
CC-CC	30000	202	26.0	52.7	0.0	0.0	0.0	28667	627
CC-CC	35000	221	24.7	53.4	2.0	2.0	0.0	32333	689
CC-CC	40000	206	26.2	52.0	0.9	0.0	0.9	38667	639
CC-CC	45000	203	25.6	52.3	0.0	0.0	0.0	40667	630
CC-CC	50000	183	26.7	51.3	1.6	0.0	1.6	41000	564
Mean		227	23.1	53.1	3.2	0.8	2.4	35811	718
Probability(%)									
Rotation (R)		0.0	0.0	0.0	2.4	25.9	0.4	3.8	0.0
Density (D)		8.3	41.8	28.7	14.6	4.0	40.0	0.0	8.1
R x D		1.6	46.1	29.1	47.4	64.6	35.9	77.5	0.9
LSD(0.10)									
Rotation (R)		7	0.7	0.5	3	NS	3	1631	23
Density (D)		8	NS	NS	NS	1	NS	1787	25
R x D		17	NS	NS	NS	NS	NS	NS	56

*AGI - Adjusted Gross Income.

Table:2009-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2020.

Rotation	Harvest Date 2-Jun	1-Jul	28-Jul	26-Aug	Total
	T Dm/A	T Dm/A	T Dm/A	T Dm/A	T Dm/A
AAACC-1A		0.0	0.2	0.3	0.5
AAACC-2A	1.7	0.7	0.6	0.3	3.4
AAACC-3A	1.0	0.3	0.3	0.2	1.8
AACC(S)-1A		0.0	0.4	0.3	0.7
AACC(S)-2A	1.9	1.0	0.7	0.3	3.9
AACC-1A		0.0	0.2	0.3	0.6
AACC-2A	1.7	0.6	0.5	0.3	3.0
Mean	1.6	0.4	0.4	0.3	2.0
Probability (%)					
Rotation (R)	0.3	0.0	0.0	2.7	0.0
LSD 10%					
Rotation (R)	0.3	0.2	0.1	0.1	0.4

Table:2009-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2020

		Whole Plant											
		Dry Matter		Kernel	Crude			*In Vitro*			Milk per		Harvest
Rotation	Density	Yield	Moisture	milk	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre	density
		T/A	%	%	%	%	%	%	%	%	lb	lb	plants/A
AACC-1Cs		10.1	55.6	8.9	7.0	14.9	31.7	87.8	61.4	36.5	3218	32338	36944
AACC-2Cs		9.4	55.9	21.1	6.9	15.2	32.1	87.6	61.5	35.8	3186	29838	35611
	25000	8.9	57.5	15.8	7.4	14.6	31.5	88.3	62.9	35.5	3244	28793	25667
	30000	9.5	56.5	16.7	7.0	15.1	32.0	87.7	61.6	35.5	3187	30172	29667
	35000	9.8	55.2	16.7	7.0	14.9	31.7	87.7	61.2	36.4	3188	31073	33500
	40000	9.8	55.5	15.8	6.8	14.7	31.6	87.9	61.8	37.1	3248	31725	38000
	45000	10.2	55.8	14.2	6.7	15.5	32.4	87.2	60.8	35.8	3171	32345	43667
	50000	10.2	54.2	10.8	6.6	15.3	32.2	87.3	60.6	36.7	3173	32421	47167
AACC(S)-1C	25000	8.8	58.3	6.7	7.4	14.8	31.8	88.2	62.8	35.2	3260	28667	25333
AACC(S)-1C	30000	9.7	56.1	8.3	7.3	14.5	31.2	88.1	62.0	36.4	3229	31224	31000
AACC(S)-1C	35000	10.6	53.9	10.0	6.9	15.3	32.3	87.1	60.1	36.1	3137	33348	34000
AACC(S)-1C	40000	9.7	56.2	8.3	6.7	15.0	32.0	87.8	61.8	36.8	3251	31655	40000
AACC(S)-1C	45000	10.7	56.2	13.3	6.7	14.3	30.6	88.3	61.8	37.6	3252	34867	44000
AACC(S)-1C	50000	10.8	53.1	6.7	6.7	15.3	32.1	87.2	60.2	37.2	3179	34270	47333
AACC(S)-2C	25000	9.0	56.6	25.0	7.4	14.5	31.2	88.4	63.0	35.8	3229	28918	26000
AACC(S)-2C	30000	9.3	56.8	25.0	6.7	15.7	32.9	87.2	61.1	34.6	3144	29120	28333
AACC(S)-2C	35000	8.9	56.4	23.3	7.0	14.6	31.1	88.3	62.4	36.7	3239	28799	33000
AACC(S)-2C	40000	9.8	54.7	23.3	7.0	14.4	31.2	88.1	61.8	37.4	3245	31796	36000
AACC(S)-2C	45000	9.6	55.4	15.0	6.7	16.6	34.1	86.2	59.7	33.9	3090	29823	43333
AACC(S)-2C	50000	9.6	55.3	15.0	6.5	15.3	32.2	87.4	61.0	36.2	3167	30572	47000
Mean		9.7	55.8	15.0	6.9	15.0	31.9	87.7	61.5	36.1	3202	31088	36278
Probability(%)													
Rotation (R)		3.5	66.9	0.0	49.1	43.0	43.3	62.9	86.8	31.9	31.0	3.6	14.3
Density (D)		16.8	3.3	80.0	0.2	82.9	92.5	46.8	12.9	76.5	52.7	41.7	0.0
R x D		43.8	10.4	50.5	26.4	26.2	16.1	11.3	20.7	49.2	28.5	62.3	68.3
LSD(0.10)													
Rotation (R)		0.5	NS	4.6	NS	NS	NS	NS	NS	NS	NS	1927.8	NS
Density (D)		NS	1.6	NS	0.3	NS	NS	NS	NS	NS	NS	NS	2613
R x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Alfalfa - Corn Response to Rotation**

Experiment: 09AC **Trial ID:** 6495 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn, Jason Cavadini

Location: Marshfield, WI **County:** Marathon

Supported By: HATCH

Site Information

Field: 402 **Previous Crop:** See Factors **Soil Type:** Withee Silt Loam

Soil Test Date: 10/10/19 **pH** 7.3 **OM (%)** 3.3 **P (ppm)** 23 **K (ppm)** 88

Plot Management

Tillage Operations: No-Till

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	20-10-20-4S 0-0-60	200 lbs 150 lbs	5/2/20 5/2/20
	Starter :	N/A	N/A	N/A
	Post plant :	C: 28-0-0 UAN	40 gal	6 /18/20
	Manure:	N/A	N/A	N/A

Herbicide:

C: Verdict 16 oz/ac
Roundup PowerMax 32 oz/ac
A: None

Insecticide: N/A

Hybrid: C:Pioneer P8989AMXT
A: Dairyland 3420 wet

Irrigation: None

Planting Depth: C:1.5"
A: 0.25"

Row Width: 30"

Planting Date: C:5/05/20
A: 5/12/20

Planting Method: JD1750
A: Brillion seeder

Target Plant Density:

Harvest Date: C, CS: 11/4/20
A: 6/17, 7/17 , 8/24/20

Harvest Method: C: Almaco Plot Combine
CS: Hand harvest
AI: MARS Forage plot harvester

Notes:

Experimental Design

Design: RCB

Replications: 3

Plot Size Seeded: 60 x 60

Experiment Size: 5.40 A

Harvest Plot Size: G: 60' x 5'
S:.10' x 2.5'
A: 60' x 3.5'

Factors/Treatments:

Rotation - 2020 Treatments:

1) AAACC-3A
2) AAACC-1C
3) AAACC-2C
4) AAACC-1A
5) AAACC-2A
6) AACC-2C
7) AACC-1A
8) AACC- 2A
9) AACC- 1C
10) AACC- 2C(Silage)
11) AACC- 1A
12) AACC- 2A
13) AACC- 1C(Silage)
14) CC- Grain & Silage (S/S,S/G,G/S,G/G)

Results: Tables 2009-04, 2009-05 & 2009-06

Table: 2009-04 Alfalfa and Corn Rotation- Corn
Marshfield, WI - 2020.

Rotation	Yield	Moisture	Test Weight	Stalk Lodging	*AGI $3.54/bu
	bu/A	%	in.	%	$/A
AAACC	119	14.0	60.4	-	399
AAACC	103	12.7	59.9	-	346
AACC	124	12.6	60.0	-	414
AACC	103	12.4	60.1	-	345
Continuous Corn	78	10.7	59.7	-	262
Mean	105	12.5	60.0		353
Probability (%)					
Treatment	2.0	30.0	15.1	-	2.0
LSD 10%					
Treatment	20	NS	NS	-	67

- No population or logding data

Table:2009-05 Alfalfa and Corn Rotation- Established Alfalfa Marshfield, WI - 2020.

Rotation	Yield 6-Jun	Yield 17-Jul	Yield 24-Aug	Yield Season
	tn dm/A	tn dm/A	tn dm/A	tn dm/A
AAACC-1A	-	0.3	1.5	1.8
AAACC-2A	2.2	0.4	0.6	3.2
AAACC-3A	-	-	-	-
AACC-1A	-	0.3	1.5	1.8
AACC-2A	1.6	0.5	0.7	2.8
AACC(S)-1A	-	0.2	1.3	1.5
AACC(S)-2A	2.2	0.5	0.5	3.2
Mean	2.0	0.4	1.0	2.4
Probability (%)				
Rotation (R)	37.6	12.0	3.0	0.1
LSD 10%				
Rotation (R)	NS	NS	0.6	0.6

- New seeding, no data

Table:2009-06 Alfalfa and Corn Rotation- Corn Silage

Marshfield, WI - 2020.

Rotation	Yield	Moisture	Kernel milk	Harvest Population	CP	ADF	NDF	NDFD	NFC	Starch	TDN	Milk per Ton	Milk per Acre
	tn dm/A	%	%	ppa	%	%	%	%	%	%	%	lb	lb
AACsCs	7.9	61.5	50	33686	6.9	20.2	40.0	64.4	48.4	34.9	71.5	3495	29079
AACsCs	6.1	64.4	50	33493	6.2	22.3	42.7	65.8	46.5	32.3	69.6	3377	19778
Mean	7.0	62.9	50	33590	6.6	21.2	41.4	65.1	47.4	33.6	70.6	3436	24428
Probability (%)													
Treatment	12.0	10.4	-	91.0	30.0	66.5	70.5	30.3	76.6	74.3	66.2	69.0	32.0
LSD 10%													
Treatment	NS	NS	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Corn - Soybean Response to Tillage and Rotation**

Experiment: 09CS **Trial ID:** 6491 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn,

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: 334 **Previous Crop:** See factors **Soil Type:**

Soil Test Date: 11/12/18 **pH** 6.5 **OM (%)** 3.1 **P (ppm)** 15 **K (ppm)** 108

Plot Management

		Analysis:	Rate lbs/A:	Date:
Tillage Operations:	Field cultivator x 2			
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	32-0-0	CC: 593 CS: 500	6/19/20 6/19/20
	Manure:	N/A	N/A	N/A

Herbicide: Dual II - Magnum @ 24 oz/A 4/24/20
Roundup PowerMax @ 32 oz/A 6/15/20

Insecticide: See Seed Treatments

Hybrid: C: Jung 56SS538RIB
S: NK Brand S24-A5X

Irrigation: No

Planting Date: C: 5/5/20
S: 5/5/20

Row Width: 30"

Planting Depth: 1.5"

Target Plant Density: Corn: 32500 Plants/A
Soybean: 160000 Plants/A

Planting Method: JD 1700 with RTK

Harvest Date: C: 10/22/20
S: 10/16/20

Harvest Method: MF 8XP plot combine

Notes:

Experimental Design

Design: RCB split-split-plot

Replications: 4

Plot Size Seeded: MP: 30' x 70'

Experiment Size: 2.7 A

Harvest Plot Size: 5' x 31'

Factors/Treatments:

Tillage:

1) NT
2) CT

Rotation: 2020 Treatments

1) CCCCCSSSSS-3S
2) CCCCCSSSSS-2S
3) CCCCCSSSSS-1S
4) CCCCCSSSSS-5C
5) CCCCCSSSSS-4C
6) CCCCCSSSSS-3C
7) CCCCCSSSSS-2C
8) CCCCCSSSSS-1C
9) CCCCCSSSSS-5S
10) CCCCCSSSSS-4S
11) CC-1C
12) CS-1S
13) CS-1C
14) SS-1S

Density:

1) 25000
2) 35000
3) 45000

Results: Tables 2009-07 & 2009-08

Table2009-07. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2020.

Tillage	Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest density	AGI
						Total	Stalk	Root		$3.54/bu
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Conv			229	28.9	55.2	27.4	2.8	24.6	33381	697
Notill			219	32.5	55.3	3.5	1.7	1.8	34119	653
	1C		262	26.8	55.1	18.2	1.0	17.2	34042	809
	2C		213	30.4	54.5	9.4	1.5	7.9	34042	642
	3C		204	33.0	54.9	19.0	3.3	15.7	33458	605
	4C		211	32.5	55.0	15.0	1.8	13.3	33417	628
	5C		213	31.1	54.7	10.6	2.3	8.3	33417	640
	C		252	29.4	56.6	31.3	3.8	27.4	33667	765
	CC		212	31.9	55.9	4.5	2.0	2.5	34208	634
		25K	223	30.7	55.1	18.6	3.1	15.5	33393	670
		35K	224	31.0	55.2	14.4	1.3	13.1	33929	672
		45K	226	30.3	55.4	13.3	2.3	11.0	33929	682
Conv	1C		256	25.2	55.4	27.4	2.0	25.4	33417	797
Conv	2C		221	29.1	54.8	18.1	2.5	15.6	34083	672
Conv	3C		208	31.2	55.1	34.2	3.0	31.2	33750	624
Conv	4C		215	30.3	55.2	29.4	2.8	26.6	32667	650
Conv	5C		225	29.0	54.6	19.2	2.7	16.5	33583	686
Conv	C		257	27.7	55.9	55.5	3.6	51.9	32750	788
Conv	CC		218	30.1	55.6	7.8	2.8	5.0	33417	660
Notill	1C		268	28.3	54.8	9.0	0.0	9.0	34667	820
Notill	2C		205	31.6	54.2	0.8	0.5	0.3	34000	612
Notill	3C		200	34.8	54.8	3.8	3.6	0.3	33167	586
Notill	4C		207	34.7	54.8	0.7	0.7	0.0	34167	606
Notill	5C		201	33.1	54.9	2.0	2.0	0.0	33250	595
Notill	C		247	31.1	57.3	7.0	4.1	3.0	34583	741
Notill	CC		206	33.7	56.1	1.2	1.2	0.0	35000	608
Conv		25K	227	29.0	55.5	30.9	2.4	28.5	32500	692
Conv		35K	228	29.5	55.0	26.8	1.9	24.9	33679	692
Conv		45K	231	28.3	55.1	24.3	3.9	20.4	33964	706
Notill		25K	218	32.4	54.7	6.2	3.8	2.4	34286	648
Notill		35K	219	32.6	55.4	2.0	0.6	1.4	34179	652
Notill		45K	221	32.3	55.7	2.3	0.7	1.6	33893	658
	1C	25K	263	27.0	55.2	16.8	0.0	16.8	34125	809
	1C	35K	260	26.7	55.2	12.9	0.4	12.5	33875	801
	1C	45K	264	26.6	54.9	25.0	2.6	22.4	34125	815
	2C	25K	214	30.2	54.4	11.2	2.7	8.5	33250	647
	2C	35K	211	31.2	54.7	6.0	1.5	4.6	34750	633
	2C	45K	213	29.7	54.2	11.0	0.3	10.6	34125	646
	3C	25K	204	32.1	54.8	22.7	5.7	17.0	33500	609
	3C	35K	204	33.8	54.8	22.3	2.7	19.6	32750	600
	3C	45K	204	33.1	55.1	12.0	1.4	10.6	34125	606

continue

Table 2009-07. Corn/Soybean Rotation and Tillage Study - Corn.
(continued) **Arlington, WI - 2020.**

Tillage	Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
	4C	25K	210	34.2	55.0	14.8	1.2	13.6	33125	617
	4C	35K	209	32.0	54.7	15.4	0.8	14.5	33500	624
	4C	45K	215	31.2	55.3	15.0	3.3	11.7	33625	643
	5C	25K	210	31.0	55.1	10.8	3.4	7.4	33500	631
	5C	35K	217	30.7	54.4	12.1	1.9	10.3	32875	654
	5C	45K	213	31.5	54.7	8.9	1.8	7.1	33875	636
	C	25K	242	30.1	55.6	47.3	4.6	42.6	32750	731
	C	35K	256	29.2	55.5	26.6	1.1	25.5	34750	777
	C	45K	258	28.8	58.8	19.9	5.8	14.1	33500	786
	CC	25K	215	30.4	55.6	6.5	4.2	2.3	33500	648
	CC	35K	208	33.8	57.3	5.5	0.7	4.8	35000	613
	CC	45K	215	31.4	54.7	1.5	1.1	0.4	34125	643
Conv	1C	25K	256	25.2	55.7	22.7	0.0	22.7	33000	798
Conv	1C	35K	254	25.4	55.3	19.8	0.7	19.1	33750	793
Conv	1C	45K	257	25.1	55.2	39.7	5.2	34.5	33500	801
Conv	2C	25K	224	29.1	54.5	20.2	3.9	16.3	33000	680
Conv	2C	35K	214	30.2	54.9	12.1	2.9	9.2	35250	648
Conv	2C	45K	225	28.1	54.9	21.9	0.7	21.2	34000	688
Conv	3C	25K	212	29.4	55.2	37.0	3.1	34.0	32750	644
Conv	3C	35K	201	33.2	54.8	41.4	3.0	38.4	33500	597
Conv	3C	45K	210	31.0	55.3	24.1	2.8	21.2	35000	632
Conv	4C	25K	211	32.9	54.9	29.6	2.3	27.2	32000	627
Conv	4C	35K	214	29.7	55.1	30.7	1.7	29.0	31500	648
Conv	4C	45K	221	28.3	55.5	27.8	4.3	23.4	34500	674
Conv	5C	25K	229	28.8	55.4	16.2	1.5	14.7	33250	697
Conv	5C	35K	231	28.3	53.9	23.5	3.0	20.5	33250	704
Conv	5C	45K	217	29.9	54.6	17.9	3.6	14.3	34250	656
Conv	C	25K	241	29.1	56.2	81.4	1.5	79.9	31000	732
Conv	C	35K	266	26.7	55.9	49.0	0.7	48.2	34250	820
Conv	C	45K	264	27.2	55.5	36.1	8.5	27.5	33000	813
Conv	CC	25K	219	28.8	56.5	9.2	4.7	4.6	32500	667
Conv	CC	35K	214	32.7	55.5	11.0	1.4	9.6	34250	633
Conv	CC	45K	223	28.7	54.8	3.0	2.3	0.8	33500	680
Notill	1C	25K	269	28.9	54.7	10.8	0.0	10.8	35250	819
Notill	1C	35K	265	28.0	55.2	6.0	0.0	6.0	34000	810
Notill	1C	45K	271	28.0	54.7	10.4	0.0	10.4	34750	830
Notill	2C	25K	205	31.3	54.3	2.3	1.5	0.8	33500	615
Notill	2C	35K	208	32.2	54.6	0.0	0.0	0.0	34250	618
Notill	2C	45K	202	31.4	53.6	0.0	0.0	0.0	34250	604
Notill	3C	25K	196	34.9	54.4	8.3	8.3	0.0	34250	574
Notill	3C	35K	206	34.4	54.9	3.2	2.3	0.8	32000	604
Notill	3C	45K	199	35.2	55.0	0.0	0.0	0.0	33250	581
Notill	4C	25K	209	35.6	55.1	0.0	0.0	0.0	34250	607
Notill	4C	35K	204	34.3	54.3	0.0	0.0	0.0	35500	599
Notill	4C	45K	208	34.1	55.1	2.2	2.2	0.0	32750	612

continue

Table 2009-07. Corn/Soybean Rotation and Tillage Study - Corn.
(continued) **Arlington, WI - 2020.**

Tillage	Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Notill	5C	25K	191	33.2	54.9	5.3	5.3	0.0	33750	564
Notill	5C	35K	204	33.0	54.9	0.7	0.7	0.0	32500	605
Notill	5C	45K	209	33.2	54.8	0.0	0.0	0.0	33500	617
Notill	C	25K	244	31.1	54.9	13.1	7.8	5.3	34500	730
Notill	C	35K	246	31.7	55.1	4.2	1.4	2.8	35250	735
Notill	C	45K	252	30.4	62.1	3.8	3.0	0.8	34000	759
Notill	CC	25K	211	32.0	54.6	3.7	3.7	0.0	34500	628
Notill	CC	35K	203	34.9	59.1	0.0	0.0	0.0	35750	592
Notill	CC	45K	206	34.2	54.6	0.0	0.0	0.0	34750	605
Mean			224	30.7	55.2	15.4	2.2	13.2	33750	675
Probability(%)										
Tillage (T)			8.4	0.5	93.1	0.9	39.1	0.9	12.0	3.2
Rotation (R)			0.0	0.0	15.0	3.0	68.2	3.5	42.2	0.0
Density (D)			35.7	40.7	85.3	16.2	18.8	20.0	14.4	34.6
T x R			25.9	95.3	85.2	17.1	96.6	9.0	5.2	31.3
T x D			93.9	71.3	35.9	85.9	7.7	33.3	1.2	90.0
R x D			60.9	36.4	49.1	17.9	74.7	5.1	34.1	61.1
T x R x D			27.9	88.8	36.4	66.2	91.0	21.0	27.2	37.6
LSD(0.10)										
Tillage (T)			9	1.1	NS	9.4	NS	8.9	NS	27
Rotation (R)			11	1.5	NS	12.6	NS	12.0	NS	37
Density (D)			NS	NS	NS	NS	NS	NS	NS	NS
T x R			NS	NS	NS	NS	NS	17.0	1167	NS
T x D			NS	NS	NS	NS	2.5	NS	787	NS
R x D			NS	NS	NS	NS	NS	14.4	NS	NS
T x R x D			NS	NS	NS	NS	NS	NS	NS	NS

Table 2009-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2020

Tillage	Rotation	Yield	Moisture	AGI $8.21/bu
		bu/A	%	$/A
Conv		62.0	11.0	495
Notill		61.5	11.0	491
	1S	68.3	11.1	545
	2S	61.3	11.1	489
	3S	60.3	11.0	481
	4S	61.2	10.9	489
	5S	58.8	10.9	469
	S	61.8	10.9	493
	SS	60.6	11.1	484
Conv	1S	66.2	11.1	528
Conv	2S	63.0	11.2	503
Conv	3S	58.5	11.0	467
Conv	4S	62.5	10.9	498
Conv	5S	60.2	10.9	480
Conv	S	61.6	10.9	491
Conv	SS	62.3	11.1	497
Notill	1S	70.5	11.0	562
Notill	2S	59.6	11.0	476
Notill	3S	62.1	10.9	495
Notill	4S	60.0	10.9	479
Notill	5S	57.3	10.9	458
Notill	S	62.0	11.0	495
Notill	SS	59.0	11.0	471
Mean		61.8	11.0	493
Probability(%)				
Tillage (T)		57.1	32.6	57.1
Rotation (R)		0.0	23.1	0.0
T x R		4.6	97.3	4.6
LSD(0.10)				
Tillage (T)		NS	NS	NS
Rotation (R)		2.5	NS	20
T x R		3.6	NS	29

FIELD EXPERIMENT HISTORY

Title: **Corn - Soybean - Wheat Response to Rotation: Cover Crops**

Experiment: 09CSW **Trial ID:** 6490 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: 335 **Previous Crop:** See factors **Soil Type:** Plano Silt

Soil Test: Date: 11/12/18 **pH** 7 **OM (%)** 2.9 **P (ppm)** 20 **K (ppm)** 134

Plot Management

Tillage Operations:

Fertilizer:	Analysis:	Rate lbs/A:	Date:
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	C: 32-0-0 W: 46-0-0	C: 593 S: 0 lb/A W: 90 lb/A	6//19/20 4/22/19
Manure:	N/A	N/A	N/A

Herbicide: C,S: Durango DMA @ 48 oz/a 8/20/20
Roundup Pmax 32.0 oz/a 6/16/20
Weedone 650 @10.5 oz/a 4/24/20
w: Powerflex 2 oz/A 5/15/18
MPC Amine 8 oz/A 5/15/18

Hybrid: C: Dekalb DKC52-35RIB
S: NK Brand S14-B2X
W: Growmark FS 624

Planting Date: C: 5/8/20
S: 5/5/20
W: 10/04/19

Planting Depth: C: 1.5"
S,W: 1"

Planting Method: C,S: JD1700 with RTK
W: JD750 No-Till Drill

Harvest Method: C:MF 8XP combine
CS: NH 707
S,W: Almaco Plot combine

Target Plant Density: 35000

Row Width: C,S: 30"
W: 0.5"

Harvest Date: C: 10/8/20, CS: 9/22/20
S: 10/22/20, W: 7/22/20

Fungicide: N/A

Notes: 2020 Even out year, no cover crop or N treatment. Rotation and Density for corn.

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: MP: 60' x 60'; SP: 10' x 30'

Harvest Plot Size: 5' x 26

Experiment Size: 3.47 A

Factors/Treatments:

Rotation:

1) CC
2) SS
3) WW
4) CS-C
5) CS-S
6) GS1: CSW-C
7) GS1: CSW-S(e)
8) GS1: CSW-W
9) GS2: CWS-C(e)
10) GS2: CWS-W
11) GS2: CWS-S
12) Flex: CWS-C(s)
13) Flex: CWS-W(s)
14) Flex: CWS-S

Plant Density:

1) 25000 ppa
2) 30000 ppa
3) 35000 ppa
4) 40000 ppa
5) 45000 ppa
6) 50000 ppa

Results: Tables 2009-09 to 2009-12

Table: 2009 - 09 . Corn, Soybean and Wheat Rotation - Corn
Arlington, WI - 2020.

Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest	AGI
					Total	Stalk	Root	plants	$3.58/bu
		bu/A	%	lbs/bu	%	%	%	plants/A	$/A
CC-C		204	37.7	53.1	0.2	0.1	0.1	33389	594
CS-C		251	30.5	52.6	0.6	0.2	0.4	37111	764
CSW-C		230	35.1	53.4	0.3	0.3	0.0	35972	680
CWS-C(e)		256	29.1	55.5	2.0	0.4	1.6	36611	788
	25K	212	34.1	55.5	0.7	0.5	0.2	25208	633
	30K	229	33.8	54.2	0.7	0.1	0.6	30417	685
	35K	239	33.2	54.5	0.5	0.0	0.5	33625	718
	40K	247	32.8	52.7	1.0	0.1	0.8	38375	742
	45K	242	32.3	52.9	0.7	0.2	0.5	41167	732
	50K	241	32.3	52.1	1.1	0.5	0.6	45833	728
CC-C	25K	187	38.3	53.1	0.0	0.0	0.0	24833	541
CC-C	30K	200	37.1	53.7	0.6	0.0	0.6	27333	585
CC-C	35K	212	37.4	53.5	0.0	0.0	0.0	32167	617
CC-C	40K	204	38.8	52.7	0.0	0.0	0.0	34667	589
CC-C	45K	205	37.3	52.7	0.5	0.5	0.0	38833	596
CC-C	50K	217	37.2	53.0	0.0	0.0	0.0	42500	634
CS-C	25K	226	32.0	53.3	0.0	0.0	0.0	25000	682
CS-C	30K	244	31.5	52.6	0.6	0.0	0.6	30833	739
CS-C	35K	262	30.0	52.6	0.5	0.0	0.5	35000	800
CS-C	40K	261	31.0	51.8	0.0	0.0	0.0	42333	793
CS-C	45K	261	28.7	53.3	0.0	0.0	0.0	41500	805
CS-C	50K	250	29.6	51.7	2.5	1.1	1.4	48000	768
CSW-C	25K	200	36.4	52.8	0.6	0.6	0.0	24667	589
CSW-C	30K	215	36.0	52.3	0.5	0.5	0.0	32000	632
CSW-C	35K	226	35.6	59.1	0.0	0.0	0.0	33000	666
CSW-C	40K	268	34.2	52.2	0.0	0.0	0.0	38667	799
CSW-C	45K	229	34.3	52.5	0.4	0.4	0.0	41333	680
CSW-C	50K	239	34.1	51.8	0.4	0.4	0.0	46167	713
CWS-C(e)	25K	236	29.8	62.9	2.1	1.4	0.7	26333	722
CWS-C(e)	30K	257	30.5	58.1	1.1	0.0	1.1	31500	785
CWS-C(e)	35K	257	29.7	52.8	1.6	0.0	1.6	34333	788
CWS-C(e)	40K	254	27.2	54.3	3.8	0.5	3.4	37833	787
CWS-C(e)	45K	275	29.0	53.0	1.9	0.0	1.9	43000	845
CWS-C(e)	50K	259	28.4	52.0	1.4	0.4	1.1	46667	800

continue

Table: 2009 - 09 . Corn, Soybean and Wheat Rotation - Corn

(continued) Arlington, WI - 2020.

Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest	AGI
					Total	Stalk	Root	plants	$3.54/bu
		bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Mean		235	33.1	53.7	0.8	0.2	0.5	35771	706
Probability(%)									
Rotation (R)		0.2	0.2	40.9	3.0	46.0	1.5	0.3	0.0
Density (D)		0.0	3.1	38.0	90.4	19.6	80.2	0.0	0.0
R x D		0.0	62.9	39.0	32.2	19.5	55.8	4.8	0.1
LSD(0.10)									
Rotation (R)		15	2	NS	1	NS	1	1112	39
Density (D)		7	1	NS	NS	NS	NS	1163	23
R x D		17	NS	NS	NS	NS	NS	2325	53

AGI*: Adjusted Gross Income.

Table: 2009-10. Corn, Soybean and Wheat Rotation - Corn Silage
Arlington, WI 2020

		Whole Plant										
	Dry Matter		Kernel	Crude			*In Vitro*			Milk per		Plant
Density	Yield	Moisture	milk	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre	population
	tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/T	plants/A
25K	10.6	56.9	25.8	7.1	16.1	32.7	86.4	58.4	35.1	3127	33141	25833
30K	10.6	57.6	20.8	6.8	16.2	32.6	86.4	58.2	35.7	3154	33371	30833
35K	11.3	56.4	19.2	6.2	16.8	33.2	85.9	57.6	35.8	3105	35053	36667
40K	11.2	56.8	16.7	6.1	17.1	33.5	85.6	57.1	35.8	3108	34963	38500
45K	11.5	53.8	12.5	6.3	16.1	32.3	86.3	57.6	37.6	3119	36009	45167
50K	11.0	54.8	13.3	5.9	17.1	33.5	85.5	56.9	36.2	3065	33636	47833
Mean	11.0	56.0	18.1	6.4	16.6	33.0	86.0	57.6	36.0	3113	34362	37472
Probability(%)												
Density(D)	7.9	0.4	0.0	0.0	57.6	72.8	65.4	56.3	23.7	68.9	14.3	0.0
LSD(0.10)												
Density(D)	0.6	1.7	4.7	0.3	NS	NS	NS	NS	NS	NS	NS	2098

Table: 2009 - 11 . Corn, Soybean and Wheat Rotation - Soybean
Arlington, WI - 2020.

Rotation	Yield	Moisture	AGI $10.21/bu
	bu/A	%	$/A
CSW-S(e)	69.3	13.8	690
CWS(L)-S	63.6	13.6	634
CWS-S	56.5	14.4	562
SC-S	61.2	13.1	610
SS-S	58.8	12.8	587
Mean	61.9	13.5	617
Probability(%)			
Rotation (R)	42.4	0.5	41.9
LSD(0.10)			
Rotation (R)	NS	0.6	NS

AGI*: Adjusted Gross Income.

Table: 2009 - 12 . Corn, Soybean and Wheat Rotation -Wheat.
Arlington, WI - 2020.

Rotation	Yield	Moisture	Test weight	AGI $4.69/bu
	bu/A	%	lbs/bu	$/A
CSW-W	77	17.0	53.6	381
CWS(L)-W(s)	73	17.0	53.3	358
CWS-W	68	17.3	53.2	337
WW-W	--	--	--	--
Mean	73	17.1	53.4	358
Probability(%)				
Rotation (R)	68.3	27.0	83.1	68.0
LSD(0.10)				
Rotation (R)	NS	NS	NS	NS

AGI*: Adjusted Gross Income.

-- No wheat to harvest from the continuous wheat plots.

FIELD EXPERIMENT HISTORY

Title: **Corn - Soybean - Wheat Response to Rotation**

Experiment: 09CSW **Trial ID:** 6503 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn, Jason Cavadini

Location: Marshfield, WI **County:** Marathon

Supported By: HATCH

Site Information

Field: 405 **Previous Crop:** See factors **Soil Type:** Withee Silt

Soil Test: Date: 20/19/ **pH** 7.2 **OM (%)** 3.1 **P (ppm)** 54 **K (ppm)** 126

Plot Management

Tillage Operations:

Fertilizer:	Analysis:	Rate lbs/A:	Date:
Preplant :	N/A	N/A	N/A
Starter :	20-10-20-4S 0-0-60	200 lbs 150 lbs	5/2/20 5/2/20
Post plant :	C: 28-0-0	40 gal	6 /18/20
Manure:	N/A	N/A	N/A

Herbicide: C pre: Verdict 16 oz,
C pre: Roundup Pmax 32 oz
S post: Roundup Pmax 32 oz
W: pre Roundup Pmax 32 oz

Hybrid: C:Pioneer P8989AMXT
S: Pioneer P09A53X
W:Bolles (HRS)

Planting Date: C: 5/5/20
S: 5/4/20
W: 5/1/19

Planting Depth: C: 1.5"
S,W: 1"

Planting Method: C: JD 1750 planter
S,W: Great Plains 1206 Ntdrill

Harvest Method: CS: Hand Harvest
C,S,W: Almaco plot combine

Target Plant Density: 35000

Row Width: C: 30"
S: 15"
W: 7.5"

Harvest Date: C: 11/3/20, CS: 9/22/20
S: 10/06/20, W: 7/28/20

Fungicide: N/A

Notes:

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 60' x 60'

Harvest Plot Size: C: 60' x 5'; S,W: 60' x 5'; CS: 10' x 2.5'

Experiment Size: 3.09 A

Factors/Treatments:

Rotation: 2020Treatments

1) CC
2) SS
3) WW
4) CS- C
5) SC- S
6) GS1: CSW- C
7) GS1: CSW- S (early)
8) GS1: CSW- W
9) GS2: CWS- C (early)
10) GS2: CWS- S
11) GS2: CWS- W
12) Flex: CWS- C (silage)
13) Flex: CWS- S
14) Flex: CWS- W (straw)

Results: Tables 2009-13 to 2009-16

Table: 2009-13 Corn, Soybean, and Wheat Rotation- Corn
Marshfield, WI - 2020.

Rotation	Yield	Moisture	Test Weight	Harvest Population	Stalk Lodging	AGI $3.58/bu
	bu/A	%	in.	ppa	%	$/A
Continuous	116	14.5	59.7	31,944	0.0	390
Alternating	161	13.5	59.7	34,074	0.0	539
Grain System I	139	14.2	59.9	32,138	0.0	466
Mean	139	14.1	59.8	32,718	0.0	465
Probability (%)						
Treatment	22.4	55.0	66.4	54.1	-	22.4
LSD 10%						
Treatment	NS	NS	NS	NS	-	NS

Table:2009 - 14. Corn, Soybean, and Wheat Rotation- Corn Silage
Marshfield, WI - 2020.

Rotation	Yield	Moisture	Kernel milk	Harvest Population	CP	ADF	NDF	NDFD	TDN	NFC	Starch	Milk per Ton	Milk per Acre
	tn dm/A	%	%	ppa	%	%	%	%	%	%	%	lb	lb
Continuous	8.42	60.7	50	31,944	7.1	19.9	39.2	64.8	68.5	48.8	34.2	3,296	26,704
Alternating	9.57	58.8	50	34,074	6.9	21.0	40.0	63.8	68.6	48.3	33.9	3,287	30,983
Grain System I	9.70	59.7	50	32,138	7.1	21.9	41.2	63.6	67.4	46.9	32.9	3,188	27,012
Mean	9.2	59.8	$50	32,718	7.0	20.9	40.1	64.1	68.2	48.0	33.7	3,257	28,233
Probability (%)													
Treatment	1.0	7.8	--	13.6	69.1	36.8	58.6	16.9	33.4	61.5	83.7	24.5	12.0
LSD 10%													
Treatment	0.7	1.3	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 2009 - 15 . Corn, Soybean and Wheat Rotation -Soybean
Marshfield, WI - 2020.

Rotation	Yield	Moisture	Test Weight	Height	Lodging	AGI $8.48/bu
	bu/A	%	lb/bu	in.	1 to 5	$/A
Continuous	45	13.9	57.8	19	1	445
Alternating	40	14.0	57.5	17	1	396
Grain System I	45	14.0	57.9	19	1	452
Mean	43	14.0	57.7	18	1	431
Probability (%)						
Treatment	63.5	53.0	54.0	63.9	-	63.4
LSD 10%						
Treatment	NS	NS	NS	NS	-	NS

AGI*: Adjusted Gross Income.

Table: 2009 - 16 . Corn, Soybean and Wheat Rotation -Wheat.
Marshfield, WI - 2020.

Rotation	Yield	Moisture	Test Weight	Height	Lodging	AGI $4.69/bu
	bu/A	%	lb/bu	in.	1 to 5	$/A
Continuous	9	11.2	54.0	23	1.0	46
Grain System I	19	10.9	54.3	27	1.0	95
Mean	14	11.0	54.1	25	1.0	70
Probability (%)						
Treatment	1.7	21.7	3.8	2.1	-	1.7
LSD 10%						
Treatment	4	NS	0	2	-	19

AGI*: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: **Crop Rotation Response to Nrate**

Experiment: 09ACOSW **Trial ID:** 6493 **Year:** 2020

Personnel: Carrie Laboski, Joe Lauer, Thierno Diallo

Location: Lancaster, WI **County:** Grant

Supported By: HATCH

Site Information

Field: 300 B **Previous Crop:** See factors **Soil Type:** Fayette silt loam

Soil Test: Date: N/A **pH** 6.8 **OM (%)** 2.3 **P (ppm)** 18 **K (ppm)** 124

Plot Management

Tillage Operations: C: Fall chisel

Fertilizer:

	Analysis:	Product Rate lbs/A:	Date:
Preplant :	S,O,W 0-19.5-35	273	4 /21/20
Starter :	C: 9-23-30	195	5 /1 /20
Post plant :	C: 34-0-0	See rates	5/22/2020
	W: 34-0-0	30	4/10/2020
	W,O: 34-0-0	315	5/22/2020
	A:0-8.4-37.5-2.9s-0.34B	400	6/9/, 8/10/20
Manure:	N/A	N/A	N/A

Herbicide: C: Powermax 21 oz/a 5/12/20
Resicore 1.25 qt/ac 5/12/20
A: Raptor 5 oz/a 6/4/20
O: butyrac 3 qt/a 6/2/20
S: Warrant Ult 48 oz/a 5/21/20
powermax 28 oz/a 5/21/20

Planting Depth: C:1.5"
Row Width: C:30" S:15" O/A/W: 7.5"

Hybrid: C:Dekalb 54-64
S: Cornelius CB24x64
W:Limagrain 11719 (bagged as L420)
A: Croplan Rebound 6.0
O: Ogle

Planting Date: C: 5/1/20 W: 10/28/19
S: 5/12/20 A: 4/22/20
O: 4/22/20

Planting Method: White6100 No till planter

Target Plant Density: Corn: 32500 Plants/A
Soybean: 150000 Plants/A

Harvest Method: C: MF 8XP Combine.

Harvest Date: C:10/29/20 S: 10/8/20
O: 7/27/20 W: 7/27/20
A: 6/4; 7/2. 8/4 9/14

Fungicide: N/A

Notes: ** application error: Corn "N" rates were applied to alfalfa, oats, and soybeans in addition to corn.**

Experimental Design

Design: RCB split-split-plot

Replications: 2

Plot Size Seeded: MP: 30' x 70'

Experiment Size: 2.7 A

Harvest Plot Size: 5' x 25'

Factors/Treatments:

Rotation

1) CC
2) CSCOA-2C
3) CSCOA-1O
4) CSCOA-1A
5) CSCOA-1C
6) CSCOA-1S
7) CCCAA-3C
8) CCCAA-1A
9) CCCAA-1C
10) CCCAA-2A
11) CCCAA-2C
12) CCOAA-1O
13) CCOAA-1A
14) CCOAA-2A
15) CCOAA-1C
16) CCOAA-2C
17) CSW-1W
18) CSW-1S
19) CS-1S
20) CSW-1C
21) CS-1C

Corn N-rate (lbs/A)

1) 0
2) 50
3) 100
4) 200

Results: Tables 2009-17 to 2009-21

Table:2009-17. Corn, Soybean, Wheat, Oats and Alfalfa Rotation - Corn
Lancaster, WI - 2020.

Rotation	Nitrogen rate	Yield	Moisture	Test weight	AGI $3.58/bu
	N lb/A	bu/A	%	lbs/bu	$/A
CC-C		151	16.0	55.9	502
CCCMM-C1		245	16.7	56.9	814
CCCMM-C2		174	16.0	53.9	580
CCCMM-C3		161	15.9	56.5	536
CCOMM-C1		252	16.6	57.0	837
CCOMM-C2		180	16.3	56.8	600
CSb-C		194	16.0	57.5	645
CSbCOM-C1		239	16.1	56.0	798
CSbCOM-C2		199	16.8	56.0	660
CSbW-C		175	15.5	55.9	583
	0	134	15.3	56.3	450
	50	183	15.4	56.4	610
	100	224	16.4	56.4	744
	200	247	17.6	55.9	818
CC-C	0	67	14.9	56.0	225
CC-C	50	128	14.4	56.3	430
CC-C	100	179	16.6	56.2	595
CC-C	200	229	18.1	55.2	756
CCCMM-C1	0	194	15.9	56.5	649
CCCMM-C1	50	228	16.2	56.9	762
CCCMM-C1	100	285	17.1	57.2	945
CCCMM-C1	200	272	17.9	57.0	899
CCCMM-C2	0	121	15.4	49.9	404
CCCMM-C2	50	145	15.3	55.1	484
CCCMM-C2	100	187	15.7	56.1	625
CCCMM-C2	200	244	17.6	54.5	808
CCCMM-C3	0	97	15.2	57.4	323
CCCMM-C3	50	138	15.8	56.6	462
CCCMM-C3	100	191	15.8	57.2	638
CCCMM-C3	200	218	16.9	55.0	723
CCOMM-C1	0	213	15.0	56.8	714
CCOMM-C1	50	243	15.5	57.2	811
CCOMM-C1	100	282	17.5	57.4	935
CCOMM-C1	200	270	18.5	56.4	887

continue

Table:2009-17. Corn, Soybean, Wheat, Oats and Alfalfa Rotation - Corn
(continued) **Lancaster, WI - 2020**

Rotation	Nitrogen rate	Yield	Moisture	Test weight	AGI $3.58/bu
	N lb/A	bu/A	%	lbs/bu	$/A
CCOMM-C2	0	118	15.5	56.3	394
CCOMM-C2	50	162	15.7	56.3	543
CCOMM-C2	100	217	16.6	56.9	721
CCOMM-C2	200	224	17.5	58.0	743
CS-C	0	109	14.5	61.4	364
CS-C	50	194	15.3	56.4	650
CS-C	100	220	16.4	56.1	731
CS-C	200	253	18.1	56.3	836
CSCOM-C1	0	204	15.3	56.0	682
CSCOM-C1	50	235	16.0	57.6	785
CSCOM-C1	100	250	16.9	54.3	832
CSCOM-C1	200	268	16.4	56.1	893
CSCOM-C2	0	127	15.8	56.5	423
CSCOM-C2	50	197	15.9	56.6	658
CSCOM-C2	100	226	17.0	56.6	751
CSCOM-C2	200	246	18.4	54.6	809
CSW-C	0	96	15.3	56.3	319
CSW-C	50	155	14.6	55.7	517
CSW-C	100	200	15.1	55.9	671
CSW-C	200	248	17.3	55.6	824
Mean		197	16.2	56.2	656
Probability(%)					
Rotation (R)		0.0	79.9	26.8	0.0
Nitrogen (N)		0.0	0.0	85.0	0.0
R x N		0.3	81.1	72.9	0.3
LSD (0.10)					
Rotation (R)		19	NS	NS	63
Nitrogen (N)		8	0.5	NS	27
R x N		28	NS	NS	93

*AGI: Adjusted Gross Income

Table:2009-18. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Soybean Lancaster, WI - 2020.

Rotation	Nitrogen rate	Yield	Moisture	AGI $8.48/bu
	N lb/A	bu/A	%	$/A
CS-S		53	9.9	525
CSCOM-S		57	9.8	565
CSW-S		57	9.6	573
	0	55	9.9	554
	50	55	9.8	548
	100	56	9.8	559
	200	56	9.6	558
			0.0	
CS-S	0	51	10.2	506
CS-S	50	50	10.0	500
CS-S	100	55	9.8	553
CS-S	200	54	9.7	542
CSCOM-S	0	57	9.8	571
CSCOM-S	50	56	9.8	560
CSCOM-S	100	57	10.0	573
CSCOM-S	200	56	9.6	558
CSW-S	0	58	9.8	584
CSW-S	50	59	9.6	584
CSW-S	100	55	9.7	550
CSW-S	200	57	9.4	573
			0.0	
Mean		56	9.8	554
Probability(%)				
Rotation (R)		56	35.5	56
Nitrogen (N)		96	28.4	96
R x N		69	90.5	69
LSD (0.10)				
Rotation (R)		NS	NS	NS
Nitrogen (N)		NS	NS	NS
R x N		NS	NS	NS

*AGI: Adjusted Gross Income

Table:2009-19. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Wheat. Lancaster, WI - 2020.

Rotation	Nitrogen rate	Yield	Moisture	AGI $5.22/bu
	N lb/A	bu/A	%	$/A
CSW-W	0	24	14.3	120
CSW-W	50	51	14.3	257
CSW-W	100	51	13	252
CSW-W	200	54	14.2	270
Mean		45	13.95	225
Probability(%)				
Nitrogen (N)		4.9	0.1	4.9
LSD (0.10)				
Nitrogen (N)		15	0.0	76

*AGI: Adjusted Gross Income

-- Average moisture for the trial: 15 %

Table:2009-20. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Oats. Lancaster, WI - 2020.

Rotation	Nitrogen rate	Yield	Moisture	AGI $2.00/bu
	N lb/A	bu/A	%	$/A
CCOAA-O		64	12.3	112
CSCOA-O		70	12.4	124
	0	32	13.1	56
	50	75	12.1	133
	100	79	12.0	140
	200	82	12.3	144
			0.0	
CCOAA-O	0	34	13.2	61
CCOAA-O	50	76	12.0	135
CCOAA-O	100	73	11.8	129
CCOAA-O	200	70	12.2	125
CSCOA-O	0	29	13.0	52
CSCOA-O	50	74	12.2	131
CSCOA-O	100	85	12.2	151
CSCOA-O	200	93	12.3	164
Mean		67	12.4	118
Probability(%)				
Rotation (R)		65	69.8	65
Nitrogen (N)		0	9.7	0
R x N		19	90.5	19
LSD (0.10)				
Rotation (R)		NS	NS	NS
Nitrogen (N)		12	0	21
R x N		NS	NS	NS

*AGI: Adjusted Gross Income

Table:2009-21. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Alfalfa. Lancaster, WI - 2020.

	Nitrogen	Harvest Date				
Rotation	rate	4-Jun	2-Jul	4-Aug	4-Sep	Total
	N lb/A	T dm/A	T dm/A	T dm/A		T dm/A
CCCMM-M1		0.8	1.2	-	-	2.0
CCCMM-M2		1.9	1.0	1.3	1.1	5.4
CCOMM-M1		1.6	1.0	1.2	1.0	4.8
CCOMM-M2		2.0	1.0	1.1	1.1	5.2
CSCOM-M		1.8	1.0	1.1	0.9	4.7
	0	1.6	0.9	1.0	0.9	4.1
	50	1.7	1.0	1.0	0.9	4.2
	100	1.7	1.1	1.1	1.0	4.5
	200	1.5	1.1	1.6	1.3	4.9
CCCMM-M1	0	0.8	1.0	-	-	1.8
CCCMM-M1	50	0.9	1.1	-	-	2.0
CCCMM-M1	100	0.7	1.5	-	-	2.3
CCCMM-M1	200	0.8	1.1	-	-	1.9
CCCMM-M2	0	1.9	0.9	1.0	0.9	4.7
CCCMM-M2	50	2.0	0.9	1.1	0.8	4.9
CCCMM-M2	100	2.0	1.0	1.2	1.2	5.3
CCCMM-M2	200	1.8	1.0	2.1	1.7	6.5
CCOMM-M1	0	1.8	0.8	1.0	1.0	4.6
CCOMM-M1	50	1.7	0.9	1.0	0.9	4.6
CCOMM-M1	100	1.7	1.1	1.2	0.9	4.8
CCOMM-M1	200	1.4	1.1	1.5	1.1	5.1
CCOMM-M2	0	1.9	0.9	1.0	0.9	4.7
CCOMM-M2	50	2.0	1.1	0.9	1.0	5.0
CCOMM-M2	100	2.1	1.0	1.1	1.1	5.2
CCOMM-M2	200	1.7	1.0	1.6	1.4	5.7
CSCOM-M	0	1.7	0.9	1.0	0.8	4.5
CSCOM-M	50	1.8	1.0	0.9	0.8	4.5
CSCOM-M	100	1.8	1.1	1.0	0.9	4.8
CSCOM-M	200	1.7	1.1	1.3	1.0	5.2
Mean		1.6	1.0	1.2	1.0	4.4
Probability(%)						
Rotation (R)		6.9	49.8	58.4	19.8	0.6
Nitrogen (N)		10.7	0.3	0.1	0.0	0.0
R x N		89.2	13.1	66.4	2.0	1.5
LSD (0.10)						
Rotation (R)		0.6	NS	NS	NS	0.9
Nitrogen (N)		NS	0.1	0.2	0.1	0.2
R x N		NS	NS	NS	0.2	0.8

\- No harvest data

FIELD EXPERIMENT HISTORY

Title: Sweet Corn Leaf Area Reduction

Experiment: 16Sweet **Trial ID:** 6326 **Year:** 2020

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

Location: Arlington, WI **County:** Columbia

Supported By: HATCH, National Crop Insurance Services.

Site Information

Field: ARS 374 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test Date: 11/12/18 **pH:** 7.0 **OM (%):** 2.6 **P (ppm):** 15 **K (ppm):** 109

Plot Management

Tillage Operations: Field Cultivator

		Analysis:	Product Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	250	5 /1 /20
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Moccasin II Plus @ 24 oz/acre 5/22/20
Durango DMA @ 24 oz/acre 5/22/20
Cavallo 4SC @ 6 oz/acre 5/22/20

Insecticide: N/A

Hybrid: Syngenta - Overland

Irrigation: N/A

Planting Date: 5/21/20 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 23500 plants per acre **Planting Method:** JD1700 w RTK

Harvest Date: 8/24/20 **Harvest Method:** Hand Harvest

Notes:

Experimental Design

Design: RCB 5 x 4 Factorial **Replications** 4

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.5 A

Harvest Plot Size: 5' x 17.5' **Harvest Plant Density:** 24150 **plants per acre**

Factors/Treatments:

Percent leaf area reduction @ stages:

1 - 0% Control 1
2 - 0% Control 2
3 - 0% Control 3
4 - 100% reduction @ V5
5 - 25% reduction @ V8
6 - 50% reduction @ V8
7 - 75% reduction @ V8
8 - 100% reduction @ V8
9 - 25% reduction @ V13
10 - 50% reduction @ V13
11 - 75% reduction @ V13
12 - 100% reduction @ V13
13 - 25% reduction @ Tassel
14 - 50% reduction @ Tassel
15 - 75% reduction @ Tassel
16 - 100% reduction @ Tassel
17 - 25% reduction @ Blister
18 - 50% reduction @ Blister
19 - 75% reduction @ Blister
20 - 100% reduction@ Blister

Results: Table 2016-01

Table:2016-01. Influence of Sweet Corn Leaf Area Reduction on Yield.
Arlington, WI - 2020.

Thin time	Reduction percent	Main Unhusked ear yield	Secondary Unhusked ear yield	Total Unhusked yield	5-ear Unhusked yield	5-ear Husked yield	Cut grain moisture	Fresh grain yield	Dry grain yield	Average		Harvest density	Tiller propensity
										Leave/plant	Ear/plant		
	%	T/A	T/A	T/A	T/A	T/A	%	T/A	T/A	no.	no.	plants/A	0 - 6
Control 1	0	6.7	0.3	7.0	9.4	8.4	71.3	5.4	1.6	-	1.0	26500	0
Control 2	0	5.7	0.8	6.5	8.5	7.7	71.1	4.9	1.4	-	1.0	25500	1
Control 3	0	6.9	0.3	7.2	8.7	7.8	71.3	4.9	1.4	-	1.0	23000	1
V5	100	6.9	0.4	7.4	9.2	7.7	70.8	5.0	1.5	7	1.0	24500	1
V8	25	6.2	0.6	6.8	8.4	7.5	73.8	4.7	1.2	11	1.0	23500	1
V8	50	6.1	0.5	6.6	9.1	8.0	71.5	5.1	1.5	12	0.9	24750	1
V8	75	6.7	0.6	7.3	8.9	7.8	73.3	5.0	1.3	12	1.0	24750	2
V8	100	5.9	0.6	6.5	8.3	7.4	71.3	4.7	1.4	11	1.0	24250	1
V13	25	6.1	0.5	6.6	8.6	7.6	71.7	4.7	1.3	13	1.0	23500	1
V13	50	5.7	0.6	6.3	8.7	7.7	71.5	4.9	1.4	13	0.9	24250	2
V13	75	4.8	1.1	5.9	8.3	7.2	71.8	4.5	1.3	12	1.0	24250	1
V13	100	0.1	0.9	0.9	0.3	0.3	72.0	0.2	0.2	13	0.4	21500	1
Tassel	25	5.6	0.7	6.3	8.6	7.6	69.9	4.9	1.5	12	1.0	23500	1
Tassel	50	4.9	0.7	5.6	8.4	7.4	72.6	4.9	1.3	12	0.9	22750	2
Tassel	75	5.2	0.9	6.0	8.3	7.3	70.6	4.7	1.4	12	1.0	23750	2
Tassel	100	0.2	0.3	0.5	1.4	1.0	74.1	0.6	0.4	12	0.2	24500	0
Blister	25	5.3	0.9	6.2	8.6	7.6	71.4	4.7	1.3	11	0.9	26250	0
Blister	50	5.9	0.8	6.7	7.9	7.1	70.9	4.5	1.3	11	1.0	23000	2
Blister	75	5.7	0.7	6.4	8.0	7.2	72.1	4.6	1.3	11	1.0	23250	1
Blister	100	2.9	1.3	4.2	6.3	5.5	73.4	3.2	0.9	11	0.9	25750	0
Mean		5.2	0.7	5.8	7.7	6.8	71.8	4.3	1.2	11	0.9	24150	1
Probability(%)													
Reduction time (T)		0.0	1.9	0.0	0.0	0.0	43.5	0.0	0.0	0.0	0.0	7.8	24.9
Reduction percent (P)		0.0	55.1	0.0	0.0	0.0	50.9	0.0	0.0	56.7	0.0	89.7	3.1
T x P		0.0	5.8	0.0	0.0	0.0	3.5	0.0	0.0	13.3	0.0	5.6	27.5
LSD (0.10)													
Reduction time (T)		0.7	0.3	0.6	0.7	0.6	NS	0.4	0.1	0	0.1	1466	NS
Reduction percent (P)		0.5	NS	0.5	0.5	0.4	NS	0.3	0.1	NS	0.1	NS	1
T x P		1.0	0.4	0.9	1.0	0.9	2.2	0.6	0.2	NS	0.1	2199	NS

FIELD EXPERIMENT HISTORY

Title: **Tillage in Corn and Soybean Production Systems**

Experiment: 17Tillage **Trial ID:** 6501 **Year:** 2020

Personnel: J. G. Lauer, T. H. Diallo, K. D. Kohn

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: 396 **Previous Crop:** Corn / Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/12/18 **pH** 6.9 **OM (%)** 3.7 **P (ppm)** 60 **K (ppm)** 186

Plot Management

Tillage Operations: See Factors

		Analysis:	Product Rate lbs/A:	Date:
Fertilizer:	**Preplant:**	N/A	N/A	N/A
	Starter:	N/A	N/A	N/A
	Post plant:	32-0-0	CC:593 CS: 500	6/19/20 6/19/20
	Manure:	N/A	N/A	N/A

Herbicide: Dual II-Magnum @ 24 oz/A 4/24/20
Roundup Power Max @ 32 oz/A 4/24/20
Roundup Power Max @ 32 oz/A 6/15/20

Hybrid/Variety: C: Jung 56SS538RIB
S: Asgrow AG20X9

Irrigation: NO

Row Width: 30"

Planting Date: C: 5/5/20
S: 5/12/20

Planting Depth: C: 1.5"
S: 1"

Planting Method: JD1700 w RTK

Harvest Method: C: MF 8XP plot combine
S: Almaco plot combine

Target Plant Density: 35000 & 45000 **Plants/Acre**

Harvest Date: C: 10/21/20
S: 10/16/20

Notes:

Experimental Design

Design: RCB Split-plot **Replications:** 4

Plot Size Seeded: 10' x 50' **Experiment Size:** 3.6 A

Harvest Plot Size: 5' x 46'

Factors/Treatments:

Rotation:

1) CC
2) CS

Tillage:

1) Rotational tillage: NT since 2016.
2) T1: Fall Strip-Till, Knife 9in Full berm.
3) T2: Fall Strip-Till, Knife 9in no berm.
4) T3: Fall Strip-Till, Knife 6in Full berm.
5) T4: Fall Strip-Till, Knife 6in no berm.
6) NT: Spring 1-13-wave coulter with trash whippers on planter.

Density:

1) S1 - 35000 ppa
2) S2 - 45000 ppa

Results: Tables 2017-01 & 2017-02

Table:2017- 01 .Tillage in Corn and Soybean Production Systems - Corn Arlington, WI - 2020.

Rotation	Tillage	Fungicide	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.44/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
CC			208	30.6	51.2	1.2	1.0	0.1	35625	627
CS			215	27.9	51.0	7.5	6.5	1.0	37125	657
	NT		198	30.0	50.9	5.1	5.1	0.0	37313	599
	RT		194	30.7	50.9	3.0	3.0	0.0	36125	584
	T1		221	27.9	51.3	3.7	2.7	1.0	35875	677
	T2		222	28.5	51.0	7.2	6.1	1.0	35688	676
	T3		216	29.1	51.4	2.6	2.2	0.3	37625	657
	T4		217	29.2	51.3	4.5	3.5	1.0	35625	660
		35000	210	29.0	51.1	4.9	4.3	0.6	33708	639
		45000	213	29.5	51.1	3.8	3.2	0.6	39042	646
CC	NT		207	31.1	51.0	1.6	1.6	0.0	36250	621
CC	RT		180	32.6	51.2	0.0	0.0	0.0	34875	534
CC	T1		218	29.3	51.2	0.7	0.4	0.3	35000	663
CC	T2		220	29.1	51.1	2.0	2.0	0.0	34750	667
CC	T3		216	30.7	51.4	1.0	1.0	0.0	38000	648
CC	T4		209	30.7	51.3	1.6	1.2	0.4	34875	627
CS	NT		190	28.8	50.7	8.6	8.6	0.0	38375	576
CS	RT		209	28.8	50.6	6.0	6.0	0.0	37375	634
CS	T1		224	26.5	51.4	6.7	5.0	1.7	36750	691
CS	T2		223	27.9	50.8	12.3	10.3	2.1	36625	684
CS	T3		217	27.6	51.3	4.1	3.5	0.6	37250	666
CS	T4		226	27.7	51.2	7.5	5.8	1.7	36375	693
CC		35000	211	30.3	51.4	1.1	1.0	0.1	32917	637
CC		45000	205	30.9	51.1	1.2	1.1	0.1	38333	617
CS		35000	209	27.7	50.9	8.7	7.7	1.0	34500	640
CS		45000	221	28.0	51.1	6.4	5.4	1.0	39750	674
	NT	35000	203	29.8	50.9	6.2	6.2	0.0	32875	613
	NT	45000	194	30.1	50.9	4.0	4.0	0.0	41750	585
	RT	35000	191	30.3	50.9	2.3	2.3	0.0	34125	575
	RT	45000	198	31.1	50.9	3.7	3.7	0.0	38125	593
	T1	35000	219	27.8	51.3	4.5	3.2	1.3	33000	670
	T1	45000	223	28.0	51.3	2.9	2.3	0.7	38750	683
	T2	35000	219	28.5	51.1	7.4	7.4	0.0	33125	667
	T2	45000	225	28.5	50.8	6.9	4.8	2.1	38250	685
	T3	35000	214	29.2	51.5	3.9	3.6	0.3	35000	650
	T3	45000	218	29.1	51.3	1.2	0.9	0.3	40250	664
	T4	35000	215	28.5	51.3	5.0	3.3	1.7	34125	656
	T4	45000	220	29.9	51.3	4.1	3.8	0.3	37125	664
CC	NT	35000	208	30.9	51.2	2.2	2.2	0.0	30500	625
CC	NT	45000	206	31.4	50.9	1.1	1.1	0.0	42000	617
CC	RT	35000	188	32.2	51.2	0.0	0.0	0.0	34250	560
CC	RT	45000	172	33.0	51.1	0.0	0.0	0.0	35500	509

continue

Table:2017- 01 .Tillage in Corn and Soybean Production Systems - Corn
(continued) **Arlington, WI - 2020.**

Rotation	Tillage	Fungicide	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.44/bu
						Total	Root	Stalk		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
CC	T1	35000	216	28.9	51.3	0.0	0.0	0.0	32000	655
CC	T1	45000	221	29.7	51.2	1.5	0.8	0.7	38000	670
CC	T2	35000	222	29.0	51.5	1.6	1.6	0.0	32000	676
CC	T2	45000	217	29.3	50.8	2.4	2.4	0.0	37500	659
CC	T3	35000	221	30.4	51.6	1.4	1.4	0.0	36500	666
CC	T3	45000	210	30.9	51.2	0.6	0.6	0.0	39500	631
CC	T4	35000	213	30.4	51.4	1.5	0.7	0.7	32250	639
CC	T4	45000	205	31.1	51.3	1.7	1.7	0.0	37500	614
CS	NT	35000	197	28.8	50.5	10.2	10.2	0.0	35250	600
CS	NT	45000	182	28.9	50.8	7.0	7.0	0.0	41500	553
CS	RT	35000	194	28.3	50.5	4.6	4.6	0.0	34000	591
CS	RT	45000	223	29.3	50.8	7.4	7.4	0.0	40750	678
CS	T1	35000	222	26.6	51.4	9.0	6.4	2.7	34000	686
CS	T1	45000	225	26.3	51.5	4.4	3.7	0.7	39500	696
CS	T2	35000	215	28.0	50.8	13.2	13.2	0.0	34250	659
CS	T2	45000	232	27.7	50.8	11.5	7.3	4.2	39000	710
CS	T3	35000	207	28.0	51.4	6.5	5.8	0.7	33500	634
CS	T3	45000	227	27.2	51.3	1.7	1.1	0.6	41000	697
CS	T4	35000	218	26.7	51.1	8.5	5.8	2.7	36000	672
CS	T4	45000	234	28.8	51.3	6.4	5.8	0.6	36750	714
Mean			212	29.2	51.1	4.3	3.8	0.6	36375	642
Probability(%)										
Rotation (R)			69.8	0.4	67.9	2.5	2.4	13.6	19.6	54.9
Tillage (T)			0.4	0.0	18.0	29.2	25.7	49.0	68.7	0.2
Density (D)			52.5	6.8	62.8	22.5	31.0	98.3	0.0	60.6
R x T			13.0	27.5	78.0	66.9	67.5	70.6	92.5	11.7
R X D			5.6	55.4	17.6	18.2	25.9	99.3	92.7	5.3
T x D			92.9	38.0	97.0	80.0	81.4	30.6	54.7	92.5
R x T x D			42.9	59.1	99.3	79.4	85.1	32.8	42.6	44.2
LSD(0.10)										
Rotation (R)			NS	0.8	NS	4	3	NS	NS	NS
Tillage (T)			14	0.9	NS	NS	NS	NS	NS	42
Density (D)			NS	0	NS	NS	NS	NS	1526	NS
R x T			NS	NS	NS	NS	NS	NS	NS	NS
R X D			21	NS	NS	NS	NS	NS	NS	64
T x D			NS	NS	NS	NS	NS	NS	NS	NS
R x T x D			NS	NS	NS	NS	NS	NS	NS	NS

Table:2017- 02 .Tillage, Rotation and Planting Density in Corn and Soybean - Soybean . Arlington, WI - 2020

Tillage treatment	Yield	Moisture	*AGI $8.21/bu
	bu/A	%	$/A
NT	64	10.5	513
RT	58	10.4	461
T1	65	10.3	516
T2	67	10.3	537
T3	67	10.3	533
T4	66	10.4	526
Mean	64	10.4	514
Probability(%)			
Tillage (T)	5.7	2.5	5.7
LSD(0.10)			
Tillage (T)	5	0.1	43

*AGI - Adjusted Gross Income

FIELD EXPERIMENT HISTORY

Title: **Multi-factor effects for continuous and rotated corn**

Experiment: 19Systems **Trial ID:** 6499 **Year:** 2020

Personnel: J.G. Lauer, T. Diallo and K.D. Kohn

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: ARS:336 **Previous Crop:** See factors **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/12/18 **pH:** 6.2 **OM (%)** 3 **P (ppm)** 16 **K (ppm)** 136

Plot Management

Tillage Operations: CT & NT Field cultivator (CT only)

Fertilizer:	Analysis:	Rate lbs/A:	Date:
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	See factors	6 /18/20
Manure:	N/A	N/A	N/A

Herbicide: Roundup Power Max @ 32 oz/A 6/15/20
Dual II Magnum @ 24 oz/A 4/24/20

Insecticide: N/A

Hybrid: 1) RR:DKC52-35
2) SS:Jung 56SS538RIB
3) Soybean: Asgrow AG20X9

Irrigation: None

Planting Date: C: 5/8/20
S:5/11/20

Planting Depth: 1.5"

Row Width: 30"

Target Plant Density: See Factors

Harvest Date: C: 10/29/20
S: 10/17/20

Planting Method: JD1700 w RTK

Harvest Method: C: MF 8XP Combine
S: Almaco combine

Notes:

Experimental Design

Design: FracRep: split-split-plot

Replications: 1

Plot Size Seeded: MP: 10' x 35'

Experiment Size: 1.2

Harvest Plot Size: C & S : 5' x 31

Harvest Plant Density: See Factors

Factors/Treatments:

Tillage:

1) No-Till
2) Conventional

Nitrogen Rate:

1)- 160 lbs/A
2) - 210 lbs/A

Fungicide:

1) - UTC
2) - Headline

Rotation:

1) - CC
2) - CS

Plant Density:

1-35000 Plants/A
2-45000 Plants/A

Genotype:

1- RR: P9998AMXT
2- SS:Jung 53SS517RIB

Results: Table 2019-01

Table: 1920-01 . Multi-factor effects on continuous and rotated corn.
Arlington, WI - 2020.

Tillage	Rotation	Genotype	Plant Density	N rate	Fungicide	Grain yield	Grain moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	Harvest density	*AGI $3.54/bu
			plants/A	lbs/A		bu/A	%	lbs	%	%	%	plants/A	$
				210		234	28.3	53.8	7.0	4.1	3.0	36934	715
				210	Headline	238	27.2	54.5	7.3	3.5	3.8	36930	731
				210	UTC	230	29.5	53.2	6.8	4.6	2.2	36938	698
			35000			229	29.7	53.3	4.6	2.1	2.5	33874	694
			35000		Headline	226	29.6	53.4	3.9	0.7	3.2	34125	685
			35000		UTC	232	29.7	53.1	5.3	3.4	1.9	33622	702
			35000	160		226	28.7	53.5	3.3	1.5	1.7	33560	691
			35000	210		231	30.6	53.0	6.0	2.6	3.4	34188	697
			45000			233	27.5	54.3	8.6	4.9	3.7	39778	716
			45000		Headline	235	26.7	54.9	7.1	4.8	2.2	39805	725
			45000		UTC	231	28.3	53.6	10.1	4.9	5.2	39750	707
			45000	160		229	28.9	53.9	9.1	4.2	4.8	39875	699
			45000	210		236	26.1	54.6	8.0	5.5	2.6	39680	733
		DKC52-35RIB				230	26.7	54.5	6.9	1.5	5.5	36061	712
		DKC52-35RIB			Headline	234	26.7	54.7	5.2	0.6	4.5	36000	722
		DKC52-35RIB			UTC	227	26.7	54.2	8.7	2.3	6.4	36122	703
		DKC52-35RIB		160		225	26.3	54.5	6.8	1.5	5.3	35747	698
		DKC52-35RIB		210		236	27.1	54.5	7.0	1.5	5.6	36375	727
		DKC52-35RIB	35000			224	28.7	53.7	6.0	1.5	4.5	33310	683
		DKC52-35RIB	45000			237	24.7	55.2	7.8	1.4	6.4	38813	742
		Jung 56SS538RIB				231	30.4	53.1	6.3	5.5	0.8	37590	697
		Jung 56SS538RIB			Headline	227	29.5	53.6	5.8	4.9	0.9	37930	688
		Jung 56SS538RIB			UTC	236	31.3	52.5	6.7	6.0	0.7	37250	706
		Jung 56SS538RIB		160		231	31.3	53.0	5.5	4.3	1.2	37688	691
		Jung 56SS538RIB		210		232	29.6	53.2	7.0	6.6	0.4	37493	703
		Jung 56SS538RIB	35000			234	30.6	52.8	3.2	2.7	0.6	34438	705
		Jung 56SS538RIB	45000			229	30.3	53.3	9.3	8.3	1.0	40743	690
CC						228	27.5	54.4	3.9	3.6	0.3	36655	701
CC					Headline	224	28.3	54.5	1.7	1.7	0.0	36750	685
CC					UTC	232	26.7	54.4	6.1	5.4	0.7	36560	718
CC				160		230	27.8	54.6	3.9	3.7	0.2	36872	705
CC				210		226	27.2	54.3	3.9	3.4	0.5	36438	697
CC			35000			223	29.0	53.8	2.0	1.8	0.2	33872	680
CC			45000			233	26.1	55.1	5.8	5.3	0.5	39438	722
CC		DKC52-35RIB				235	25.3	55.3	2.2	1.5	0.7	35685	733
CC		Jung 56SS538RIB				221	29.7	53.6	5.6	5.6	0.0	37625	669

continue

Table: 1920-01 . Multi-factor effects on continuous and rotated corn.
(continued) **Arlington, WI - 2020.**

Tillage	Rotation	Genotype	Plant Density	N rate	Fungicide	Grain yield	Grain moisture	Test weight	Lodged			Harvest density	*AGI $3.54/bu
									Total	Stalk	Root		
			plants/A	lbs/A		bu/A	%	lbs	%	%	%	plants/A	$
	CS					234	29.6	53.1	9.3	3.4	5.9	36996	708
	CS				Headline	237	27.9	53.9	9.3	3.8	5.4	37180	725
	CS				UTC	231	31.3	52.4	9.3	2.9	6.4	36813	691
	CS			160		226	29.8	52.8	8.4	2.1	6.4	36563	684
	CS			210		241	29.4	53.4	10.2	4.7	5.5	37430	732
	CS		35000			234	30.4	52.8	7.3	2.4	4.9	33875	707
	CS		45000			233	28.8	53.5	11.3	4.4	6.9	40118	709
	CS	DKC52-35RIB				226	28.0	53.6	11.6	1.4	10.2	36438	691
	CS	Jung 56SS538RIB				242	31.2	52.6	7.0	5.4	1.6	37555	725
CT						235	27.5	54.1	9.6	4.5	5.1	36159	723
CT					Headline	233	26.2	54.5	9.0	4.2	4.8	36260	721
CT					UTC	238	28.8	53.7	10.1	4.7	5.4	36058	725
CT				160		233	27.5	54.0	9.3	3.9	5.4	36246	715
CT				210		238	27.5	54.2	9.9	5.0	4.8	36072	730
CT			35000			231	28.2	53.5	6.7	2.6	4.1	33121	708
CT			45000			239	26.8	54.6	12.5	6.3	6.2	39197	737
CT		DKC52-35RIB				237	24.8	55.1	10.6	1.7	8.9	35496	742
CT		Jung 56SS538RIB				233	30.2	53.1	8.5	7.2	1.3	36822	704
CT	CC					229	26.5	54.8	5.3	5.0	0.4	36183	710
CT	CS					241	28.5	53.4	13.8	3.9	9.9	36135	735
NT						227	29.6	53.5	3.6	2.5	1.1	37492	687
NT					Headline	228	30.1	53.9	2.0	1.4	0.6	37670	689
NT					UTC	225	29.2	53.1	5.2	3.6	1.7	37314	684
NT				160		223	30.1	53.5	3.1	1.9	1.2	37189	674
NT				210		230	29.2	53.5	4.2	3.1	1.1	37795	699
NT			35000			226	31.1	53.1	2.6	1.6	1.0	34627	679
NT			45000			227	28.1	53.9	4.6	3.4	1.2	40358	694
NT		DKC52-35RIB				223	28.5	53.9	3.2	1.2	2.0	36627	683
NT		Jung 56SS538RIB				230	30.7	53.1	4.0	3.7	0.3	38358	690
NT	CC					227	28.6	54.1	2.5	2.1	0.3	37127	692
NT	CS					226	30.7	52.9	4.8	2.8	1.9	37858	681
Mean						231	28.6	53.8	6.6	3.5	3.1	36826	705

continue

Table: 1920-01 . Multi-factor effects on continuous and rotated corn.
(continued) **Arlington, WI - 2020.**

Tillage	Rotation	Genotype	Plant Density	N rate	Fungicide	Grain yield	Grain moisture	Test weight	Lodged			Harvest density	*AGI $3.54/bu
									Total	Stalk	Root		
			plants/A	lbs/A		bu/A	%	lbs	%	%	%	plants/A	$
Probability(%)													
Fungicide						83.4	44.4	13.4	30.1	33.6	61.8	59.9	98.1
Genotype						86.6	0.2	1.0	75.5	0.7	0.6	0.5	45.7
Genotype*Fungicide						17.8	41.6	56.9	53.2	85.7	51.3	45.6	35.7
Genotype*NRate						42.4	26.4	87.2	77.6	42.8	74.0	44.5	67.6
Genotype*PD						12.0	11.4	35.6	31.7	5.3	66.4	45.6	7.5
NRate						30.7	68.8	84.3	68.3	41.5	84.8	68.3	32.5
NRate*Fungicide						14.4	23.5	40.9	21.2	86.2	14.3	59.4	12.1
PD						47.6	5.5	6.3	6.6	5.6	47.4	0.0	28.0
PD*Fungicide						44.0	51.5	35.2	70.5	36.7	19.9	67.7	40.6
PD*NRate						87.0	4.2	27.0	37.8	95.7	23.3	44.5	50.1
Rotation						33.3	7.0	1.6	1.3	90.1	0.1	52.0	73.3
Rotation*Fungicide						23.7	3.2	20.3	30.7	11.7	94.7	86.8	10.8
Rotation*Genotype						1.4	59.5	46.4	6.4	97.7	1.9	44.5	2.0
Rotation*NRate						11.4	89.5	37.1	67.7	30.6	71.4	22.8	17.1
Rotation*PD						34.2	54.4	60.5	95.8	59.4	58.9	52.8	32.4
Tillage						13.2	5.9	27.9	0.5	16.1	1.5	1.3	7.4
Tillage*Fungicide						48.0	12.6	100.0	61.7	57.7	87.5	88.4	81.0
Tillage*Genotype						38.3	16.9	23.4	49.8	29.3	7.3	70.3	26.9
Tillage*NRate						81.8	70.9	85.9	90.2	100.0	87.3	46.3	79.0
Tillage*PD						57.3	49.1	83.1	36.8	50.8	55.6	74.4	72.2
Tillage*Rotation						29.6	98.6	85.0	14.6	55.2	1.8	46.3	37.8
LSD(0.10)													
Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Genotype						NS	1.9	0.9	NS	2.4	2.7	883	NS
Genotype*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*PD						NS	NS	NS	NS	3.4	NS	NS	48
NRate						NS	NS	NS	NS	NS	NS	NS	NS
NRate*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
PD						NS	1.9	0.9	NS	2.4	NS	883	34
PD*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
PD*NRate						NS	2.7	NS	NS	NS	NS	NS	NS
Rotation						NS	1.9	0.9	3.5	NS	2.7	NS	NS
Rotation*Fungicide						NS	2.7	NS	NS	NS	NS	NS	NS
Rotation*Genotype						14	NS	NS	5.0	NS	3.8	NS	48
Rotation*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Rotation*PD						NS	NS	NS	NS	NS	NS	NS	NS
Tillage						NS	1.8	NS	3.4	NS	2.6	866	33
Tillage*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*Genotype						NS	NS	NS	NS	NS	3.8	NS	NS
Tillage*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*PD						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*Rotation						NS	NS	NS	NS	NS	3.8	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Multi-factor effects for continuous corn**

Experiment: 19Systems **Trial ID:** 6500 **Year:** 2020

Personnel: J.G. Lauer, T. Diallo and K.D. Kohn

Location: Arlington, WI **County:** Columbia

Supported By: HATCH

Site Information

Field: ARS336 **Previous Crop:** See factors **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/12/18 **pH:** 6.2 **OM (%)** 3 **P (ppm)** 16 **K (ppm)** 136

Plot Management

Tillage Operations: CT & NT Field cultivator (CT only)

Fertilizer:

	Analysis:	Rate lbs/A:	Date:
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	See factors	6 /18/20
Manure:	N/A	N/A	N/A

Herbicide: Roundup Power Max @ 32 oz/A 6/15/20
Dual II Magnum @ 24 oz/A 4/24/20

Insecticide: N/A

Hybrid: 1) RR:DKC52-35
2) SS:Jung 56SS538RIB

Irrigation: None

Planting Date: C: 5/8/20

Planting Depth: 1.5"

Row Width: 30"

Target Plant Density: See Factors

Harvest Date: C: 10/29/20

Planting Method: JD1700 w RTK

Harvest Method: MF 8XP combine

Notes:

Experimental Design

Design: FracRep: split-split-plot

Replications: 1

Plot Size Seeded: MP: 10' x 35'

Experiment Size: 0.5 Ac

Harvest Plot Size: 5' x 31

Harvest Plant Density: See Factors

Factors/Treatments:

Tillage:

1) No-Till
2) Conventional

Nitrogen Rate:

1)- 160 lbs/A
2) - 210 lbs/A

Fungicide:

1) - UTC
2) - Headline

Micro Nutrients:

1) - UTC
2) - Quatro

Plant Density:

1-35000 Plants/A
2-45000 Plants/A

Genotype:

1- RR: P9998AMXT
2- SS:Jung 53SS517RIB

Results: Table 2019-02

Table: 2019-02 . Multi-factor effects on continuous corn.
Arlington, WI - 2020

Tillage	Genotype	Plant Density	N rate	Micro Mix	Fungicide	Grain yield	Grain moisture	Test weight	Lodged			Harvest density	AGI
									Total	Stalk	Root		$3.54/bu
		plants/A	lbs/A			bu/A	%	lbs	%	%	%	plants/A	$
					Headline	211	30.7	52.3	2.3	1.7	0.6	36286	635
					UTC	210	30.9	51.9	3.2	3.2	0.0	35141	629
				Quatro		213	31.3	51.8	2.0	1.6	0.5	34401	638
				Quatro	Headline	215	30.6	52.3	2.8	1.9	0.9	34839	647
				Quatro	UTC	211	32.0	51.3	1.3	1.3	0.0	33964	630
				UTC		208	30.3	52.3	3.4	3.3	0.1	37026	627
				UTC	Headline	207	30.8	52.2	1.7	1.4	0.3	37734	624
				UTC	UTC	208	29.8	52.5	5.1	5.1	0.0	36318	629
			160			208	30.8	52.1	2.3	1.9	0.4	34714	627
			160		Headline	209	31.2	52.2	2.1	1.3	0.8	34859	628
			160		UTC	208	30.4	51.9	2.6	2.6	0.0	34568	626
			160	Quatro		211	31.2	51.6	2.1	1.3	0.8	32625	631
			160	UTC		206	30.3	52.5	2.6	2.6	0.0	36802	623
			210			212	30.8	52.1	3.1	2.9	0.2	36714	638
			210		Headline	213	30.2	52.3	2.4	2.0	0.4	37714	643
			210		UTC	211	31.4	51.8	3.7	3.8	0.0	35714	632
			210	Quatro		215	31.4	52.0	2.0	1.9	0.1	36177	645
			210	UTC		209	30.3	52.2	4.2	3.9	0.3	37250	630
		35000				210	30.9	52.3	1.6	1.2	0.4	32089	631
		35000			Headline	208	31.0	52.4	2.0	1.2	0.8	32359	625
		35000			UTC	212	30.9	52.3	1.1	1.1	0.0	31818	637
		35000		Quatro		214	30.5	52.7	2.0	1.1	0.8	32125	644
		35000		UTC		206	31.4	52.0	1.1	1.2	0.0	32052	618
		35000	160			206	31.3	51.9	1.6	0.8	0.8	31552	616
		35000	210			214	30.6	52.7	1.5	1.5	0.0	32625	646
		45000				210	30.6	51.9	3.9	3.7	0.2	39339	634
		45000			Headline	214	30.4	52.2	2.5	2.1	0.4	40214	646
		45000			UTC	207	30.9	51.5	5.2	5.2	0.0	38464	621
		45000		Quatro		212	32.1	51.0	2.1	2.0	0.1	36677	632
		45000		UTC		209	29.2	52.7	5.6	5.3	0.3	42000	635
		45000	160			211	30.3	52.2	3.1	3.1	0.0	37875	638
		45000	210			210	31.0	51.5	4.7	4.3	0.4	40802	629
	DKC52-35RIB					209	27.8	52.9	2.5	2.1	0.4	35901	641
	DKC52-35RIB				Headline	214	26.8	53.1	1.2	0.4	0.8	37359	659
	DKC52-35RIB				UTC	204	28.9	52.7	3.8	3.8	0.0	34443	622
	DKC52-35RIB			Quatro		209	29.2	52.4	1.7	0.8	0.8	34500	636
	DKC52-35RIB			UTC		208	26.5	53.4	3.4	3.4	0.0	37302	645
	DKC52-35RIB		160			210	27.3	52.9	1.6	0.8	0.8	35052	646
	DKC52-35RIB		210			208	28.4	52.9	3.4	3.4	0.0	36750	636
	DKC52-35RIB	35000				210	27.3	53.5	2.0	1.2	0.8	32677	647
	DKC52-35RIB	45000				208	28.4	52.3	3.0	3.0	0.0	39125	634

conitnue

Table: 1919-02 . Multi-factor effects on continuous corn.

(continued) **Arlington, WI - 2020**

Tillage	Genotype	Plant Density	N rate	Micro Mix	Fungicide	Grain yield	Grain moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	Harvest density	AGI $3.54/bu
		plants/A	lbs/A			bu/A	%	lbs	%	%	%	plants/A	$
	Jung 56SS538RIB					212	33.7	51.3	2.9	2.7	0.2	35526	624
	Jung 56SS538RIB				Headline	208	34.6	51.5	3.3	2.9	0.4	35214	612
	Jung 56SS538RIB				UTC	215	32.9	51.0	2.5	2.6	0.0	35839	636
	Jung 56SS538RIB			Quatro		217	33.4	51.3	2.4	2.4	0.1	34302	640
	Jung 56SS538RIB			UTC		207	34.1	51.3	3.4	3.1	0.3	36750	608
	Jung 56SS538RIB		160			207	34.3	51.3	3.0	3.0	0.0	34375	609
	Jung 56SS538RIB		210			216	33.2	51.3	2.8	2.4	0.4	36677	640
	Jung 56SS538RIB	35000				210	34.6	51.1	1.1	1.1	0.0	31500	615
	Jung 56SS538RIB	45000				213	32.9	51.4	4.7	4.3	0.4	39552	634
CT						220	28.7	52.9	5.1	4.5	0.6	34724	672
CT					Headline	223	28.5	53.1	4.5	3.3	1.2	35573	682
CT					UTC	218	28.9	52.7	5.7	5.7	0.0	33875	661
CT				Quatro		221	29.2	52.4	3.6	2.7	0.9	32839	670
CT				UTC		220	28.2	53.5	6.5	6.3	0.3	36609	673
CT			160			218	28.5	53.2	4.7	3.9	0.8	33734	666
CT			210			223	28.9	52.7	5.5	5.1	0.4	35714	677
CT		35000				218	29.1	53.3	2.8	2.0	0.8	31359	662
CT		45000				223	28.3	52.6	7.4	7.0	0.4	38089	682
CT	DKC52-35RIB					213	26.0	54.0	5.1	4.3	0.8	34859	661
CT	Jung 56SS538RIB					228	31.4	51.9	5.1	4.7	0.4	34589	682
NT						200	32.9	51.2	0.3	0.4	0.0	36703	593
NT					Headline	198	32.9	51.4	0.0	0.0	0.0	37000	589
NT					UTC	202	32.8	51.1	0.7	0.7	0.0	36406	597
NT				Quatro		205	33.4	51.3	0.4	0.5	0.0	35964	606
NT				UTC		195	32.4	51.2	0.3	0.3	0.0	37443	580
NT			160			199	33.0	51.0	0.0	0.0	0.0	35693	588
NT			210			202	32.7	51.5	0.7	0.7	0.0	37714	598
NT		35000				202	32.7	51.4	0.4	0.3	0.0	32818	601
NT		45000				198	33.0	51.1	0.3	0.4	0.0	40589	586
NT	DKC52-35RIB					205	29.7	51.9	0.0	0.0	0.0	36943	620
NT	Jung 56SS538RIB					195	36.0	50.6	0.7	0.7	0.0	36464	566
Mean						210	30.8	52.1	2.7	2.4	0.3	35714	632
Probability(%)													
Fungicide						75.1	80.8	37.2	45.8	20.3	13.6	12.3	67.8
Genotype						56.6	0.0	0.1	75.7	61.9	60.6	61.1	29.1
Genotype*Fungicide						10.6	3.4	91.7	20.8	14.6	65.8	2.8	6.2
Genotype*Micro						33.6	5.1	25.6	76.7	45.3	19.6	81.4	20.0
Genotype*NRate						26.0	20.6	97.2	43.2	20.1	16.7	68.9	20.0
Genotype*PD						48.5	10.3	9.7	33.7	58.9	16.7	29.4	31.0
Micro						23.5	23.2	24.1	29.2	17.7	43.6	0.2	45.1
Micro*Fungicide						64.8	18.1	14.7	6.7	9.5	41.1	71.9	48.6
NRate						41.6	96.8	98.0	54.7	42.3	60.6	1.3	50.1
NRate*Fungicide						99.1	23.1	80.6	77.1	87.6	65.8	26.5	76.9
NRate*Micro						80.1	92.2	40.3	51.4	80.8	19.6	5.1	81.4

continue

Table: 2019-02 . Multi-factor effects on continuous corn.
(continued) **Arlington, WI - 2020**

Tillage	Genotype	Plant Density	N rate	Micro Mix	Fungicide	Grain yield	Grain moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	Harvest density	AGI $3.54/bu
		plants/A	lbs/A			bu/A	%	lbs	%	%	%	plants/A	$
Mean						197	31.6	51.7	0.5	0.4	0.0	37531	589
Probability(%)													
PD						93.8	71.3	28.9	7.9	4.8	60.6	0.0	86.4
PD*Fungicide						22.3	74.9	48.7	18.0	20.7	65.8	42.6	24.6
PD*Micro						67.3	4.0	1.3	10.1	19.2	19.6	0.2	36.8
PD*NRate						27.8	38.3	10.0	52.6	84.9	16.7	22.8	22.7
Tillage						0.0	0.0	0.1	0.1	0.2	13.6	1.2	0.0
Tillage*Fungicide						32.7	77.4	91.5	86.0	51.0	16.7	46.7	35.1
Tillage*Genotype						1.5	58.9	33.6	79.4	90.1	65.8	89.0	2.5
Tillage*Micro						32.4	98.4	20.8	24.4	13.9	41.1	14.0	37.5
Tillage*NRate						87.8	68.7	22.8	97.9	86.0	65.8	97.8	96.7
Tillage*PD						27.5	52.1	66.4	8.5	5.4	65.8	49.2	26.6
LSD(0.10)													
Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Genotype						NS	1.4	0.7	NS	NS	NS	NS	NS
Genotype*Fungicide						NS	2.0	NS	NS	NS	NS	1779	37
Genotype*Micro						NS	2.0	NS	NS	NS	NS	NS	NS
Genotype*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*PD						NS	NS	NS	NS	NS	NS	NS	NS
Micro						NS	NS	NS	NS	NS	NS	1258	NS
Micro*Fungicide						NS	NS	NS	3.1	2.9	NS	NS	NS
NRate						NS	NS	NS	NS	NS	NS	1258	NS
NRate*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
NRate*Micro						NS	NS	NS	NS	NS	NS	1791	NS
PD						NS	NS	NS	2.2	2.1	NS	1258	NS
PD*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
PD*Micro						NS	2.0	1.0	NS	NS	NS	1791	NS
PD*NRate						NS	NS	1.0	NS	NS	NS	NS	NS
Tillage						7	1.4	0.7	2.1	2.0	NS	1227	25
Tillage*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*Genotype						11	NS	NS	NS	NS	NS	NS	37
Tillage*Micro						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*PD						NS	NS	NS	3.1	2.9	NS	NS	NS

*AGI: Adjusted Gross Income