2019
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

2019 Wisconsin Research Report of Studies on Cultural Practices and Management Systems for Corn

Joe Lauer
Corn Agronomist
358 Moore Hall
(608) 263-7438
jglauer@wisc.edu
http://corn.agronomy.wisc.edu

Kent Kohn
Program Manager
566 Moore Hall
(608) 262-1840
kdkohn@wisc.edu

Thierno Diallo
Research Specialist
566 Moore Hall
(608) 262-1840
thdiallo@wisc.edu

Agronomy Department
University of Wisconsin
1575 Linden Drive
Madison, WI 53706
(608) 262-1390

The information presented in this report is for the purpose of informing cooperators in industry of the results of research conducted during 2019. 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 This information is **NOT FOR PUBLICATION** unless prior approval is received.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

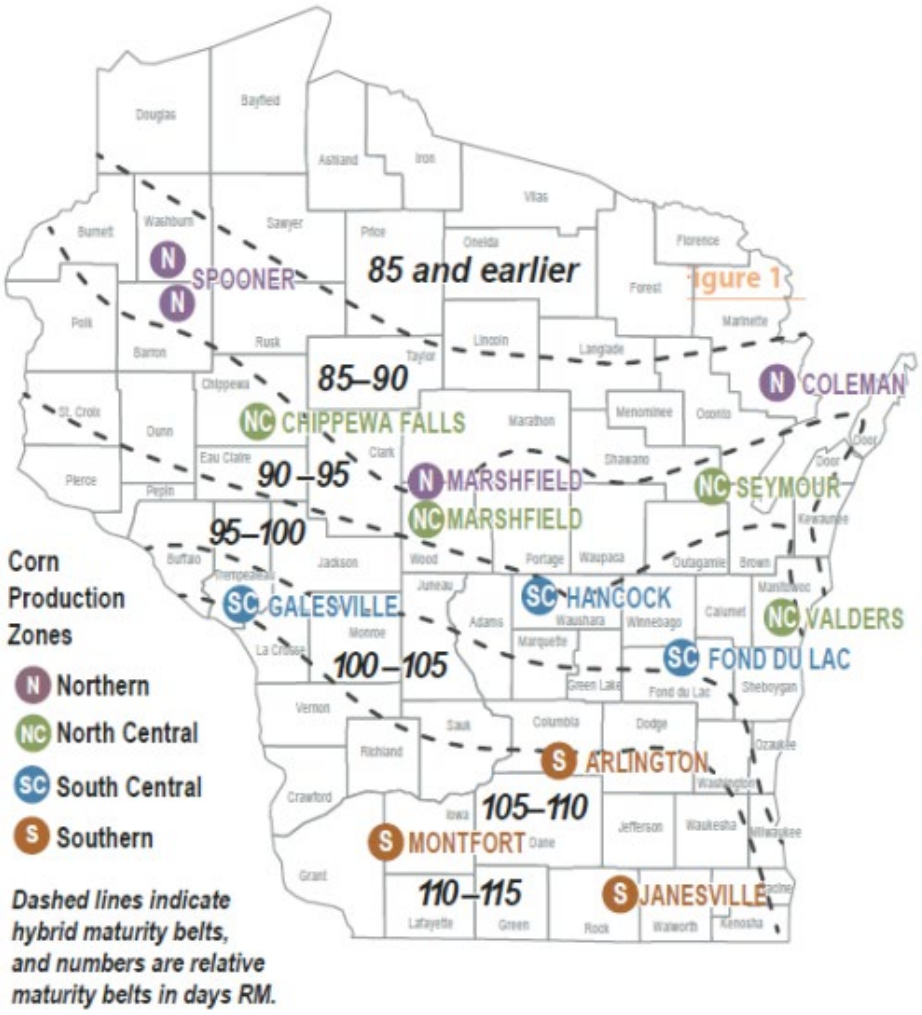
Cooperating UWEX County Agents and ARS Staff: Nick Baker, Jerry Clark, Mike Bertram, Arin Crooks, Paul Sytsma, and John Zander

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

Cooperating Academic Staff: John Gaska and Adam Roth

Project Crew: Laura Boelke, Brock Huffar, Taishi Ikeda, Yukiko Ikeda, and Mikey O'Donnell

Wisconsin Corn
Agronomy Research Sites



.

.

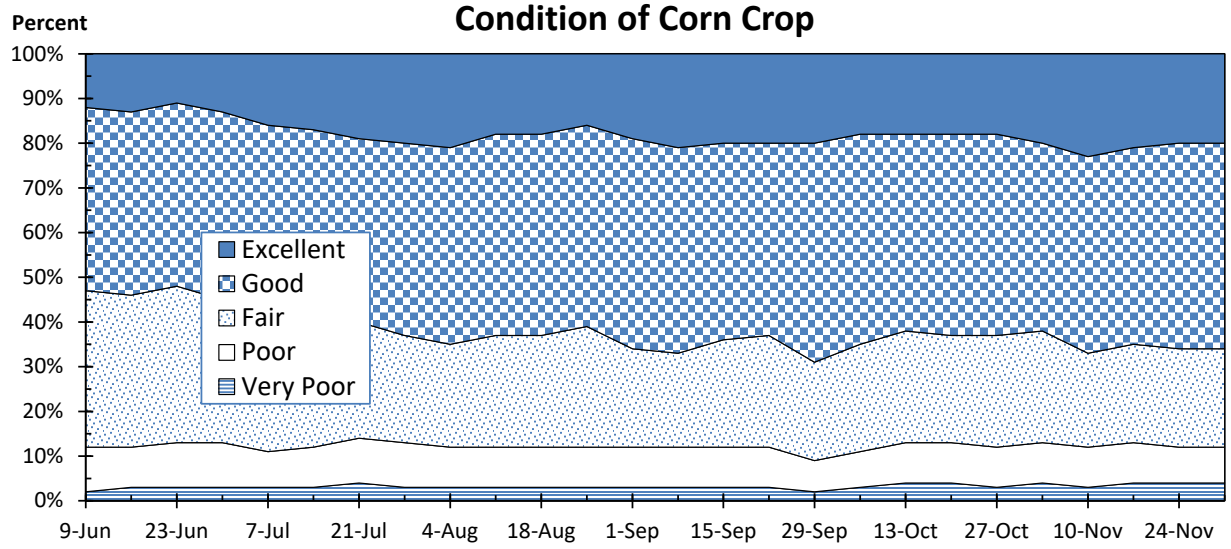
We wish to thank the following companies and organizations that have generously supported our research through financial and/or material donations.

UW College of Agriculture and Life Sciences-Hatch Program
Dairyland Seeds
FS InVision
Federal Seeds
Jung Seed Genetics
LG Seeds
Masters Choice
Monsanto
Munson Seeds
National Crop Insurance Services
Nu-Tech Seed, LLC
Renk Seed
Syngenta Seeds
Valent BioSciences
Wisconsin Corn Growers Association
Wisconsin Fertilizer Research Council
Wyffels Hybrids

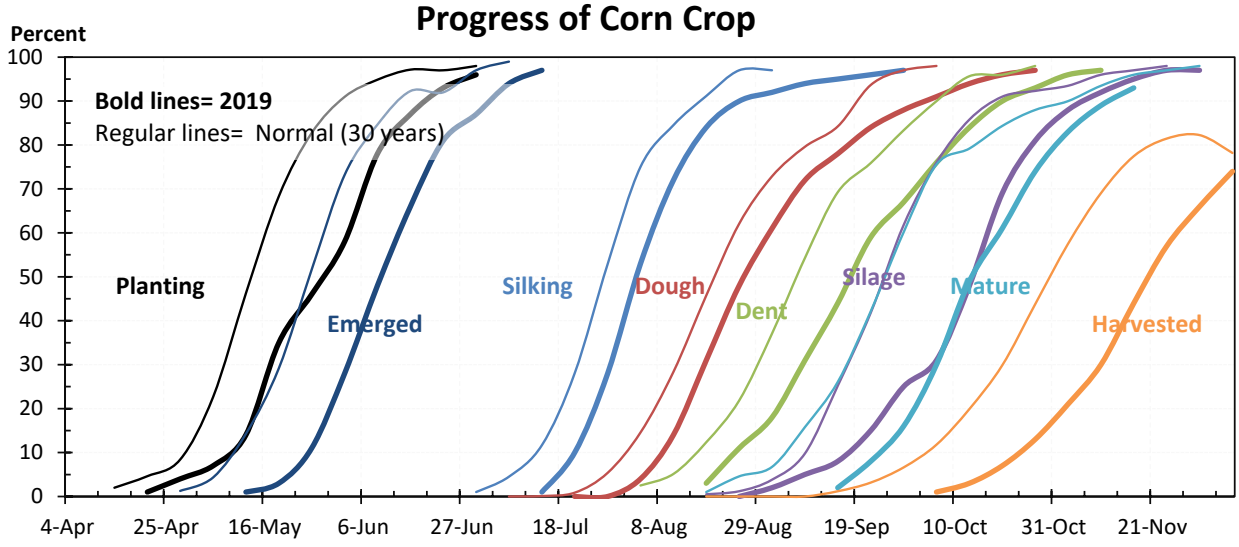
TABLE OF CONTENTS

2019 Corn Crop Summary for Wisconsin

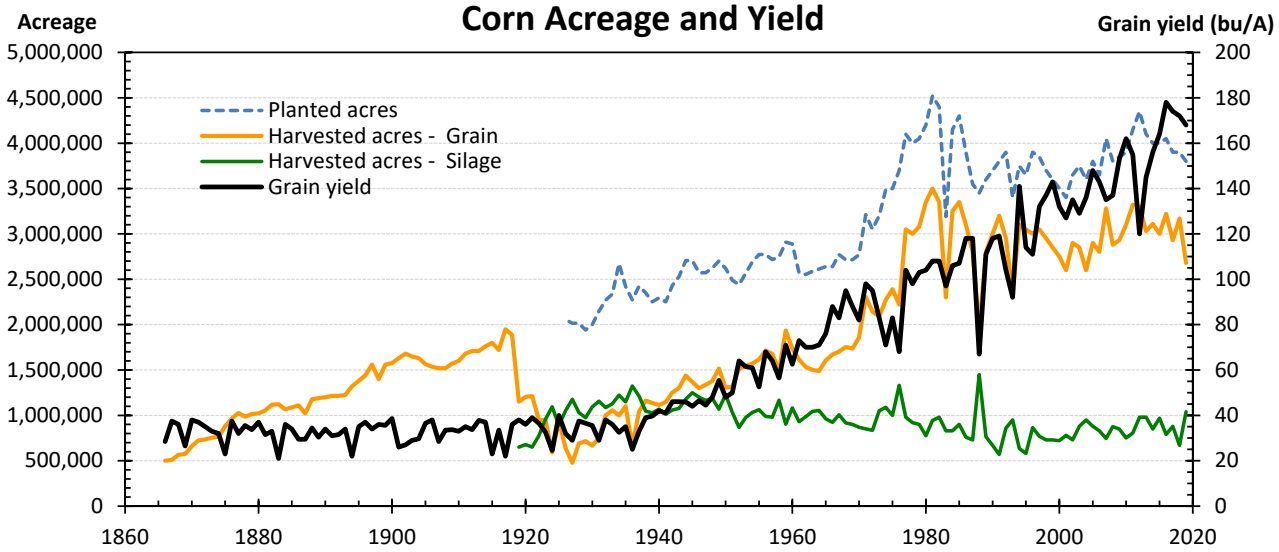
Condition of Corn Crop



Progress of Corn Crop



Corn Acreage and Yield



Crop Progress Review of 2019

Derived from USDA-NASS report on December 17, 2019
http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Farm_Reporter/

Soils were heavily saturated as the 2019 planting season opened, with topsoil moisture rated at 48 percent surplus on March 31. Be-low normal temperatures and frequent rain events kept soils wet throughout the cropping season, causing significant delays to fieldwork. Overwintered crops were damaged by ice storms in January and February, followed by spring flooding and multiple freeze-thaw cycles in March, April and May. Late snow and cold soil conditions in April and May delayed planting significantly and suppressed crop emergence and pasture growth. Spring tillage was only 93 percent complete on June 16, 15 days behind the previous year. Planting dragged on past crop insurance cut off dates in late June with many acres of prevented plantings reported. Poor quantity and quality of hay and pasture kept forage supplies tight through the spring and summer. July brought heat and more rain, with west central and southwest parts of the state receiving more precipitation than else-where. Wet conditions hampered haying and spraying, and there was some severe weather damage to crops midmonth. Drier conditions during August let farmers catch up on spraying, make hay and harvest small grains. However, below-normal temperatures meant crop development remained one to two weeks behind average. Topsoil moistures were 15 percent short to very short and only 6 percent surplus on August 25, the driest rating for the season. Fre-quent rains resumed during September, with southern and eastern portions of the state receiving more rain than the west and north. Deep mud and high grain moistures delayed the start of fall field-work, and remained major problems throughout the rest of the year. The first frost held off until the week ending October 28, allowing late planted crops more time to mature. Only days later, temperatures plunged into the teens and a Halloween snowstorm dumped up to 8 inches of snow across southern Wisconsin. Below average temperatures in early November helped firm the ground, improving access to muddy fields but stalling fall tillage. Frequent snow and rain in November kept grain moistures unusually high, prompting some farmers to delay harvest even further. Delays to the harvest in turn delayed or prevented fall tillage, plantings and manure spreading. On November 24, fall tillage was only 39 percent complete, compared to 67 percent in 2018. This was the slowest fall tillage progress in the past 40 years of Crop Progress data.

The average temperature for June through September was 65.6 degrees, compared with 66.6 degrees in 2018 and a normal of 64.9 degrees. July and September temperatures averaged 2.1 and 3.3 degrees above normal, respectively. The remaining months of the growing season ranged from 1.2 to 3.6 degrees below normal.

The statewide precipitation total for April through September was 29.09 inches, compared to 27.35 inches the previous year and a normal of 22.43 inches. September was the month with the largest departure from normal at 3.30 inches above normal. District precipitation totals for April through September ranged from 26.97 inches to 34.43 inches; by contrast, district totals ranged from 21.81 to 36.66 inches in 2018.

Corn

Though corn planting started near the 5-year average in 2019, wet, cold soils kept progress significantly slower than usual. Corn planting reached 96 percent complete on June 30, 18 days behind the previous year and three weeks behind the average. Many acres intended for corn were reportedly prevented or shifted to other crops. Some livestock producers continued planting corn intended for silage into July. Corn maturity lagged one to three weeks behind the average throughout the season. Corn condition averaged 62 percent good to excellent for the season, compared to 79 percent good to excellent in the previous year. Corn condition peaked at 69 percent good to excellent near the end of a warm and wet September. Corn silage chopping started about a week behind the average, but ended over three weeks later than average due to very wet conditions. Tight feed supplies reportedly caused some livestock producers to green-chop corn for feed before optimal maturity and plant moisture were reached. Combining corn for grain didn't begin until October, and was only 57 percent complete by November 24. This was 21 days behind 2018, 18 days behind the average and the

second slowest harvest pace for corn in the past 40 years of Crop Progress records. Corn harvested for grain was 74 percent complete on December 8, with grain moisture still at 23 percent.

Soybean
Soybean planting started slightly behind the 5-year average, with 1 percent planted on May 5. Poor field conditions, delays to corn planting and fields being switched from corn to soybeans meant soybean planting didn't wrap up until after mid-July, almost a month behind average. The soybean bloom was similarly behind. Soybeans condition averaged 66 percent good to excellent for the season, compared to 78 percent the pre-vious year. A warm and rainy September helped soybean maturity catch up slightly, with the coloring and dropping leaves phases running only two weeks behind average. The late frost gave soybeans extra time to mature. However, wet conditions and early snows in October and November hampered combining and prevented some fields from being harvested at all. On November 24, 82 percent of soybeans were harvested, well below 94 percent in 2018 and an average of 97 percent. This was the second slowest soybean harvest in the past 40 years of Crop Progress records. Soybeans reached 88 percent harvested on December 8.

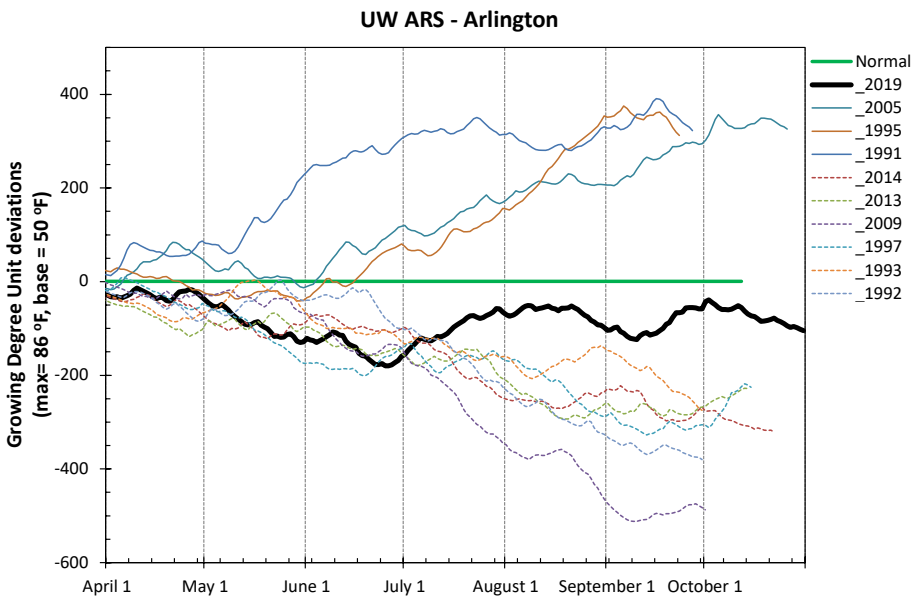
Pasture
Pasture condition bottomed out at 17 percent good to excel-lent on the week ending April 14 following a cold snap and a major blizzard. Persistent mud and standing water meant pas-ture condition never made it above 65 percent good to excel-lent during the season. On average, 57 percent of pastures were in good to excellent condition from May through October, compared to 70 percent in 2018. The lack of pasture quality put additional pressure on tight feed and hay supplies.

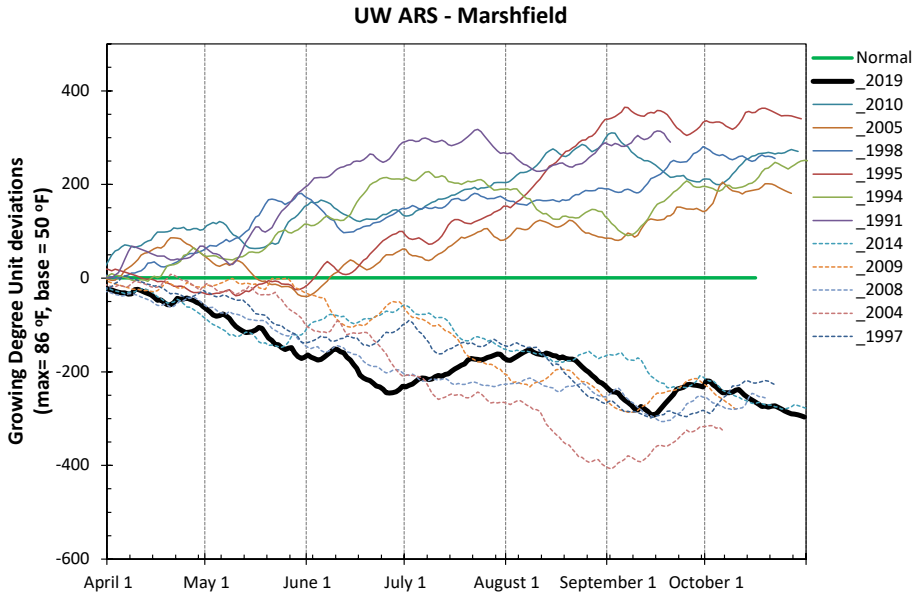
Oats
Oats planting started this season off in line with the previous year and the 5-year average. Rain, snow, mud, and below normal temperatures in April and May slowed planting progress somewhat and emergence even more. Overall, oats maturity ran one to two weeks behind average throughout the season. Oats condition averaged 70 percent good to excellent, compared to 88 percent the previous year. Dry weather in August allowed for a good start to the oats harvest. However, overlap with corn and soybean harvest, combined with heavy rains in September, delayed the end of the harvest until late October, over a month behind average.

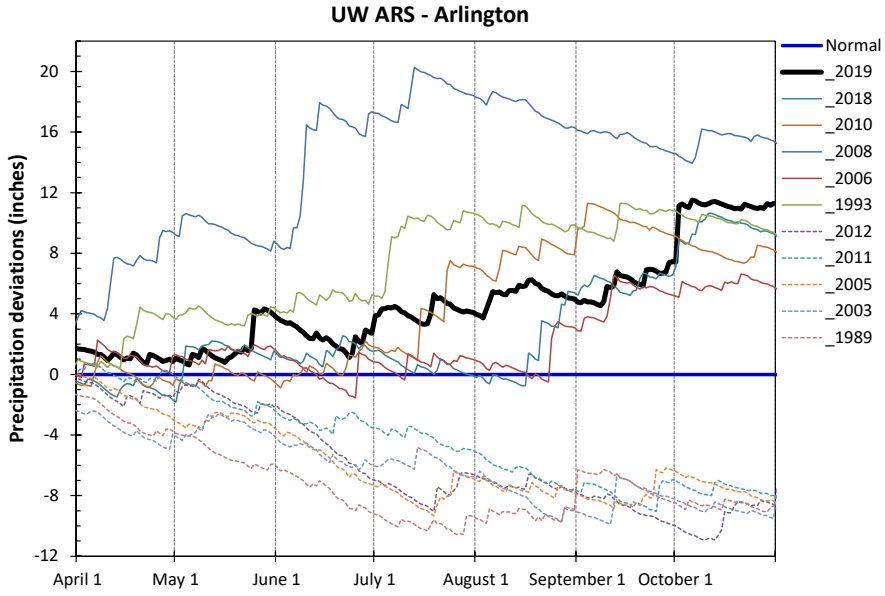
Winter wheat
Widespread winterkill meant winter wheat started 2019 off in poor condition. Cold, wet conditions slowed development and meant less than 50 percent of the winter wheat crop was in good to excellent condition throughout the spring. Warmer weather in July did help improve wheat con-dition, peaking at 64 percent good to excellent on August 4. Harvest started 12 days behind normal, but ended less than one week behind thanks to drier conditions in August.
Winter wheat planting was significantly delayed by this year's very late soybean harvest, and further prevented in some areas when the ground froze in early November. By late November, winter wheat planting and emergence were both over 3 weeks behind the five year average. Condi-tion averaged 53 percent good to excellent for the fall season, compared to 78 percent in 2018.

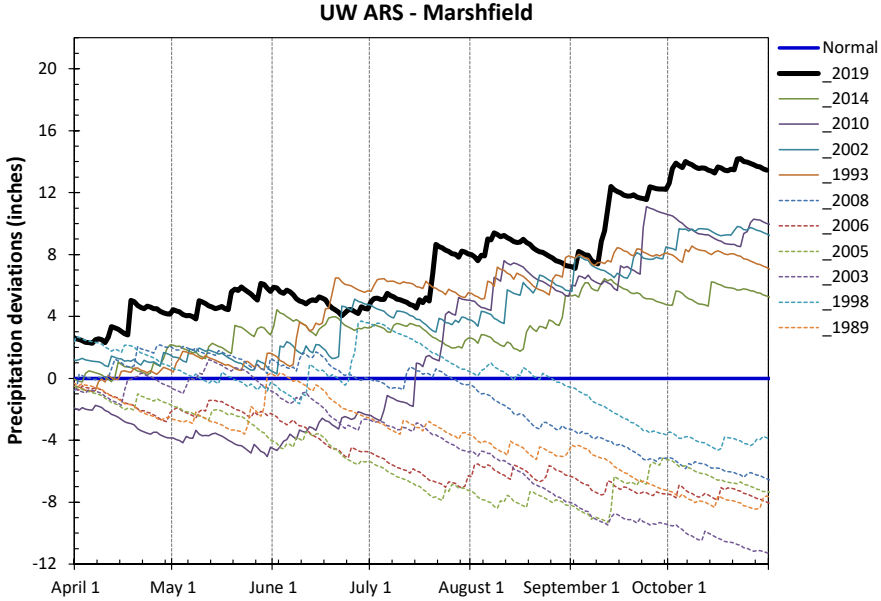
Alfalfa
As of May 19, winter freeze damage to alfalfa was rated 25 percent severe, 18 percent moderate and 17 percent light. There was reportedly no damage to the remaining 40 percent of alfalfa, less than half of the 82 percent undamaged in the previous year. Winterkill damage was particularly bad in the North Central and Northwestern Districts, which reported 77 percent and 66 percent severe damage, respectively. Hay was slow to break dormancy with wet, cold spring conditions. Many reporters noted spring seeding of alfalfa to replace winterkilled stands, though wet conditions hampered planting and emergence. Tight feed supplies forced farmers to start their first cutting of hay before optimal maturity. All four cuttings of hay ran about two weeks behind the average this season. Though some hay was baled during dry weather in August, much of the hay crop was reportedly chopped and stored as haylage due to frequent rains. An early onset of cold weather combined with some unusually late fourth crop cuttings left some reporters concerned for hay stands' ability to overwinter. All hay condition was 49 percent good to excellent on average, compared to 80 percent good to excellent in 2018.

2019 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.



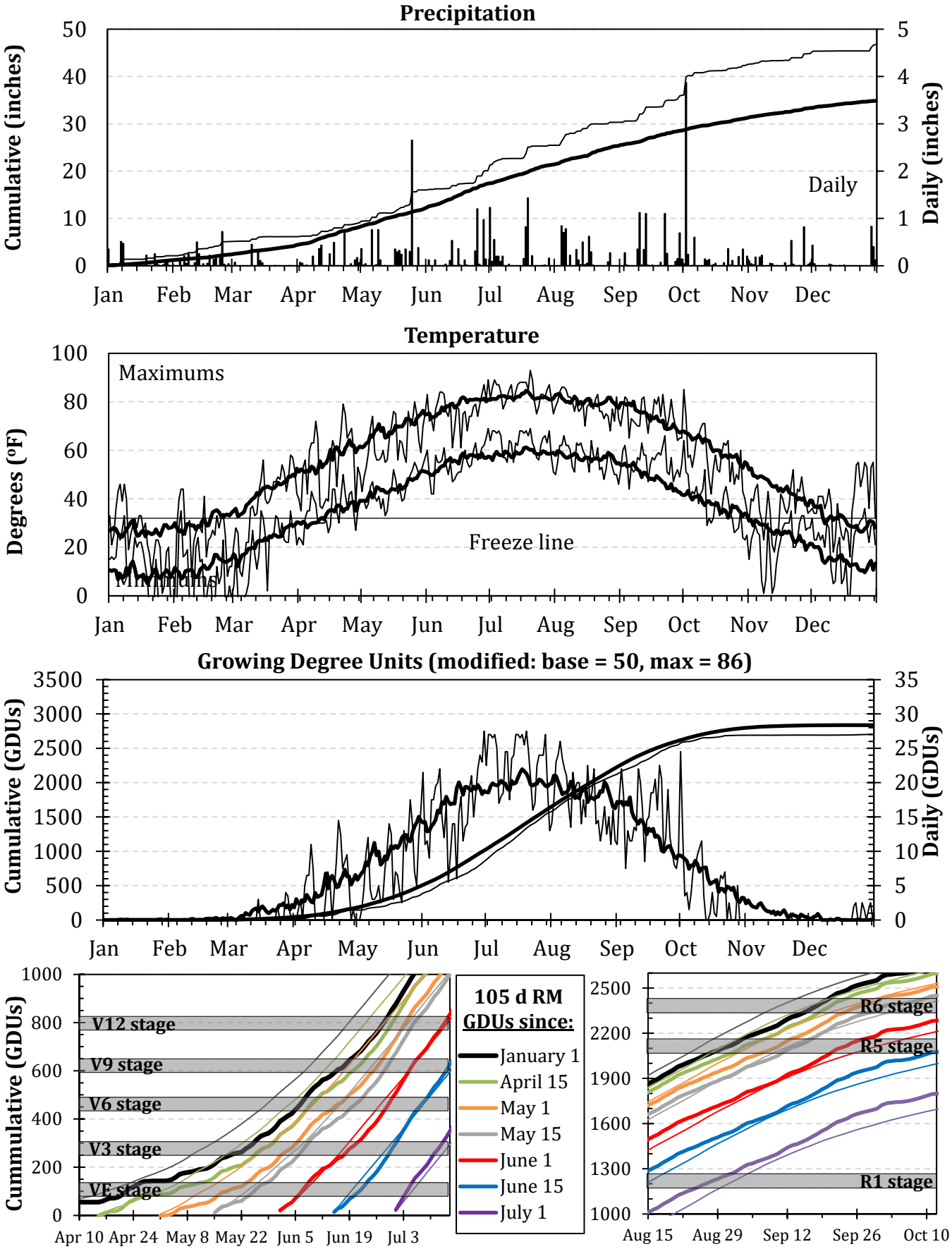






2019 Weather Summary for UW ARS - Arlington, WI

Bold Line = 30 year Normal



Lauer

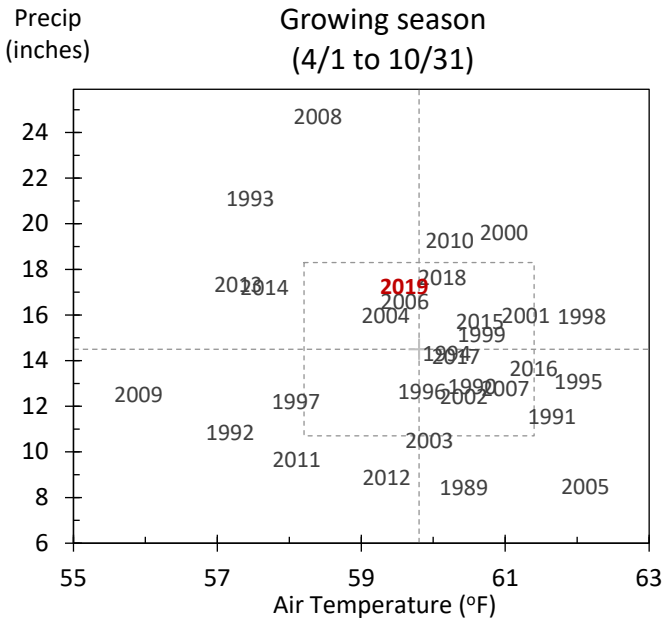
Data Source: Midwest Regional Climatological Center

Last updated on 2020-01-28

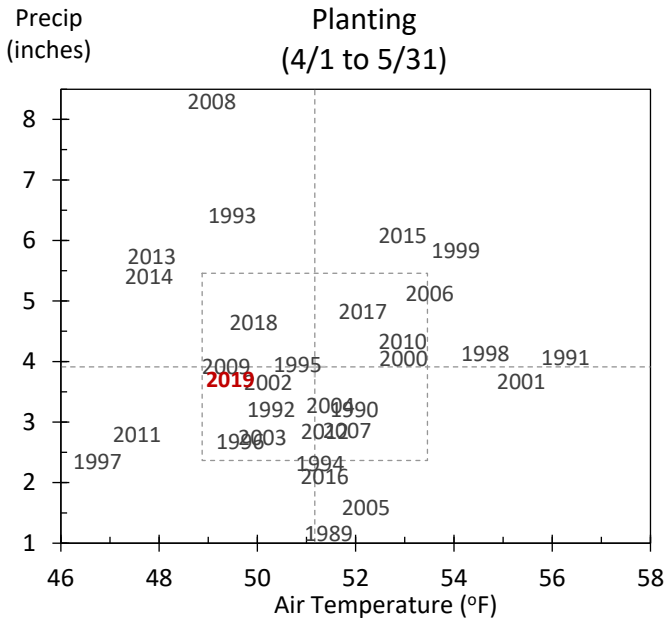
Average Temperature and Precipitation

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

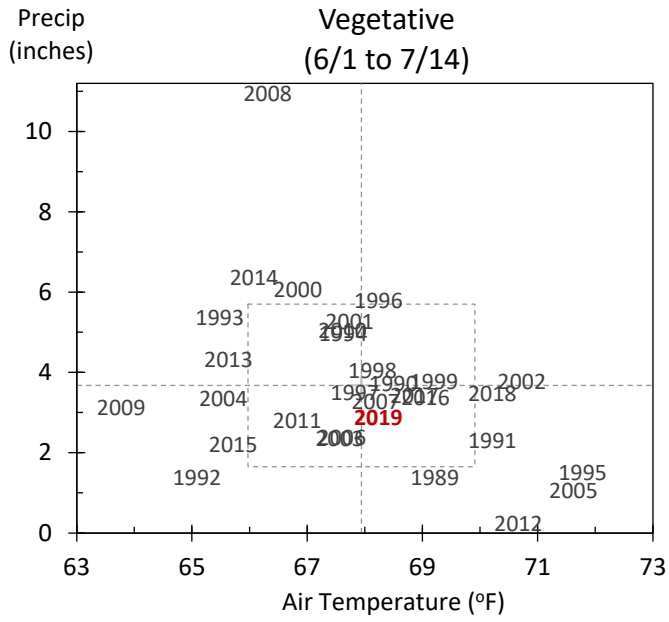
Growing season (4/1 to 10/31)



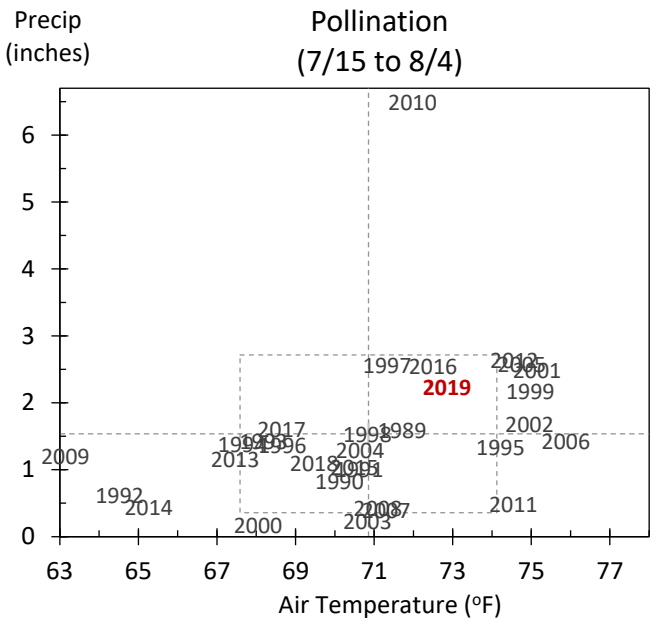
Planting (4/1 to 5/31)



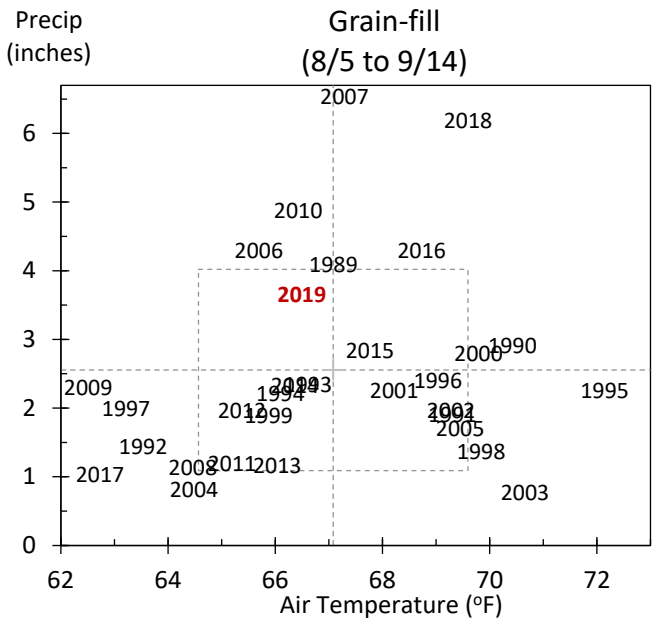
Vegetative (6/1 to 7/14)



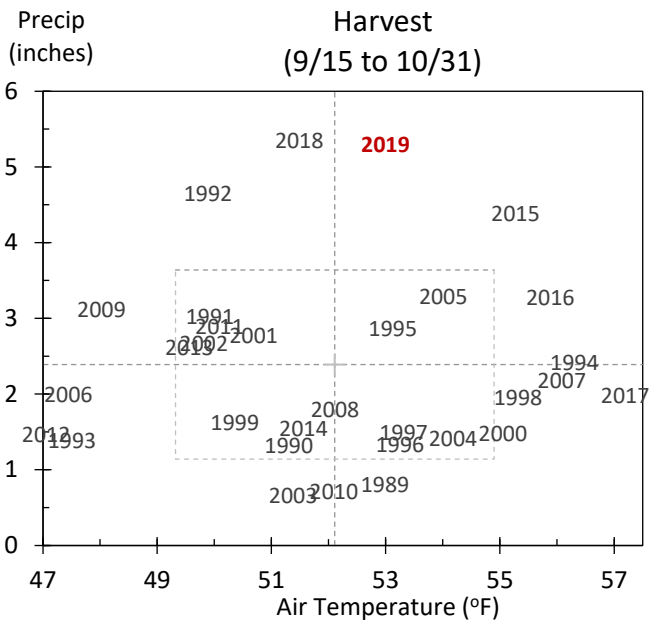
Pollination (7/15 to 8/4)



Grain-fill (8/5 to 9/14)



Harvest (9/15 to 10/31)



Lauer, UW-ARS Arlington

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

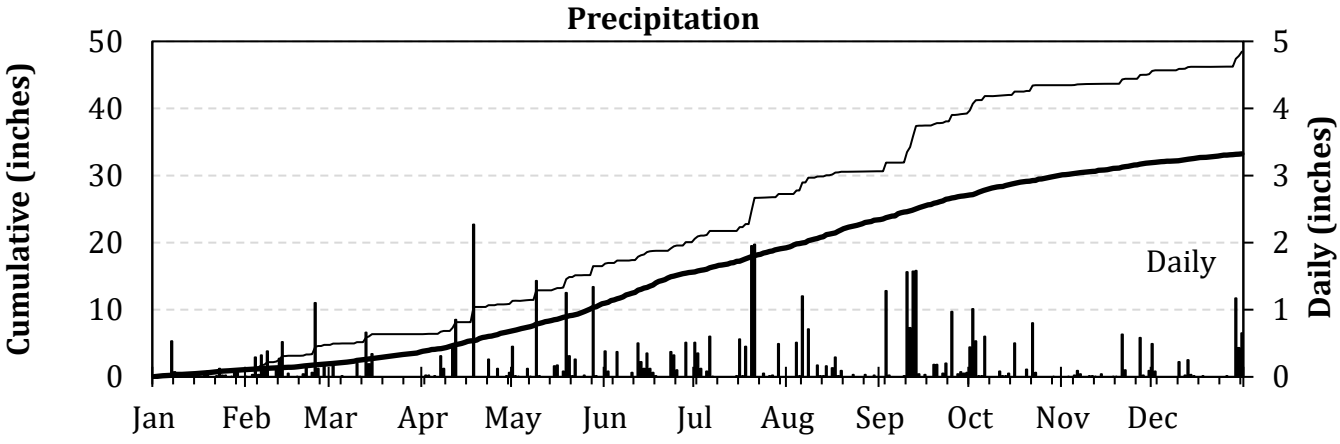
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1990	1.8	0.9	3.7	2.5	4.3	6.3	1.6	5.4	1.2	2.3	1.7	2.4	34.2
1991	1.0	0.4	3.0	4.5	1.9	2.6	3.8	1.8	4.7	6.8	3.6	1.4	35.4
1992	0.5	1.6	1.7	4.0	1.2	1.2	5.8	1.9	7.5	1.3	5.2	2.8	34.6
1993	1.6	1.0	2.3	7.1	4.5	6.1	9.4	3.2	4.2	1.2	1.6	0.2	42.3
1994	0.9	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
30-year Average	1.2	1.3	2.0	3.9	4.2	5.2	4.0	4.0	3.3	2.8	2.1	1.5	35.6

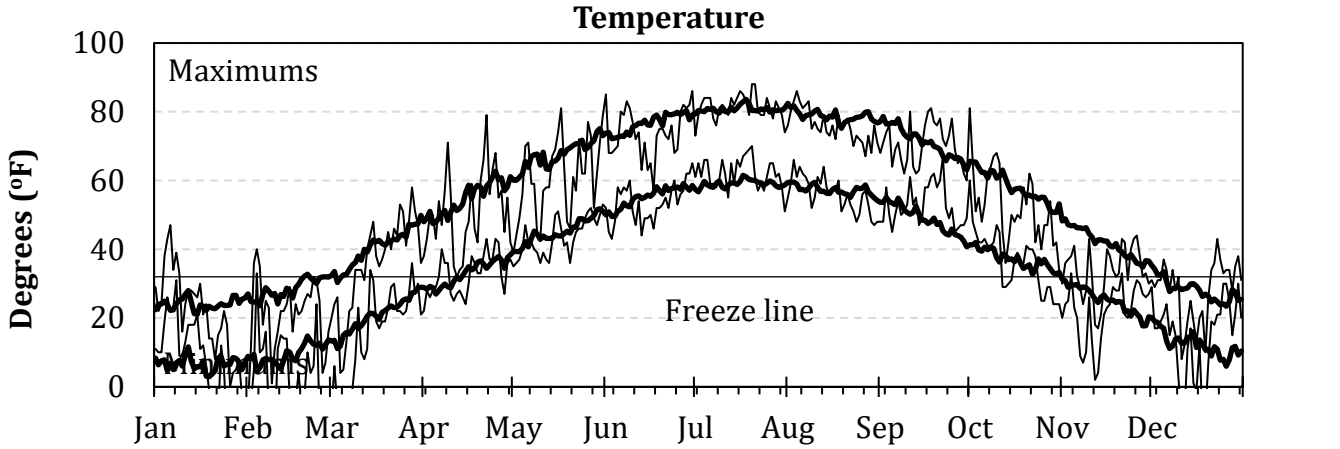
Table A-2. Average monthly and annual temperature (oF) data for the Arlington Research Station.

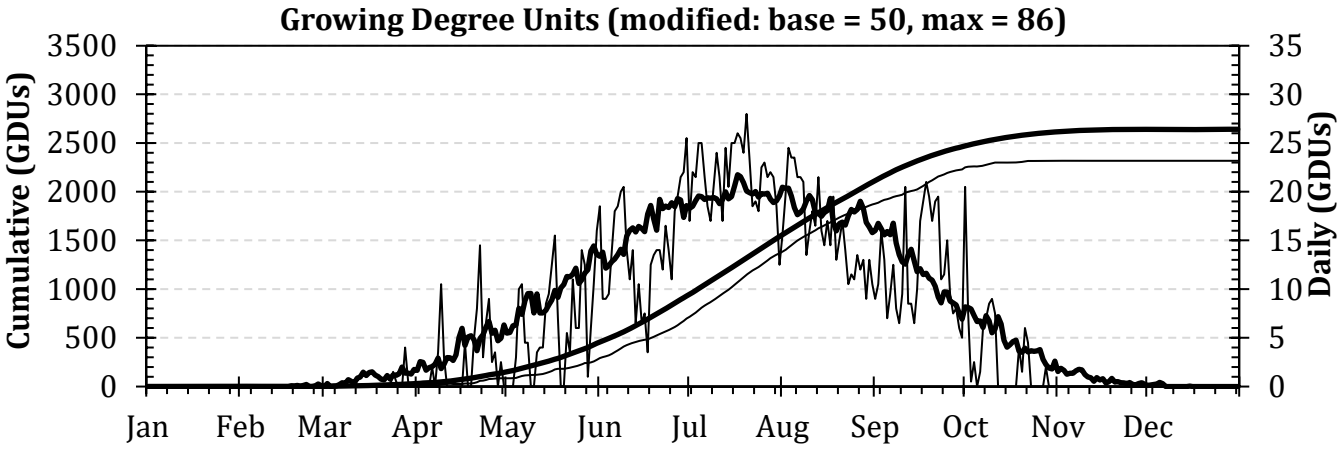
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1990	28	26	37	49	55	68	70	69	64	49	40	21	48
1991	14	26	36	50	63	70	71	70	59	49	29	24	47
1992	24	28	33	43	58	64	66	64	59	47	31	22	45
1993	19	19	29	42	57	64	69	69	55	46	33	23	44
1994	6	13	33	46	56	68	67	67	64	53	40	28	45
1995	20	23	37	44	57	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
30-year Average	18	21	33	45	57	67	70	69	61	49	35	23	46

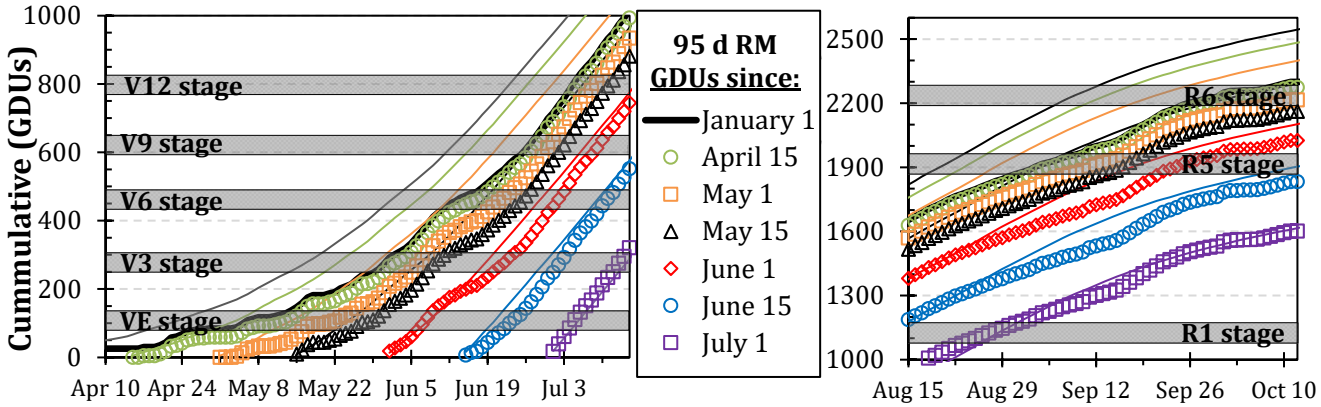
2019 Weather Summary for UW ARS - Marshfield, WI

Bold Line = 30 year Normal









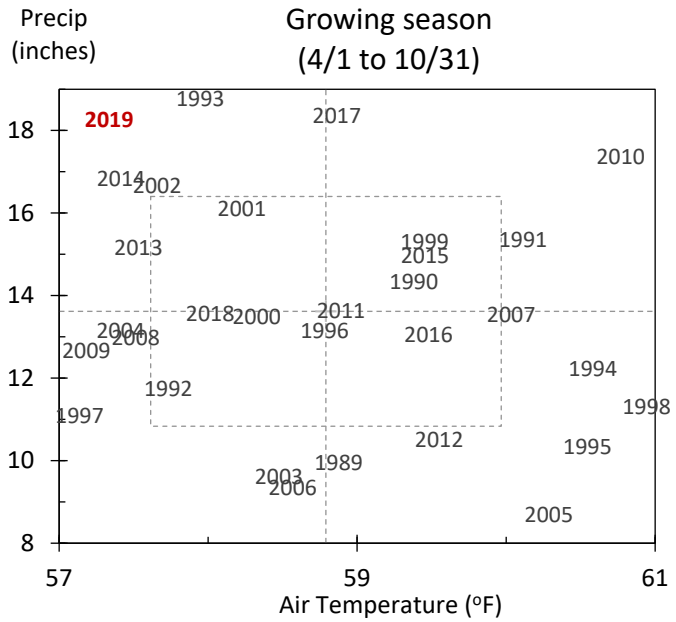
Lauer

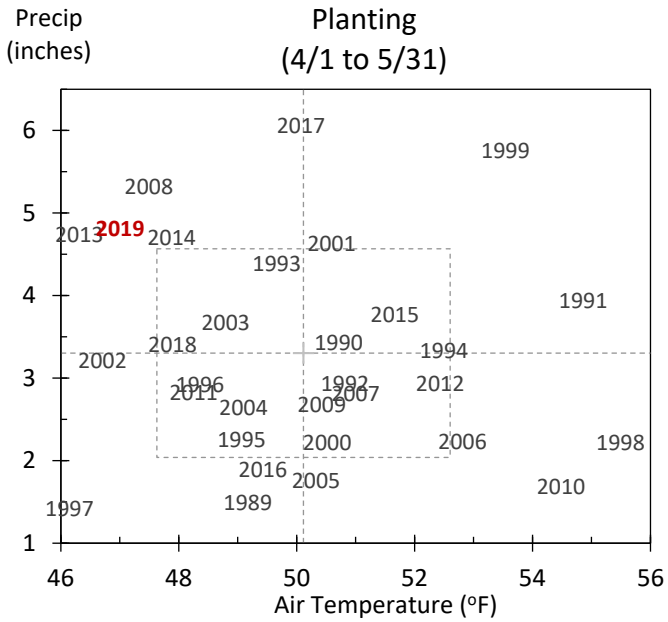
Data Source: Midwest Regional Climatological Center

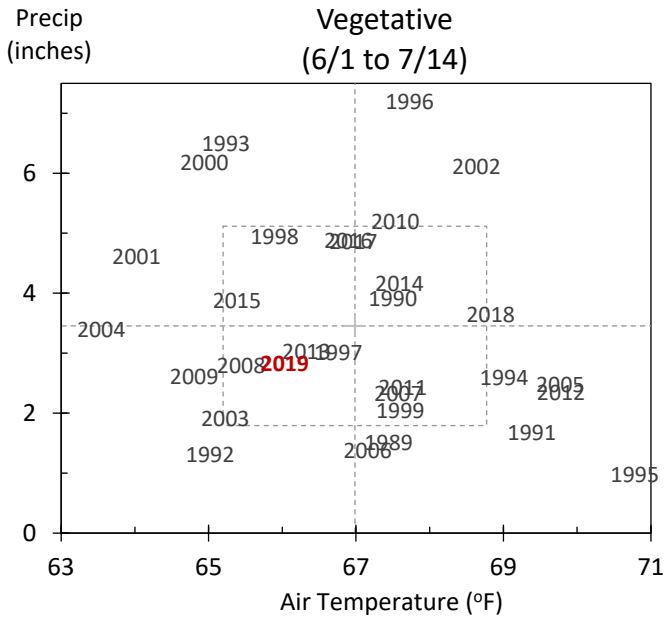
Last updated on 2020-01-28

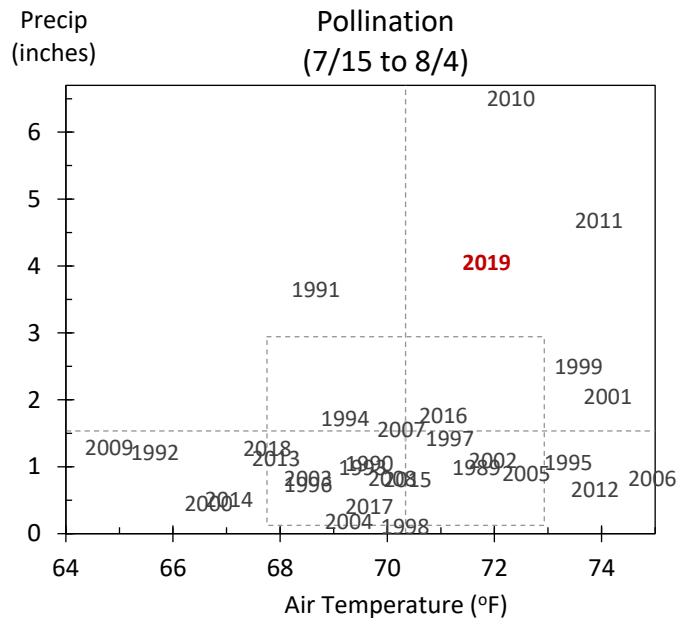
Average Temperature and Precipitation

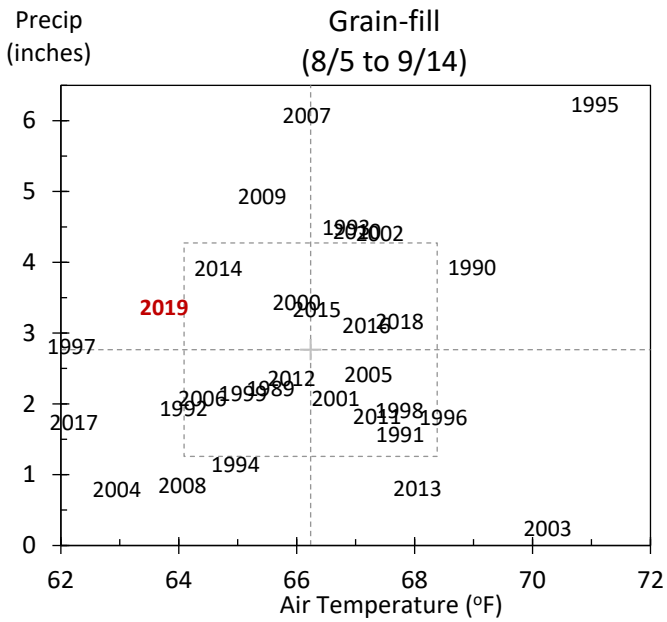
Dashed lines = 30-yr Normal; Dashed box = ± one standard deviation

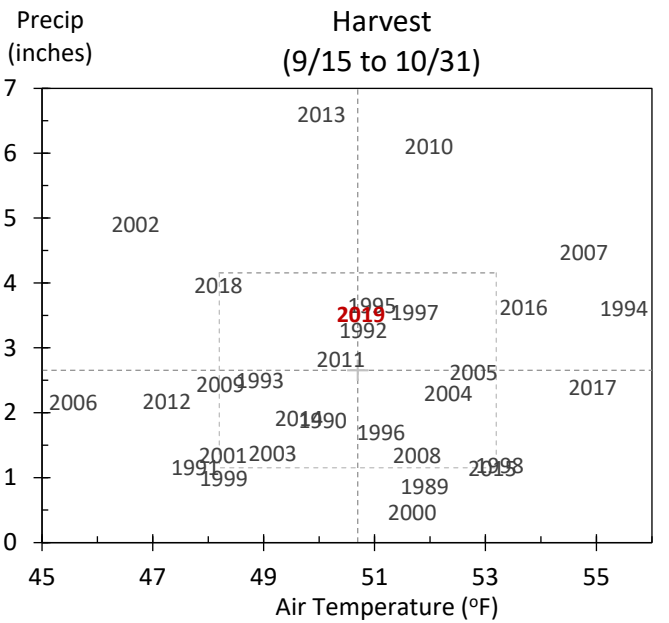












Lauer, UW-ARS Marshfield

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
1990	0.8	0.6	4.2	3.4	3.9	5.5	2.6	6.9	2.9	2.6	1.0	1.9	36.4
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
30-year Average	1.1	1.0	1.7	3.1	4.1	4.7	3.8	4.2	3.9	3.0	1.9	1.4	33.9

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
1990	25	21	34	47	54	67	69	68	62	47	38	19	46
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
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. 30days Weighted Price per Bushel = $3.54 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. 30days. Weighted Price per Bushel = $8.39 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{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. 30days. Weighted Price per Bushel = $4.67 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 '- 89° 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: **Private Silage - Duracade**

Experiment: 01ST **Trial ID:** 6376 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH, Syngenta

Site Information

Field: ARS406 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 5 /1 /19 **pH:** 5.7 **OM (%)** 3.3 **P (ppm)** 30 **K (ppm)** 136

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	35 gal/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /13/19
Post plant	N/A	N/A	N/A
Manure:	Dairy	9258 gal/A	N/A

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

Irrigation: None **Hybrid:** Factor

Planting Date: 5/13/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 9/18/19 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 4

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.25 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 31817 **plants per acre**

Hybrids:

G90138
G90169
G90628
G90771
G91175
G99944
SL5196
X43297

Results: Table 1901-01.

Table: 1901-01. Duracade Corn Silage Evaluation Study.

Arlington, WI - 2019.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
G90138	10.4	68.3	7.7	21.5	39.0	83.6	58.1	30.5	3307	34178
G90169	11.5	68.9	7.4	21.9	39.3	83.4	58.0	29.7	3229	37600
G90628	9.1	67.6	8.3	19.8	36.6	85.5	60.7	31.1	3315	30274
G90771	10.7	69.5	7.9	21.7	39.8	83.6	58.9	27.1	3101	33226
G91175	11.2	71.4	7.6	26.2	45.8	79.9	56.2	20.3	2760	30860
G99944	10.2	66.8	7.5	24.7	42.2	80.5	54.0	26.5	3011	31044
SL5196	9.0	69.2	7.8	21.7	39.4	84.0	59.5	28.7	3216	28808
X43297	8.3	68.7	7.8	24.4	42.5	80.6	54.3	24.4	2901	24292
Mean	10.0	68.8	7.7	22.8	40.6	82.6	57.5	27.3	3105	31285
Probability (%)										
Hybrid (H)	26.4	43.1	0.9	2.8	1.3	1.5	1.8	0.5	0.2	34.0
LSD (0.10)										
Hybrid (H)	NS	NS	0.3	2.9	3.5	2.7	3.3	4.0	214	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6364 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH, Syngenta

Site Information

Field: ARS406 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 5 /1 /19 **pH:** 5.7 **OM (%)** 3.3 **P (ppm)** 30 **K (ppm)** 136

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	123 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /13/19
Post plant	N/A	N/A	N/A
Manure:	Dairy	9258 gal/A	N/A

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

Irrigation: None **Hybrid:** Factor

Planting Date: 5/13/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 9/18/19 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.25 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 35226 **plants per acre**

Hybrids:

G12W66-3122 EZ
G90921
G90926
G91088
G91214
G91406
G91489
G91492
G91591
SK6303
SL6177

Results: Table 1901-02.

Table: 1901-02. Syngenta Corn Silage Evaluation Study.
Arlington, WI - 2019.

	Dry Matter								Milk Per	
Hybrid	Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
G12W66-3122 EZ	10.3	70.6	7.2	22.2	39.0	83.3	57.2	30.6	3252	33542
G90921	11.1	71.8	7.1	25.9	44.1	80.0	54.6	24.5	2932	32590
G90926	10.9	73.2	7.2	23.6	41.3	82.5	57.7	27.7	3144	34190
G91088	12.8	73.2	6.9	24.7	42.8	81.3	56.5	25.8	3004	38560
G91214	10.3	73.3	7.6	23.4	41.1	82.3	57.0	26.9	3078	31812
G91406	10.8	71.3	7.1	24.1	42.1	81.5	56.2	27.2	3093	33477
G91489	10.9	71.9	7.2	23.6	42.1	82.4	58.2	26.3	3074	33406
G91492	10.3	71.0	7.9	23.4	42.2	81.7	56.8	25.4	3023	31352
G91591	11.8	73.8	7.3	24.5	43.2	81.6	57.5	24.3	2958	34844
SK6303	10.8	71.6	7.2	25.1	42.6	80.5	54.0	25.7	2954	32047
SL6177	11.5	71.9	7.0	25.0	43.0	81.6	57.2	26.5	3087	35506
Mean	11.0	72.1	7.2	24.1	42.1	81.7	56.6	26.4	3055	33757
Probability (%)										
Hybrid (H)	58.2	10.9	1.0	55.7	43.1	51.1	27.7	21.4	19.1	86.9
LSD (0.10)										
Hybrid (H)	NS	NS	0.4	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6361 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH, Syngenta

Site Information

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

Soil Test: **Date:** 5 /11/19 **pH:** 6.1 **OM (%)** 3.3 **P (ppm)** 57 **K (ppm)** 175

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	185 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5 /11/19
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: 5/11/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 9/16/19 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.25 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 33182 **plants per acre**

Hybrids:

G12W66-3122 EZ
G90921
G90926
G91088
G91214
G91406
G91489
G91492
G91591
SK6303
SL6177

Results: Table 1901-03.

Table: 1901-03. Syngenta Corn Silage Evaluation Study.
Montfort, WI - 2019.

Hybrid	Dry Matter Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
G12W66-3122 EZ	8.8	72.6	7.4	24.5	42.2	80.0	52.6	27.3	3032	26679
G90921	11.7	70.9	7.8	24.6	42.8	80.3	54.0	26.8	3077	35904
G90926	9.0	75.7	8.0	24.9	42.6	81.1	55.8	27.6	3183	28660
G91088	11.5	72.9	7.5	22.3	39.7	82.9	56.8	28.8	3144	36047
G91214	13.1	71.3	7.6	21.7	38.5	83.4	56.9	30.7	3247	42535
G91406	12.6	70.0	7.0	24.5	42.8	79.5	52.2	26.5	2943	37181
G91489	12.0	70.6	7.3	22.0	39.7	83.4	58.2	30.5	3285	39453
G91492	8.8	72.4	8.7	23.9	42.2	81.5	56.4	24.6	3000	26250
G91591	12.7	73.6	7.6	24.3	42.9	81.3	56.5	24.8	2969	37938
SK6303	9.9	72.5	7.6	26.0	43.7	79.2	52.6	26.4	3030	29737
SL6177	10.7	72.2	7.6	24.0	42.0	81.2	55.3	27.4	3106	33153
Mean	11.0	72.2	7.6	23.9	41.7	81.3	55.2	27.4	3092	33958
Probability (%)										
Hybrid (H)	0.0	25.8	0.3	67.0	58.9	27.6	2.1	31.4	25.1	0.0
LSD (0.10)										
Hybrid (H)	1.6	NS	0.5	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6356 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH, Syngenta

Site Information

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

Soil Test: **Date:** 6 /4 /19 **pH:** 6.6 **OM (%)** 3.0 **P (ppm)** 18 **K (ppm)** 92

Plot Management

Tillage Operations: Chisel Plow Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	180 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	6 /4 /19
Post plant	N/A	N/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: 6/4/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/9/19 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.25 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 33855 **plants per acre**

Hybrids:

G12W66-3122 EZ
G90921
G90926
G91088
G91214
G91406
G91489
G91492
G99944
SK6303
SL6177

Results: Table 1901-04.

Table: 1901-04. Syngenta Corn Silage Evaluation Study.
Fond du Lac, WI - 2017.

Hybrid	Dry Matter Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
G12W66-3122 EZ	10.4	62.3	6.3	23.0	39.9	80.4	51.1	32.0	3079	31956
G90921	10.9	61.9	6.6	24.9	42.2	78.8	49.8	28.5	2913	31719
G90926	9.9	67.7	7.1	25.6	43.6	79.4	52.9	26.7	2999	29684
G91088	10.3	65.6	7.0	23.3	40.8	81.4	54.5	29.1	3090	31897
G91214	10.2	63.7	7.3	22.2	39.6	81.2	52.5	30.7	3127	31796
G91406	11.6	64.2	6.5	22.5	39.2	81.2	52.2	32.5	3180	36960
G91489	10.3	60.5	6.7	25.7	44.1	78.6	51.5	25.7	2781	28597
G91492	10.4	61.6	7.2	22.7	40.1	80.8	52.0	30.9	3040	31727
G99944	9.9	51.7	6.9	23.0	40.3	79.6	49.7	33.2	2954	29262
SK6303	11.3	67.1	6.8	24.1	40.6	80.1	51.1	29.3	2991	34000
SL6177	11.3	61.1	6.7	21.2	37.9	82.7	54.5	33.6	3205	36217
Mean	10.6	62.5	6.8	23.5	40.8	80.4	52.0	30.2	3033	32165
Probability (%)										
Hybrid (H)	17.6	14.4	1.3	12.2	9.5	30.3	20.7	2.1	10.5	8.7
LSD (0.10)										
Hybrid (H)	NS	NS	0.4	NS	3.4	NS	NS	3.7	NS	4635

FIELD EXPERIMENT HISTORY

Title: **Private Silage - Syngenta**

Experiment: 01ST **Trial ID:** 6377 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH, Syngenta

Site Information

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

Soil Test: **Date:** 4 /29/19 **pH:** 5.6 **OM (%)** 3.5 **P (ppm)** 18 **K (ppm)** 163

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:	Analysis	Rate	Date
Preplant	46-0-0	100 lbs/A	N/A
	21-0-0-24S	21 lbs/A	N/A
	18-46-0	18 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	4 /29/19
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Callisto 3.0 oz/A
Me-too-lachlor 1.25 pts/A
Banvel 2.0 oz/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 4/29/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 9/17/19 **Harvest Method:** NH 707

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 23' **Experiment Size:** 0.25 A

Harvest Plot Size: 2.5' x 23' **Harvest Plant Density:** 32259 **plants per acre**

Hybrids:

G12W66-3122 EZ
G90921
G90926
G91088
G91214
G91406
G91489
G91492
G99944
SK6303
SL6177

Results: Table 1901-05.

Table: 1901-05. Syngenta Corn Silage Evaluation Study.
Galesville, WI - 2019.

Hybrid	Dry Matter Yield	Moisture	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	lbs/T	lbs/A
G12W66-3122 EZ	10.3	69.9	7.3	22.5	39.9	81.3	53.4	28.8	3059	31815
G90921	9.9	69.1	7.8	23.3	41.6	81.8	56.5	25.5	2982	29454
G90926	9.6	72.3	7.6	22.1	39.4	83.9	59.2	29.1	3215	31091
G91088	10.6	71.9	7.5	23.2	40.8	82.3	56.6	26.7	3027	32230
G91214	12.2	72.7	7.9	22.7	40.6	82.4	56.6	27.5	3105	38102
G91406	12.0	69.5	7.5	23.9	42.2	80.8	54.6	23.9	2830	33929
G91489	11.7	74.1	7.7	25.9	44.3	80.7	56.5	24.4	3018	35481
G91492	7.6	72.3	8.4	25.1	44.8	79.6	54.4	18.0	2532	19703
G99944	11.9	68.6	7.4	25.6	43.6	79.4	52.7	25.8	2984	35380
SK6303	7.0	68.4	7.6	20.7	37.5	84.4	58.6	31.3	3292	23059
SL6177	11.5	71.5	7.8	23.3	41.3	82.8	58.6	26.9	3133	35904
Mean	10.4	70.9	7.7	23.5	41.5	81.8	56.1	26.2	3016	31468
Probability (%)										
Hybrid (H)	1.5	2.5	2.1	39.7	26.4	19.0	4.0	12.2	10.6	5.9
LSD (0.10)										
Hybrid (H)	2.4	2.8	0.4	NS	NS	NS	3.4	NS	NS	9123

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID:** 6343 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH

Site Information

Field: ARS408 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 5 /13/19 **pH:** 5.7 **OM (%)** 3.3 **P (ppm)** 30 **K (ppm)** 136

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	32-0-0	123	N/A
	Starter :	9-11-30-6S-1Zn	200 lbs/A	5 /13/19
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	9258 gal/A	N/A

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

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/13/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: S: 9/18/19 **Harvest Method:** S: New Holland 707
G: Massey 8XP

Notes: Populations were affected by poor emergence. Plot suffered severe lodging on July 19 and July 20.

Experimental Design

Design: RCB **Replications:** 4

Plot Size Seeded: 20' x 25' **Experiment Size:** 1.0 A

Harvest Plot Size: S: 2.5' x 23'
G: 5' x 23' **Harvest Plant Density:** 29356

Factors/Treatments:

Target Plant Density:	Hybrid:
1) 20000	1) Pioneer P9998AMXT
2) 26000	2) Dekalb DKC58-06RIB
3) 32000	
4) 38000	
5) 44000	
6) 50000	

Results: Tables 1902-01 & 1902-02.

Table: 1902-01. Plant Density and Hybrid Influence on Corn Grain. Arlington, WI - 2019.

Hybrid	Target density	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.54
	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Dekalb DKC58-06RIB		30066	30361	234	28.2	56	16.9	0.3	16.6	716
Pioneer P9998AMXT		28645	29040	220	24.3	55	20.2	0.9	19.3	688
	20000	22396	23472	210	26.5	56	0.2	0.2	0.0	648
	26000	25805	26365	231	26.4	55	1.3	0.2	1.1	715
	32000	25994	28184	245	26.4	56	8.3	0.6	7.7	758
	38000	31912	33540	250	25.9	56	17.6	0.9	16.7	775
	44000	32765	31108	240	25.5	55	39.3	1.7	37.6	746
	50000	37263	35535	186	26.9	55	44.6	0.0	44.6	573
Dekalb DKC58-06RIB	20000	24905	26175	231	28.6	56	0.5	0.5	0.0	706
Dekalb DKC58-06RIB	26000	26894	27313	247	28.2	55	1.1	0.0	1.1	756
Dekalb DKC58-06RIB	32000	26420	27153	254	29.0	56	5.4	1.1	4.2	774
Dekalb DKC58-06RIB	38000	32197	30455	248	27.6	56	15.2	0.3	14.9	760
Dekalb DKC58-06RIB	44000	33333	31487	235	27.2	55	36.6	0.0	36.6	724
Dekalb DKC58-06RIB	50000	36647	39584	190	28.4	56	42.8	0.0	42.8	579
Pioneer P9998AMXT	20000	19886	20770	188	24.4	55	0.0	0.0	0.0	589
Pioneer P9998AMXT	26000	24716	25417	215	24.5	55	1.5	0.4	1.1	674
Pioneer P9998AMXT	32000	25568	29214	236	23.8	55	11.2	0.0	11.2	742
Pioneer P9998AMXT	38000	31628	36626	252	24.2	56	20.1	1.6	18.5	789
Pioneer P9998AMXT	44000	32197	30729	244	23.7	55	42.1	3.5	38.6	769
Pioneer P9998AMXT	50000	37878	31487	182	25.4	55	46.4	0.0	46.4	567
Mean		29356	29701	227	26.3	55	18.6	0.6	18.0	702
Probability(%)										
Hybrid (H)		14.3	41.3	19.3	0.0	26.8	31.5	31.3	41.5	42.4
Plant Density (D)		0.0	1.0	1.6	5.2	85.4	0.0	53.1	0.0	1.5
Plant Density x Hybrid		55.3	22.5	72.2	26.2	63.9	98.8	26.6	99.0	74.2
LSD (0.10)										
Hybrid (H)		NS	NS	NS	0.4	NS	NS	NS	NS	NS
Plant Density (D)		2775	4922	32	0.8	NS	9.5	NS	9.7	102
Plant Density x Hybrid		NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 1902-02. Cutting Height, Plant Density and Hybrid Influence on Silage Preformance. Arlington WI - 2019.

Hybrid	Target density	Density Harvest	Density Ears	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	ears/A	T/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
Dekalb DKC58-06RIB		31122	32218	8.9	69.0	58.5	2.9	1.8	4.7	7.4	20.1	37.4	84.6	58.9	27.3	2990	26669
Pioneer P9998AMXT		29955	31565	8.2	68.1	52.1	2.6	1.8	4.4	7.7	20.2	37.7	85.3	61.1	26.5	3007	24867
	20000	17708	20707	8.0	69.4	61.9	3.1	2.4	5.5	7.7	20.8	38.4	84.6	60.0	25.9	2968	23686
	26000	23674	24621	9.7	68.1	54.4	2.7	1.9	4.6	7.3	20.2	37.5	84.6	59.0	27.1	2976	28719
	32000	29261	29734	10.0	69.0	55.6	2.8	1.6	4.3	7.4	19.6	36.7	85.9	61.7	27.4	3020	30303
	38000	33143	35606	8.7	68.7	50.6	2.5	1.8	4.3	7.3	20.6	37.8	84.6	59.5	27.7	3046	26403
	44000	36645	38257	7.7	68.6	57.5	2.9	1.7	4.6	7.9	19.5	37.5	85.0	60.1	26.1	2956	22971
	50000	42802	42424	7.4	67.4	51.9	2.6	1.5	4.1	7.6	20.2	37.5	84.9	59.7	27.2	3023	22526
Dekalb DKC58-06RIB	20000	18750	21969	8.4	70.2	63.8	3.2	2.3	5.4	7.6	21.5	39.1	83.5	57.9	26.9	3035	25140
Dekalb DKC58-06RIB	26000	24431	25505	10.0	68.9	61.3	3.1	1.9	4.9	7.2	19.8	37.2	84.3	57.6	28.0	2990	29949
Dekalb DKC58-06RIB	32000	30492	28409	10.4	68.3	60.0	3.0	1.6	4.6	7.2	19.3	36.3	85.5	60.1	28.6	3044	31710
Dekalb DKC58-06RIB	38000	34090	34848	9.1	70.4	56.2	2.8	1.8	4.6	7.3	21.5	38.8	83.8	58.3	25.2	2866	26084
Dekalb DKC58-06RIB	44000	36358	40151	8.1	68.5	63.8	3.2	1.8	5.0	7.7	18.4	35.9	85.8	60.4	27.8	3010	24090
Dekalb DKC58-06RIB	50000	42613	42424	7.7	67.7	46.2	2.3	1.5	3.8	7.3	20.1	37.3	84.8	59.3	27.4	2993	23043
Pioneer P9998AMXT	20000	16666	19444	7.7	68.7	60.0	3.0	2.5	5.5	7.7	20.1	37.6	85.8	62.1	24.9	2901	22232
Pioneer P9998AMXT	26000	22916	23737	9.3	67.2	47.5	2.4	1.8	4.2	7.5	20.6	37.8	85.0	60.5	26.3	2961	27489
Pioneer P9998AMXT	32000	28030	31060	9.5	69.6	51.3	2.6	1.6	4.1	7.6	19.9	37.2	86.3	63.3	26.2	2997	28896
Pioneer P9998AMXT	38000	32197	36363	8.3	67.0	45.0	2.3	1.7	4.0	7.4	19.8	36.8	85.5	60.7	30.1	3226	26722
Pioneer P9998AMXT	44000	36931	36363	7.3	68.7	51.2	2.6	1.6	4.1	8.0	20.7	39.1	84.3	59.8	24.4	2902	21852
Pioneer P9998AMXT	50000	42992	42424	7.2	67.1	57.5	2.9	1.5	4.3	8.0	20.4	37.6	85.0	60.2	27.1	3053	22008
Mean		30539	31891	8.6	68.5	55.3	2.8	1.8	4.6	7.5	20.2	37.6	84.9	60.0	26.9	2998	25768
Probability(%)																	
Hybrid (H)		37.7	77.6	28.7	26.3	21.6	21.6	81.6	34.5	4.7	83.5	76.9	31.0	9.2	52.8	80.8	38.6
Plant Density (D)		0.0	1.5	0.7	58.6	30.3	30.3	2.2	2.5	1.3	81.5	90.3	79.9	63.5	92.2	95.5	2.8
Hybrid x Density (H x D)		95.2	93.0	100.0	41.1	16.9	16.9	93.8	44.5	45.0	46.3	46.5	53.1	68.5	36.4	28.5	98.4
LSD (0.10)																	
Hybrid (H)		NS	NS	NS	NS	NS	NS	NS	NS	0.2	NS	NS	NS	2.1	NS	NS	NS
Plant Density (D)		3322	7672	1.3	NS	NS	NS	0.4	0.7	0.3	NS	NS	NS	NS	NS	NS	4563
Hybrid x Density (H x D)		NS	NS	NS	NS	NS	NS	NS	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:** 6425 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 5 /15/19 **pH:** 6.1 **OM (%)** 2.8 **P (ppm)** 67 **K (ppm)** 147

Plot Management

Tillage Operations: Chisel Plow 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 /15/19
	Post plant :	46-0-0	46 lbs/A	N/A
	Manure:	N/A		N/A

Herbicide: Callisto Xtra 26.0 oz/A
Primero 0.5 oz/A
Charger Max 1.0 pt/A

Insecticide: Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** See Factors

Planting Date: 5/15/19 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: S: 10/7/19 **Harvest Method:** S: New Holland 707
G: Massey 8XP

Notes: Populations were effected by poor emergence.

Experimental Design

Design: RCB **Replications:** 4

Plot Size Seeded: 20' x 25' **Experiment Size:** 1.0 A

Harvest Plot Size: S: 2.5' x 23'
G: 5' x 23' **Harvest Plant Density:** 29719

Factors/Treatments:

Target Plant Density:	Hybrid:	Cutting height
1) 20000	1) Jung 42DP419RIB	1) High-cut: 24-inches
2) 26000	2) Pioneer P9998AMXT	2) Low-cut: 6-inches
3) 32000		
4) 38000		
5) 44000		
6) 50000		

Results: Tables 1902-03 & 1902-04.

Table: 1902-03. Plant Density and Hybrid Influence on Corn Grain. Marshfield, WI - 2019.

Hybrid	Target density	Density V5	Density Harvest	Density Ears	Yield	Moisture	Test weight	Lodged Total	Lodged Stalk	Lodged Root	AGR $3.54
	plants/A	plants/A	plants/A	ears/A	bu/A	%	lbs/bu	%	%	%	$/A
Jung 42DP419		31455	26389	26594	161	28.4	51	4.7	4.6	0.1	491
Pioneer P9998AMXT		27983	26894	27288	158	29.9	52	0.3	0.3	0.0	479
	20000	17377	16430	17471	136	29.0	52	2.6	2.6	0.0	414
	26000	21354	21212	21543	149	29.4	51	0.7	0.7	0.0	453
	32000	27130	23627	23769	154	30.1	52	7.9	7.9	0.0	464
	38000	35321	31770	31912	166	29.6	52	1.1	1.1	0.0	504
	44000	38873	32717	32812	170	28.5	51	1.3	1.3	0.0	520
	50000	38257	34090	34138	182	28.6	51	1.7	1.2	0.4	555
Jung 42DP419	20000	18560	16856	17424	142	27.9	52	4.0	4.0	0.0	436
Jung 42DP419	26000	22348	20454	20738	152	28.6	51	1.4	1.4	0.0	462
Jung 42DP419	32000	27556	22253	22538	148	29.8	51	15.5	15.5	0.0	447
Jung 42DP419	38000	38636	33333	33333	170	28.5	52	2.1	2.1	0.0	518
Jung 42DP419	44000	41950	31534	31534	170	27.7	51	2.4	2.4	0.0	522
Jung 42DP419	50000	39677	33901	33996	183	28.2	51	3.1	2.2	0.8	561
Pioneer P9998AMXT	20000	16193	16004	17519	130	30.1	53	1.1	1.1	0.0	392
Pioneer P9998AMXT	26000	20360	21969	22348	147	30.1	51	0.0	0.0	0.0	444
Pioneer P9998AMXT	32000	26704	25000	25000	160	30.4	52	0.4	0.4	0.0	480
Pioneer P9998AMXT	38000	32007	30208	30492	163	30.6	52	0.0	0.0	0.0	491
Pioneer P9998AMXT	44000	35795	33901	34090	170	29.3	51	0.3	0.3	0.0	518
Pioneer P9998AMXT	50000	36837	34280	34280	181	29.1	52	0.3	0.3	0.0	550
Mean		29719	26641	26941	160	29.2	52	2.5	2.5	0.1	485
Probability(%)											
Hybrid (H)		0.3	62.9	50.0	77.8	0.2	16.0	10.6	11.4	32.5	63.4
Plant Density (D)		0.0	0.0	0.0	2.4	34.8	45.5	63.0	60.9	43.3	2.9
Plant Density x Hybrid		57.3	58.4	65.7	96.8	89.8	90.8	66.0	63.9	43.3	96.5
LSD (0.10)											
Hybrid (H)		1850	NS	NS	NS	0.8	NS	NS	NS	NS	NS
Plant Density (D)		3204	3038	2982	23	NS	NS	NS	NS	NS	72
Plant Density x Hybrid		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 1902-04. Cutting Height, Plant Density and Hybrid Influence on Silage Preformance.

Marshfield, WI - 2019. (page 1 of 2)

			Whole Plant															
	Target	Cutting	Density		Dry Matter		Kernel	KMR	SMR	VMR	Crude			*In Vitro*			Milk per	
Hybrid	density	height	V5	Harvest	Yield	Moist	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
	plants/A	inches	plants/A	plants/A	T/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
Jung 42DP419			31846	27886	7.3	63.6	37.7	1.9	0.5	2.4	5.4	20.9	39.0	83.5	58.0	29.8	3039	22147
Pioneer P9998AMXT			29387	25694	6.8	67.4	45.7	2.3	1.3	3.6	5.6	20.3	38.3	85.3	61.8	28.6	3056	20878
	20000		17789	17122	5.9	66.7	44.1	2.2	1.4	3.6	6.2	19.8	37.8	85.1	60.9	29.0	3072	18122
	26000		23769	21022	6.4	66.6	39.4	2.0	0.9	2.9	5.9	20.9	39.0	84.3	59.8	27.9	3013	19142
	32000		28030	24668	6.6	65.1	42.5	2.1	0.8	2.9	5.1	20.5	38.7	84.4	60.0	29.5	3039	20247
	38000		33714	29036	7.5	64.3	46.3	2.3	0.8	3.1	5.2	20.3	38.2	84.8	60.4	30.4	3089	23032
	44000		37499	32954	8.0	64.6	43.0	2.1	0.7	2.8	5.2	20.0	37.8	84.8	60.0	30.8	3106	25002
	50000		42897	35937	7.9	65.6	35.0	1.7	1.0	2.8	5.2	22.1	40.2	83.1	58.1	27.9	2967	23530
		6	30461	25477	7.0	67.3	41.6	2.1	0.9	3.0	5.0	22.1	40.4	83.0	58.1	27.4	2937	20523
		24	30772	28103	7.1	63.6	41.7	2.1	0.9	3.0	6.0	19.1	36.8	85.8	61.6	31.1	3158	22502
Jung 42DP419	20000		18344	17483	5.9	64.5	42.5	2.1	0.5	2.7	5.9	20.5	38.7	83.5	57.7	28.9	2985	17701
Jung 42DP419	26000		25189	23106	6.9	64.6	38.8	1.9	0.6	2.5	6.0	21.3	39.3	83.4	57.7	28.7	3034	20772
Jung 42DP419	32000		29261	25094	6.8	63.3	35.0	1.8	0.5	2.3	5.2	21.0	39.2	83.5	58.1	29.8	3037	20848
Jung 42DP419	38000		33717	30042	8.0	61.8	41.3	2.1	0.5	2.6	4.9	19.7	37.5	84.6	59.4	32.7	3141	24969
Jung 42DP419	44000		40909	35037	8.0	63.2	38.5	1.9	0.3	2.3	5.1	20.5	38.3	83.9	58.1	31.0	3070	24841
Jung 42DP419	50000		43655	36553	8.0	64.0	30.0	1.5	0.8	2.3	5.3	22.4	40.8	82.4	57.0	28.0	2967	23753
Pioneer P9998AMXT	20000		17235	16761	5.9	68.9	45.6	2.3	2.2	4.5	6.5	19.0	36.9	86.8	64.2	29.1	3158	18544
Pioneer P9998AMXT	26000		22348	18939	5.8	68.6	40.0	2.0	1.3	3.3	5.9	20.6	38.7	85.3	62.0	27.1	2992	17512
Pioneer P9998AMXT	32000		26799	24242	6.4	66.8	50.0	2.5	1.2	3.6	5.1	20.0	38.2	85.4	61.9	29.2	3042	19647
Pioneer P9998AMXT	38000		33712	28030	7.0	66.8	51.2	2.6	1.1	3.6	5.5	20.8	38.8	85.0	61.5	28.2	3037	21095
Pioneer P9998AMXT	44000		34090	30871	7.9	66.0	47.5	2.4	1.0	3.3	5.4	19.6	37.3	85.8	61.9	30.5	3143	25164
Pioneer P9998AMXT	50000		42140	35321	7.8	67.3	40.0	2.0	1.3	3.3	5.1	21.7	39.7	83.7	59.2	27.8	2967	23307
Jung 42DP419		6	31472	26680	7.1	66.2	37.7	1.9	0.5	2.4	4.9	22.8	41.3	81.8	56.0	27.4	2922	20924
Jung 42DP419		24	32219	29091	7.4	61.0	37.7	1.9	0.5	2.4	5.8	19.0	36.6	85.3	60.0	32.3	3156	23371
Pioneer P9998AMXT		6	29450	24274	6.8	68.5	45.6	2.3	1.3	3.6	5.1	21.5	39.6	84.3	60.3	27.3	2953	20123
Pioneer P9998AMXT		24	29324	27115	6.8	66.3	45.8	2.3	1.4	3.6	6.1	19.1	36.9	86.4	63.2	29.9	3160	21633
	20000	6	17235	16098	5.9	68.4	43.7	2.2	1.4	3.5	5.7	21.2	39.5	83.6	58.8	27.4	2963	17510
	20000	24	18344	18145	5.9	64.9	44.4	2.2	1.4	3.6	6.7	18.3	36.2	86.6	63.0	30.5	3180	18734
	26000	6	23674	20360	6.7	67.3	39.4	2.0	0.9	2.9	5.4	21.7	39.7	83.6	58.8	27.3	2948	19882
	26000	24	23863	21685	6.0	65.9	39.4	2.0	0.9	2.9	6.4	20.2	38.3	85.0	60.8	28.5	3079	18401
	32000	6	28030	22822	6.1	67.6	42.5	2.1	0.8	2.9	4.6	22.5	41.1	82.8	58.2	26.9	2902	17718
	32000	24	28030	26515	7.2	62.5	42.5	2.1	0.9	3.0	5.7	18.6	36.2	86.1	61.8	32.1	3176	22777
	38000	6	33527	28716	7.4	66.5	46.3	2.3	0.7	3.1	4.7	22.7	41.3	82.5	57.6	27.4	2943	21594
	38000	24	33901	29356	7.5	62.2	46.2	2.3	0.8	3.2	5.7	17.8	35.0	87.1	63.2	33.5	3235	24471
	44000	6	37310	30681	7.5	67.1	43.0	2.1	0.6	2.8	4.7	22.0	40.2	83.4	58.7	27.9	2964	22480
	44000	24	37689	35227	8.5	62.2	43.0	2.1	0.7	2.8	5.7	18.1	35.4	86.3	61.2	33.6	3249	27525
	50000	6	42992	34185	8.2	67.1	35.0	1.7	1.0	2.8	4.9	22.8	40.9	82.3	56.7	27.2	2905	23955
	50000	24	42802	37689	7.6	64.1	35.0	1.7	1.0	2.8	5.4	21.3	39.6	83.9	59.5	28.6	3029	23104

continued

Table: 1902-04. Cutting Height, Plant Density and Hybrid Influence on Silage Preformance.

(continued) **Marshfield, WI - 2019.** **(page 2 of 2)**

			Whole Plant														
	Target	Cutting	Density		Dry Matter		Kernel	KMR	SMR	VMR	Crude			*In Vitro*			Milk per
Hybrid	density	height	V3	Harvest	Yield	Moist	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
	plants/A	inches	plants/A	plants/A	T/A	%	%				%	%	%	%	%	%	lbs/T	lbs/A
Jung 42DP419	20000	6	17803	16477	5.6	67.7	42.5	2.1	0.5	2.7	5.2	23.1	42.1	81.0	54.8	25.3	2788	15862
Jung 42DP419	20000	24	18885	18488	6.2	61.2	42.5	2.1	0.5	2.7	6.6	17.9	35.4	86.0	60.5	32.4	3182	19540
Jung 42DP419	26000	6	25000	21969	7.3	65.7	38.8	1.9	0.6	2.5	5.6	22.2	40.3	82.5	56.6	27.3	2935	21399
Jung 42DP419	26000	24	25378	24242	6.4	63.5	38.8	1.9	0.6	2.5	6.3	20.4	38.2	84.3	58.8	30.1	3133	20144
Jung 42DP419	32000	6	28598	22348	6.4	66.2	35.0	1.8	0.5	2.3	4.8	23.0	41.7	81.5	55.7	27.2	2917	18823
Jung 42DP419	32000	24	29924	27841	7.3	60.5	35.0	1.8	0.5	2.3	5.6	19.0	36.7	85.5	60.5	32.5	3156	22873
Jung 42DP419	38000	6	33722	29781	7.6	65.2	41.3	2.1	0.5	2.5	4.4	22.9	41.8	81.7	56.3	28.3	2983	22381
Jung 42DP419	38000	24	33712	30303	8.3	58.5	41.2	2.1	0.5	2.6	5.4	16.6	33.3	87.5	62.5	37.0	3298	27557
Jung 42DP419	44000	6	40340	34280	7.2	66.8	38.5	1.9	0.3	2.3	4.6	22.9	41.0	82.3	56.8	27.8	2942	21310
Jung 42DP419	44000	24	41477	35795	8.9	59.7	38.5	1.9	0.3	2.3	5.5	18.2	35.7	85.5	59.4	34.3	3198	28372
Jung 42DP419	50000	6	43371	35227	8.7	65.3	30.0	1.5	0.8	2.3	5.0	22.6	41.0	81.8	55.6	28.3	2964	25765
Jung 42DP419	50000	24	43939	37878	7.3	62.7	30.0	1.5	0.7	2.3	5.5	22.2	40.7	83.0	58.3	27.7	2969	21740
Pioneer P9998AMXT	20000	6	16666	15719	6.1	69.1	45.0	2.3	2.2	4.4	6.2	19.3	36.9	86.3	62.8	29.6	3138	19158
Pioneer P9998AMXT	20000	24	17803	17803	5.6	68.7	46.3	2.3	2.2	4.5	6.9	18.8	37.0	87.3	65.6	28.6	3178	17929
Pioneer P9998AMXT	26000	6	22348	18750	6.2	68.8	40.0	2.0	1.3	3.3	5.3	21.2	39.1	84.8	61.1	27.4	2961	18364
Pioneer P9998AMXT	26000	24	22348	19129	5.5	68.4	40.0	2.0	1.3	3.3	6.5	20.0	38.3	85.8	62.8	26.9	3024	16659
Pioneer P9998AMXT	32000	6	27462	23295	5.8	69.0	50.0	2.5	1.1	3.6	4.3	21.9	40.5	84.0	60.7	26.6	2887	16613
Pioneer P9998AMXT	32000	24	26136	25189	7.1	64.5	50.0	2.5	1.2	3.7	5.8	18.2	35.8	86.8	63.2	31.8	3197	22680
Pioneer P9998AMXT	38000	6	33333	27651	7.2	67.8	51.2	2.6	1.0	3.6	4.9	22.5	40.8	83.3	59.0	26.5	2902	20806
Pioneer P9998AMXT	38000	24	34090	28409	6.7	65.9	51.2	2.6	1.2	3.7	6.0	19.1	36.8	86.8	64.0	29.9	3171	21385
Pioneer P9998AMXT	44000	6	34280	27083	7.8	67.4	47.5	2.4	0.9	3.3	4.8	21.2	39.4	84.5	60.6	28.0	2985	23649
Pioneer P9998AMXT	44000	24	33901	34659	8.1	64.6	47.5	2.4	1.0	3.3	6.0	17.9	35.2	87.0	63.1	33.0	3300	26678
Pioneer P9998AMXT	50000	6	42613	33143	7.7	69.0	40.0	2.0	1.2	3.2	4.8	22.9	40.9	82.8	57.8	26.1	2845	22145
Pioneer P9998AMXT	50000	24	41666	37499	7.9	65.5	40.0	2.0	1.3	3.3	5.4	20.5	38.5	84.7	60.6	29.4	3089	24468
Mean			30616	26790	7.0	65.5	41.7	2.1	0.9	3.0	5.5	20.6	38.6	84.4	59.9	29.2	3048	21513
Probability(%)																		
Hybrid (H)			3.5	11.6	25.3	0.6	8.4	8.4	2.7	2.8	30.0	19.7	25.3	1.3	0.5	18.8	65.9	33.1
Plant Density (D)			0.0	0.0	0.0	0.5	40.6	40.6	6.3	36.5	0.2	1.7	8.1	2.2	1.2	10.6	25.3	0.0
Hybrid x Density (H x D)			9.6	79.9	76.9	61.7	82.8	82.8	13.5	80.5	51.8	49.0	66.4	33.1	6.0	47.5	34.5	53.1
Cutting Height (C)			60.7	0.1	52.5	0.0	62.3	62.3	11.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
H x C			99.2	55.8	13.7	7.6	92.8	92.8	47.7	64.7	40.6	5.4	5.0	9.2	18.0	17.6	58.2	10.5
D x C			47.0	75.7	63.8	0.1	60.6	60.6	10.1	7.1	31.4	8.6	5.8	4.7	17.2	10.2	70.5	57.5
D x H x C			96.9	44.0	39.5	11.8	93.1	93.1	90.3	94.1	31.9	18.6	18.6	45.1	87.8	21.7	26.5	31.4
LSD (0.10)																		
Hybrid (H)			1572	NS	NS	1.3	7.4	0.4	0.4	0.7	NS	NS	NS	0.8	1.2	NS	NS	NS
Plant Density (D)			1964	2817	0.7	1.2	NS	NS	0.4	NS	0.5	1.1	1.5	1.0	1.2	NS	NS	2491
Hybrid x Density (H x D)			2777	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.8	NS	NS	NS
Cutting Height (C)			NS	1164	NS	0.7	NS	NS	NS	0.0	0.1	0.6	0.9	0.6	0.7	1.2	61	1397
H x C			NS	NS	NS	1.6	NS	NS	NS	NS	NS	1.5	2.1	1.4	NS	NS	NS	NS
D x C			NS	NS	NS	1.1	NS	NS	NS	0.3	NS	0.9	1.2	0.8	NS	NS	NS	NS
D x H x C			NS	NS	NS	NS	NS	NS	NS	NS	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:** 6342 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH

Site Information

Field: ARS358 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/1 /16 **pH:** 6.1 **OM (%)** 2.9 **P (ppm)** 27 **K (ppm)** 161

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	32-0-0	123 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:11/15/19

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

Notes:

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: 32960 **plants per acre**

Factors/Treatments:

Planting Date:
1) April 22
2) May 03
3) May 14
4) May 31
5) June 14

Hybrid:
1) Pioneer P9998AMXT
2) DeKalb DKC58-06RIB

Harvest Date:
1) September 06
2) September 24

Results: Tables 1903-01, 1903-02 & 1903-03.

Table: 1903-01. Planting Date Influence on Corn Grain Performance.
Arlington, WI - 2019.

Planting date	Hybrid	Grain													
		Harvest population	Yield	Moisture	Test weight	Lodged			AGI $3.54	Silking date	Early dent	Kernel Milk			Black layer
						Total	Stalk	Root				75%	50%	25%	
		plants/A	bu/A	%	lbs/bu	%	%	%	$/A	doy	doy	doy	doy	doy	doy
	DKC58-06RIB	32089	210	33.5	53	14.5	6.6	7.9	622	214	253	261	270	279	286
	P9998AMXT	33832	212	26.1	53	10.8	5.4	5.4	658	213	247	256	265	271	282
April 22		30710	228	27.0	55	17.3	4.5	12.8	701	207	241	249	258	271	284
May 03		31291	217	26.9	54	8.0	2.8	5.2	670	208	243	251	261	272	283
May 14		33469	218	28.8	54	17.0	4.9	12.2	664	210	246	255	263	275	285
May 31		34122	222	30.1	53	6.7	4.1	2.6	670	216	255	262	271	283	-
June 14		35211	171	36.4	51	14.3	13.7	0.6	495	226	267	276	286	-	-
April 22	DKC58-06RIB	29330	235	30.5	54	17.9	2.6	15.3	708	207	244	252	261	276	286
May 03	DKC58-06RIB	29476	209	30.0	54	6.9	2.5	4.4	633	209	246	254	266	278	285
May 14	DKC58-06RIB	32960	219	32.2	54	23.6	8.0	15.6	652	211	248	256	266	279	286
May 31	DKC58-06RIB	33396	221	33.1	53	9.2	5.7	3.5	653	216	258	264	272	284	-
June 14	DKC58-06RIB	35284	166	41.9	52	14.9	14.1	0.8	461	226	270	278	288	-	-
April 22	P9998AMXT	32089	220	23.6	56	16.7	6.4	10.3	694	207	239	247	255	265	281
May 03	P9998AMXT	33106	225	23.8	55	9.1	3.2	6.0	706	208	240	249	257	267	281
May 14	P9998AMXT	33977	217	25.4	54	10.4	1.7	8.7	675	210	243	254	261	271	284
May 31	P9998AMXT	34848	223	27.0	53	4.2	2.5	1.7	686	216	251	260	271	281	-
June 14	P9998AMXT	35138	176	30.9	49	13.8	13.4	0.4	530	225	265	274	284	-	-
Mean		32960	211	29.8	53	12.7	6.0	6.7	640	213	250	259	268	275	284
Probability(%)															
Hybrid(H)		5.1	75.5	0.1	79.5	32.9	59.6	37.7	18.8	8.5	0.5	2.3	6.0	1.6	36.1
PlantDate(P)		0.0	0.0	0.0	0.0	4.9	0.1	1.1	0.0	0.0	0.0	0.0	0.0	0.1	80.1
HxP		17.0	56.0	9.3	0.1	44.3	33.9	81.5	60.7	42.1	82.2	87.2	20.3	24.6	88.1
LSD (0.10)															
Hybrid(H)		1301	NS	1.4	NS	NS	NS	NS	NS	1	2	2	4	4	NS
PlantDate(P)		1350	17	1.6	1	7.3	4.3	6.6	53	1	2	3	3	4	NS
HxP		NS	NS	2	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 1903-02. Planting Date and Harvest Timing Influence on Corn Silage Performance.

Arlington, WI - 2019.

				Whole Plant														
	Planting	Harvest	Plant	Dry Matter		Plant	Kernel	KMR	SMR	VMR	Crude	*In Vitro*					Milk per	
Hybrid	date	date	density	yield	Moisture	height	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
			plants/A	tons/A	%	inches	%				%	%	%	%	%	%	lbs/T	lbs/A
DKC58-06RIB			32046	8.8	73.5	108	74	3.7	3.0	6.7	7.5	22.5	41.2	83.3	59.5	22.7	2835	25221
P9998AMXT			34470	8.8	72.9	105	69	3.4	2.3	5.8	7.5	22.2	40.3	84.4	61.4	24.6	2983	26746
	April 22		31254	9.5	70.6	101	58	2.9	2.3	5.2	7.4	20.1	37.5	85.1	60.2	28.1	3093	29718
	May 03		32307	9.1	71.8	104	60	3.0	2.0	5.0	7.2	21.0	38.8	84.4	59.8	26.5	3001	27554
	May 14		32706	8.8	71.7	102	68	3.4	2.4	5.8	7.3	20.3	38.1	85.2	61.1	27.1	3055	26808
	May 31		35247	9.1	73.9	111	80	4.0	2.9	6.9	7.5	22.4	41.0	84.1	61.4	23.9	2966	27213
	June 14		34775	7.5	78.0	113	92	4.6	3.6	8.3	8.0	27.9	48.5	80.4	59.7	12.6	2431	18625
		September 6	33106	8.3	75.4	105	85	4.2	3.4	7.6	7.8	24.0	43.2	83.2	61.2	18.9	2691	22822
		September 24	33411	9.3	71.0	107	58	2.9	1.9	4.8	7.2	20.7	38.4	84.5	59.7	28.4	3128	29145
DKC58-06RIB	April 22		29330	9.3	70.6	103	61	3.1	2.6	5.7	7.4	19.5	37.1	85.2	60.0	28.2	3072	28721
DKC58-06RIB	May 03		30710	9.0	72.1	105	65	3.3	2.5	5.8	7.2	20.9	38.8	84.1	58.9	25.5	2906	26474
DKC58-06RIB	May 14		30928	8.9	71.8	103	71	3.5	2.7	6.3	7.2	20.4	38.4	84.6	59.9	26.7	3005	26919
DKC58-06RIB	May 31		34630	9.0	74.5	112	81	4.0	3.1	7.1	7.6	23.3	42.5	83.0	60.0	21.7	2830	25707
DKC58-06RIB	June 14		34630	7.5	78.3	114	94	4.7	4.0	8.7	8.0	28.4	49.3	79.6	58.8	11.6	2363	18284
P9998AMXT	April 22		33178	9.8	70.6	98	54	2.7	2.0	4.6	7.4	20.6	37.9	85.0	60.4	28.1	3115	30715
P9998AMXT	May 03		33904	9.2	71.5	102	54	2.7	1.6	4.3	7.2	21.2	38.7	84.7	60.6	27.5	3096	28635
P9998AMXT	May 14		34485	8.6	71.6	101	64	3.2	2.1	5.3	7.4	20.2	37.8	85.7	62.3	27.6	3106	26697
P9998AMXT	May 31		35864	9.2	73.3	111	80	4.0	2.7	6.7	7.5	21.5	39.5	85.3	62.9	26.1	3101	28719
P9998AMXT	June 14		34921	7.4	77.6	112	91	4.5	3.3	7.9	8.0	27.5	47.7	81.2	60.6	13.7	2498	18965
DKC58-06RIB		September 6	32234	8.2	75.6	106	85	4.3	3.7	8.0	7.8	24.4	44.0	82.5	60.5	17.3	2585	21611
DKC58-06RIB		September 24	31857	9.3	71.3	109	63	3.2	2.2	5.4	7.1	20.6	38.4	84.1	58.5	28.2	3086	28831
P9998AMXT		September 6	33977	8.5	75.1	104	84	4.2	3.1	7.3	7.7	23.5	42.3	83.8	61.9	20.6	2796	24033
P9998AMXT		September 24	34964	9.2	70.7	106	53	2.7	1.6	4.2	7.2	20.9	38.4	84.9	60.9	28.5	3170	29459
	April 22	September 6	30855	9.1	72.8	97	77	3.8	3.4	7.2	7.7	20.9	38.8	85.2	61.9	25.3	2985	27176
	April 22	September 24	31654	10.0	68.3	105	38	1.9	1.2	3.1	7.1	19.3	36.2	85.0	58.6	31.0	3202	32260
	May 03	September 6	31436	9.0	73.4	104	76	3.8	2.8	6.7	7.4	21.3	39.6	84.5	60.9	24.7	2938	26661
	May 03	September 24	33178	9.2	70.2	103	44	2.2	1.2	3.4	6.9	20.8	38.0	84.3	58.6	28.3	3064	28448
	May 14	September 6	33614	8.7	73.6	103	82	4.1	2.9	6.9	7.5	21.0	39.1	85.2	62.1	24.6	2942	25659
	May 14	September 24	31799	8.8	69.8	101	53	2.7	2.0	4.6	7.1	19.6	37.0	85.2	60.1	29.7	3169	27956
	May 31	September 6	34267	8.2	76.5	110	91	4.6	3.7	8.3	7.9	24.9	44.4	82.9	61.8	17.5	2659	21931
	May 31	September 24	36227	9.9	71.3	113	69	3.5	2.0	5.5	7.2	19.9	37.6	85.3	61.1	30.3	3272	32496
	June 14	September 6	35356	6.6	80.6	113	98	4.9	4.2	9.1	8.4	31.7	54.0	78.0	59.3	2.8	1929	12682
	June 14	September 24	34195	8.4	75.3	114	87	4.3	3.1	7.5	7.5	24.2	43.1	82.8	60.1	22.5	2932	24567

continued

Table: 1903-02. Planting Date and Harvest Timing Influence on Corn Silage Performance.

continued. **Arlington, WI - 2019.**

				Whole Plant													
	Planting	Harvest	Plant	Dry Matter		Plant	Kernel	KMR	SMR	VMR	Crude			*In Vitro*			Milk per
Hybrid	date	date	density	yield	Moisture	height	milk	0-5	0-5	0-10	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
			plants/A	tons/A	%	inches	%				%	%	%	%	%	%	lbs/T	lbs/A
DKC58-06RIB	April 22	September 6	29476	8.8	72.8	99	79	3.9	3.7	7.7	7.7	20.7	38.9	85.1	61.8	24.2	2906	25583
DKC58-06RIB	April 22	September 24	29185	9.8	68.4	108	44	2.2	1.5	3.7	7.1	18.3	35.3	85.2	58.2	32.1	3238	31859
DKC58-06RIB	May 03	September 6	29621	8.7	73.9	104	78	3.9	3.3	7.2	7.6	21.8	40.6	83.8	60.1	22.6	2811	24584
DKC58-06RIB	May 03	September 24	31799	9.3	70.4	107	53	2.7	1.7	4.4	6.9	19.9	37.0	84.4	57.8	28.4	3002	28364
DKC58-06RIB	May 14	September 6	33106	8.8	73.5	105	81	4.1	3.2	7.3	7.5	21.3	39.7	84.7	61.6	23.4	2869	25335
DKC58-06RIB	May 14	September 24	28750	9.1	70.1	101	60	3.0	2.3	5.3	6.9	19.5	37.0	84.5	58.2	30.0	3141	28503
DKC58-06RIB	May 31	September 6	33541	8.2	76.6	110	91	4.6	3.9	8.4	8.0	25.4	45.2	82.3	61.2	15.6	2540	20958
DKC58-06RIB	May 31	September 24	35719	9.8	72.5	113	70	3.5	2.3	5.8	7.1	21.3	39.8	83.6	58.7	27.7	3120	30457
DKC58-06RIB	June 14	September 6	35429	6.4	81.4	114	98	4.9	4.5	9.4	8.4	32.9	55.7	76.6	58.0	0.5	1799	11593
DKC58-06RIB	June 14	September 24	33832	8.5	75.2	114	90	4.5	3.4	7.9	7.5	23.9	42.9	82.7	59.7	22.7	2927	24975
P9998AMXT	April 22	September 6	32234	9.4	72.9	94	75	3.8	3.0	6.8	7.7	21.0	38.7	85.2	61.9	26.3	3063	28769
P9998AMXT	April 22	September 24	34122	10.2	68.3	102	33	1.6	0.9	2.5	7.1	20.2	37.2	84.7	59.0	29.9	3167	32661
P9998AMXT	May 03	September 6	33251	9.4	72.9	104	75	3.8	2.4	6.2	7.3	20.7	38.5	85.3	61.8	26.8	3066	28737
P9998AMXT	May 03	September 24	34558	9.1	70.0	99	34	1.7	0.7	2.4	7.0	21.6	38.9	84.2	59.4	28.3	3127	28532
P9998AMXT	May 14	September 6	34122	8.6	73.6	101	83	4.1	2.6	6.6	7.4	20.7	38.5	85.6	62.7	25.8	3015	25984
P9998AMXT	May 14	September 24	34848	8.5	69.6	101	46	2.3	1.7	4.0	7.3	19.7	37.1	85.9	61.9	29.3	3196	27409
P9998AMXT	May 31	September 6	34993	8.2	76.4	110	91	4.6	3.6	8.2	7.8	24.5	43.7	83.6	62.3	19.3	2778	22904
P9998AMXT	May 31	September 24	36736	10.1	70.1	112	69	3.4	1.7	5.2	7.2	18.5	35.4	87.0	63.5	32.9	3424	34535
P9998AMXT	June 14	September 6	35284	6.7	79.8	112	98	4.9	3.8	8.7	8.4	30.5	52.2	79.4	60.6	5.0	2059	13770
P9998AMXT	June 14	September 24	34558	8.2	75.5	113	84	4.2	2.8	7.0	7.5	24.4	43.3	82.9	60.6	22.3	2937	24160
Mean			33258	8.8	73.2	106	71	3.6	2.7	6.2	7.5	22.3	40.8	83.8	60.4	23.7	2909	25984
Probability(%)																		
Hybrid (H)			0.7	73.6	18.2	14.7	4.5	4.5	4.4	1.2	99.0	49.4	21.8	5.4	2.9	5.7	2.3	19.0
PlantDate(P)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.0	0.0
HxP			1.5	80.1	79.9	83.3	39.0	39.0	75.9	36.7	92.9	15.2	16.3	25.0	50.9	19.9	30.8	80.4
HarvDate(D)			40.2	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HxD			6.7	37.6	87.0	66.6	1.0	1.0	82.6	12.4	10.3	10.0	9.4	51.0	16.8	1.7	7.7	29.1
PxD			0.6	1.3	16.3	2.2	0.0	0.0	2.7	0.0	19.4	0.0	0.0	0.0	1.0	0.0	0.0	0.1
HxPxD			9.0	88.5	34.0	32.2	58.7	58.7	97.0	93.1	83.5	25.2	20.2	18.1	16.7	45.0	62.0	81.1
LSD(0.10)																		
Hybrid (H)			845	NS	NS	NS	4	0.2	0.5	0.4	NS	NS	NS	0.8	1.1	1.5	81	NS
PlantDate(P)			971	0.6	0.9	4	5	0.2	0.3	0.4	0.2	1.0	1.3	1.0	1.3	1.6	93	2445
HxP			1373	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HarvDate(D)			NS	0.3	0.5	2	3	0.1	0.2	0.3	0.1	0.6	0.8	0.6	0.6	1.0	59	1416
HxD			862	NS	NS	NS	4	0.2	NS	NS	NS	NS	1.2	NS	NS	1.5	83	NS
PxD			1362	0.8	NS	4	7	0.3	0.5	0.6	NS	1.4	1.9	1.3	1.6	2.3	131	3286
HxPxD			1927	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 1903-03. Planting Date and Hybrid Influence on Corn Leaf Development. Arlington, WI - 2019.

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
		156	2.3	3.5	4.2	4.7
		169	4.2	5.9	6.9	11.3
		184	6.5	9.0	10.2	27.3
		197	10.8	12.0	14.8	67.1
		211	16.6	16.0	18.1	94.9
		225	18.9	17.5	18.9	106.1
	April 22		11.3	12.1	13.5	56.8
	May 03		10.9	11.8	13.3	57.7
	May 14		10.4	11.1	12.7	55.3
	May 31		10.4	11.0	12.8	57.9
	June 14		9.5	10.0	12.0	54.9
	April 22	156	2.8	4.0	4.6	4.9
	April 22	169	5.1	6.9	8.0	13.3
	April 22	184	8.3	11.5	12.9	36.5
	April 22	197	13.4	14.9	17.1	84.0
	April 22	211	18.7	17.4	18.9	100.9
	April 22	225	19.3	18.0	19.3	101.3
	May 03	156	2.1	3.6	4.2	5.0
	May 03	169	4.7	6.6	7.5	13.3
	May 03	184	8.1	10.9	12.6	38.4
	May 03	197	12.8	14.1	16.9	82.1
	May 03	211	18.5	17.4	19.3	104.1
	May 03	225	19.4	18.5	19.4	103.6
	May 14	156	2.0	3.0	3.8	4.1
	May 14	169	4.3	6.2	7.1	11.6
	May 14	184	7.3	9.7	11.0	32.3
	May 14	197	11.8	12.8	16.1	78.8
	May 14	211	18.1	16.7	19.1	102.6
	May 14	225	19.0	18.3	19.0	102.4
	May 31	156	-	-	-	-
	May 31	169	2.7	3.9	4.9	7.1
	May 31	184	5.6	7.9	8.8	19.2
	May 31	197	9.3	10.1	13.7	57.1
	May 31	211	15.9	16.1	17.8	95.3
	May 31	225	18.7	17.1	18.7	110.9
	June 14	156	-	-	-	-
	June 14	169	-	-	-	-
	June 14	184	2.9	4.4	5.2	7.6
	June 14	197	6.8	8.0	10.4	33.6
	June 14	211	10.9	12.1	14.7	68.3
	June 14	225	17.9	15.6	17.9	113.1

Continued

Table: 1903-03. Planting Date and Hybrid Influence on Corn Leaf Development.
(continued) **Arlington, WI - 2019.**

			Leaf Development			
Hybrid	Date of planting	Observation date	Leaf collars	Hail adjusters method	Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
DKC58-06RIB			10.8	11.6	13.3	56.9
P9998AMXT			10.4	11.1	12.6	56.3
DKC58-06RIB		156	2.4	3.5	4.0	4.8
DKC58-06RIB		169	4.3	6.0	6.9	10.6
DKC58-06RIB		184	6.7	9.2	10.5	27.0
DKC58-06RIB		197	10.9	12.05	15.4	68.3
DKC58-06RIB		211	16.8	16.7	18.7	96.6
DKC58-06RIB		225	19.6	18.3	19.6	107.2
P9998AMXT		156	2.3	3.5	4.4	4.6
P9998AMXT		169	4.1	5.8	6.8	12.1
P9998AMXT		184	6.4	8.8	10.0	27.5
P9998AMXT		197	10.7	12.0	14.3	66.0
P9998AMXT		211	16.3	15.5	17.4	93.3
P9998AMXT		225	18.3	16.8	18.3	105.0
DKC58-06RIB	April 22		11.4	12.3	13.7	56.6
DKC58-06RIB	June 14		9.7	10.4	12.5	56.3
DKC58-06RIB	May 03		11.1	12.1	13.7	57.9
DKC58-06RIB	May 14		10.6	11.4	13.0	55.4
DKC58-06RIB	May 31		10.6	11.2	13.1	58.4
P9998AMXT	April 22		11.1	12.0	13.3	57.1
P9998AMXT	May 03		10.8	11.6	12.9	57.5
P9998AMXT	May 14		10.2	10.8	12.3	55.2
P9998AMXT	May 31		10.3	10.9	12.5	57.5
P9998AMXT	June 14		9.4	9.6	11.6	53.7
DKC58-06RIB	April 22	156	2.9	3.9	4.3	5.0
DKC58-06RIB	April 22	169	5.0	6.8	7.8	11.8
DKC58-06RIB	April 22	184	8.1	11.3	12.8	34.3
DKC58-06RIB	April 22	197	13.0	14.6	17.4	82.9
DKC58-06RIB	April 22	211	19.3	18.0	19.6	102.3
DKC58-06RIB	April 22	225	20.3	19.1	20.3	103.4
DKC58-06RIB	May 03	156	2.3	3.6	4.1	5.1
DKC58-06RIB	May 03	169	4.9	6.8	7.6	12.4
DKC58-06RIB	May 03	184	8.0	11.1	12.8	37.6
DKC58-06RIB	May 03	197	12.8	13.8	17.4	81.6
DKC58-06RIB	May 03	211	18.5	17.8	20.0	105.6
DKC58-06RIB	May 03	225	20.4	19.6	20.4	105.4

Continued

Table: 1903-03. Planting Date and Hybrid Influence on Corn Leaf Development.
(continued) **Arlington, WI - 2019.**

			Leaf Development			
Hybrid	Date of planting	Observation date	Leaf collars	Hail adjusters method	Total leaves	Plant height
		day of year	no./plant	no./plant	no./plant	inches
DKC58-06RIB	May 14	156	2.0	3.0	3.5	4.3
DKC58-06RIB	May 14	169	4.5	6.4	7.4	11.3
DKC58-06RIB	May 14	184	7.5	10.0	11.4	31.8
DKC58-06RIB	May 14	197	11.9	12.8	16.5	78.1
DKC58-06RIB	May 14	211	18.1	17.5	19.9	103.3
DKC58-06RIB	May 14	225	19.6	18.9	19.6	104.0
DKC58-06RIB	May 31	156	-	-	-	-
DKC58-06RIB	May 31	169	2.9	4.0	5.0	7.1
DKC58-06RIB	May 31	184	5.9	8.0	9.1	19.4
DKC58-06RIB	May 31	197	9.3	10.1	14.1	57.3
DKC58-06RIB	May 31	211	15.9	16.4	18.1	97.1
DKC58-06RIB	May 31	225	18.9	17.3	18.9	110.9
DKC58-06RIB	June 14	156	-	-	-	-
DKC58-06RIB	June 14	169	-	-	-	-
DKC58-06RIB	June 14	184	2.8	4.3	5.3	7.2
DKC58-06RIB	June 14	197	7.6	9.0	11.5	41.4
DKC58-06RIB	June 14	211	10.8	12.7	15.2	67.7
DKC58-06RIB	June 14	225	18.3	16.2	18.3	114.0
P9998AMXT	April 22	156	2.8	4.1	4.9	4.9
P9998AMXT	April 22	169	5.3	7.0	8.3	14.9
P9998AMXT	April 22	184	8.4	11.8	13.1	38.8
P9998AMXT	April 22	197	13.8	15.3	16.8	85.1
P9998AMXT	April 22	211	18.1	16.9	18.3	99.5
P9998AMXT	April 22	225	18.3	16.9	18.3	99.3
P9998AMXT	May 03	156	2.0	3.5	4.3	4.9
P9998AMXT	May 03	169	4.5	6.4	7.4	14.3
P9998AMXT	May 03	184	8.1	10.8	12.4	39.1
P9998AMXT	May 03	197	12.9	14.5	16.5	82.5
P9998AMXT	May 03	211	18.5	17.0	18.5	102.6
P9998AMXT	May 03	225	18.5	17.4	18.5	101.8
P9998AMXT	May 14	156	2.0	3.0	4.0	3.9
P9998AMXT	May 14	169	4.0	6.0	6.9	12.0
P9998AMXT	May 14	184	7.0	9.4	10.6	32.9
P9998AMXT	May 14	197	11.8	12.9	15.6	79.4
P9998AMXT	May 14	211	18.1	15.9	18.4	102.0
P9998AMXT	May 14	225	18.4	17.8	18.4	100.8
P9998AMXT	May 31	156	-	-	-	-
P9998AMXT	May 31	169	2.5	3.8	4.9	7.1
P9998AMXT	May 31	184	5.3	7.8	8.5	19.0
P9998AMXT	May 31	197	9.3	10.1	13.3	56.9
P9998AMXT	May 31	211	15.9	15.8	17.5	93.4
P9998AMXT	May 31	225	18.5	16.9	18.5	111.0

Continued

Table: 1903-03. Planting Date and Hybrid Influence on Corn Leaf Development.
(continued) **Arlington, WI - 2019.**

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
P9998AMXT	June 14	156	-	-	-	-
P9998AMXT	June 14	169	-	-	-	-
P9998AMXT	June 14	184	3.0	4.5	5.1	7.9
P9998AMXT	June 14	197	5.9	7.0	9.3	25.9
P9998AMXT	June 14	211	11.0	11.8	14.4	68.8
P9998AMXT	June 14	225	17.6	15.1	17.6	112.4
Mean			10.6	11.3	12.9	56.6
Probability(%)						
Hybrid(H)			1.6	6.4	1.7	26.9
Date of Planting (D)			0.0	0.0	0.0	0.0
HxD			97.3	47.0	54.1	62.1
Sample DOY (S)			0.0	0.0	0.0	0.0
H x S			0.1	0.0	0.0	45.3
DxS			0.0	0.0	0.0	0.0
HxDxS			0.8	2.76	44.8	54.7
LSD(0.10)						
Hybrid(H)			0.1	0.2	0.2	NS
Date of Planting (D)			0.2	0.2	0.3	1.8
HxD			NS	NS	NS	NS
Sample DOY (S)			0.2	0.3	0.3	1.9
H x S			0.3	0.4	0.4	2.7
DxS			0.5	0.6	0.6	4.3
HxDxS			0.7	0.8	NS	NS

FIELD EXPERIMENT HISTORY

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

Experiment: 06PDxRS **Trial ID:** 6341 **Year:** 2019

Personnel: Joe Lauer, Kent Kohn, Thierno Diallo

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

Supported By: HATCH

Site Information

Field: ARS408 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 5 /1 /19 **pH:** 5.7 **OM (%)** 3.3 **P (ppm)** 30 **K (ppm)** 136

Plot Management

Tillage Operations: Disk Chisel Field Cultivator

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	32-0-0	123 lbs/A	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	9258 gal/A	N/A

Herbicide: Resicore 80.0 oz/A
None

Insecticide: None

Hybrid: Jung 52SS507RIB

Planting Date: 5/23/19 **Planting Depth:** 1.5" **Row Width:** See Factors

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

Harvest Date: S: 10/10/19
G:11/4/19

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

Notes: Poor emergence and stand due to soil erosion caused by heavy rains.

Experimental Design

Design: RCB **Replications:** 3

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: 26188

Factors/Treatments:

Row Spacing:

1) 15 inch
2) 30 inch

Plant Density: (plants/A)

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

Results: Table 1906-01.

Table: 1906-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality Arlington, WI - 2019.

				Grain						
Target	Row	Harvest	Ear			Test	Lodged			AGI
Density	spacing	Density	Density	Yield	Moisture	weight	Total	Stalk	Root	$3.54
plants/A	inches	plants/A	Ear/A	bu/A	%	lbs/bu	%	%	%	$/A
	15	25250	26063	216	28.1	50.9	0	0	0	661
	30	27125	27375	219	27.6	50.6	0	0	0	672
26000		18750	20625	182	28.6	51.3	1	1	0	555
32000		24125	24375	217	27.7	50.9	0	0	0	665
38000		29625	29625	239	27.4	50.3	0	0	0	735
44000		32250	32250	232	27.8	50.5	0	0	0	710
26000	15	18250	21250	173	28.9	51.5	0	0	0	526
32000	15	24750	25000	221	28.1	50.7	0	0	0	677
38000	15	28250	28250	237	27.3	50.3	0	0	0	729
44000	15	29750	29750	233	28.1	51.0	0	0	0	712
26000	30	19250	20000	191	28.3	51.1	1	1	0	583
32000	30	23500	23750	212	27.3	51.2	0	0	0	653
38000	30	31000	31000	241	27.5	50.3	0	0	0	742
44000	30	34750	34750	231	27.6	50.0	1	0	1	709
Mean		26188	26719	217	27.9	50.7	0	0	0	666
Probability(%)										
Row Spacing (S)		13.2	27.6	53.7	6.5	35.3	14.6	34.9	19.0	47.3
Density (D)		0.0	0.0	0.0	0.9	8.1	51.4	43.7	19.8	0.0
S x D		32.4	18.9	25.5	45.9	29.4	51.4	43.7	19.8	28.4
LSD (0.10)										
Row Spacing (S)		NS	NS	NS	0.4	NS	NS	NS	NS	NS
Density (D)		2909	2856	11	0.5	0.7	NS	NS	NS	36
S x D		NS	NS	NS	NS	NS	NS	NS	NS	NS

Continued

Table: 1906-01. Plant Density and Row Spacing Effects on Corn Silage Yield and Quality

(continued) **Arlington, WI - 2019.**

		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	9.8	54.0	23453	1.6	0.1	0.1	0.1	6.8	15.8	30.4	86.5	56.0	41.7	3305	32477
	30	10.0	53.9	24124	5.4	0.3	0.1	0.4	6.8	14.9	29.6	87.1	56.5	42.9	3341	33526
26000		8.6	54.4	17992	3.4	0.2	0.1	0.2	7.0	15.5	30.4	86.7	56.5	41.3	3317	28437
32000		10.5	53.4	23863	4.0	0.2	0.1	0.3	7.0	14.3	28.8	87.8	57.5	43.6	3373	35333
38000		10.1	54.1	24542	3.4	0.2	0.1	0.3	6.6	15.8	30.6	86.2	55.3	42.0	3300	33426
44000		10.5	54.0	28756	3.1	0.2	0.1	0.3	6.5	15.8	30.4	86.5	55.6	42.3	3303	34809
26000	15	7.9	54.9	16666	0.0	0.0	0.0	0.0	7.0	16.4	31.2	86.3	56.5	40.3	3290	25993
32000	15	10.8	53.1	23485	1.5	0.1	0.0	0.1	7.1	14.4	28.6	87.7	57.0	43.5	3360	36370
38000	15	10.1	53.9	24747	2.8	0.1	0.1	0.2	6.5	16.2	31.0	86.0	55.0	41.5	3293	33464
44000	15	10.4	54.3	28914	2.0	0.1	0.1	0.2	6.6	16.2	30.9	86.1	55.3	41.4	3278	34080
26000	30	9.2	53.9	19318	6.8	0.3	0.1	0.5	7.0	14.6	29.5	87.1	56.5	42.2	3344	30881
32000	30	10.1	53.8	24242	6.5	0.3	0.1	0.4	6.9	14.2	28.9	87.9	58.0	43.6	3385	34295
38000	30	10.1	54.3	24337	4.0	0.2	0.2	0.4	6.6	15.4	30.3	86.5	55.5	42.5	3306	33388
44000	30	10.7	53.8	28598	4.3	0.2	0.2	0.4	6.5	15.4	29.8	86.8	55.9	43.2	3327	35538
Mean		9.9	54.0	23788	3.5	0.2	0.1	0.3	6.8	15.4	30.0	86.8	56.2	42.3	3323	33001
Probability(%)																
Row Spacing (S)		43.1	90.5	40.1	4.9	4.9	0.6	0.8	72.0	11.6	25.2	28.0	45.3	20.6	15.6	31.1
Density (D)		0.0	85.1	0.0	98.8	98.8	20.5	96.1	0.0	19.4	24.7	16.2	9.5	37.9	14.5	0.0
S x D		10.2	86.3	49.5	70.2	70.2	92.9	67.6	74.2	72.9	79.7	97.0	95.1	88.5	91.9	12.9
LSD (0.10)																
Row Spacing (S)		NS	NS	NS	3.1	0.2	0.1	0.2	NS	NS	NS	NS	NS	NS	NS	NS
Density (D)		0.7	NS	1906	NS	NS	NS	NS	0.2	NS	NS	NS	2	NS	NS	2459
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:** 6424 **Year:** 2019

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)**

Plot Management

Tillage Operations: No-Till

Fertilizer:		**Analysis:**	**Rate lbs/A:**	**Date:**
	Preplant :	MAP 11-52-0	325 lbs/A	4 /24/19
	Starter :	N/A	N/A	N/A
	Post plant :	28-0-0	CC: 678 CA: 571	6/8/19 6/8/19
	Manure:	N/A	N/A	N/A

Herbicide: C: Explorer @5 oz/A 5/17/19
Medal II EC @ 24 oz/A 5/17/19
Status @ 2.5 oz/A 7/1/19
Tomahawk 5 @ 32 oz/A 7/1/19
A: Tomahawk 5 @ 32 oz/A 6/14/19

Insecticide: N/A

Hybrid: C: Channel 205 - 19STXRIB
A: Dekalb DKA44-16RR

Irrigation: None

Planting Date: C:5/16/19
A: 5/13/19

Planting Depth: C:1.5"
A: 0.25"

Row Width: 30"

Target Plant Density:

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

Harvest Date: C: 11/4/19
Sil: 9/23

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

Notes: A: 5/30, 7/2 , 8/8 & 9/24

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 75' x10

Experiment Size: 3.47 A

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

Factors/Treatments:

Rotation - 2019 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)

Plant Density:

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

Results: Tables 1909-01,1909-02 & 1909-03

Table:1909-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2019.

Rotation	Density	Yield	Moisture	Test weight	Lodged			Harvest density	*AGI $3.54/bu
					Total	Stalk	Root		
		bu/A	%	lbs/bu	%	%	%	plants/A	$/A
AAACC-1C		236	25.9	51.7	0.4	0.0	0.4	35056	733
AAACC-2C		216	25.8	51.2	0.1	0.1	0.0	35333	670
AACC-1C		234	25.8	51.5	0.4	0.4	0.0	36167	726
AACC-2C		210	26.8	50.8	0.0	0.0	0.0	35167	647
CC-CC		204	27.5	50.5	0.2	0.2	0.0	34611	628
	25000	208	26.3	51.5	0.3	0.0	0.3	23867	644
	30000	219	26.4	51.0	0.5	0.5	0.0	28800	678
	35000	225	26.0	51.6	0.0	0.0	0.0	34000	698
	40000	227	26.4	51.1	0.0	0.0	0.0	37733	701
	45000	223	26.1	51.2	0.5	0.5	0.0	41067	692
	50000	218	26.8	50.5	0.1	0.0	0.1	46133	671
AAACC-1C	25000	231	26.0	51.9	1.4	0.0	1.4	23000	717
AAACC-1C	30000	232	25.8	51.7	0.0	0.0	0.0	29000	719
AAACC-1C	35000	237	25.8	52.1	0.0	0.0	0.0	33000	737
AAACC-1C	40000	254	25.5	52.0	0.0	0.0	0.0	38667	789
AAACC-1C	45000	231	25.6	52.3	0.0	0.0	0.0	41000	718
AAACC-1C	50000	233	26.6	50.3	0.7	0.0	0.7	45667	718
AAACC-2C	25000	206	25.5	51.6	0.0	0.0	0.0	24000	641
AAACC-2C	30000	217	25.1	51.2	0.0	0.0	0.0	29000	677
AAACC-2C	35000	217	25.3	52.1	0.0	0.0	0.0	36000	677
AAACC-2C	40000	217	26.2	50.9	0.0	0.0	0.0	37000	671
AAACC-2C	45000	222	26.4	50.8	0.8	0.8	0.0	40000	687
AAACC-2C	50000	216	26.2	50.9	0.0	0.0	0.0	46000	670
AACC-1C	25000	209	25.2	52.8	0.0	0.0	0.0	24667	650
AACC-1C	30000	245	26.0	51.0	1.1	1.1	0.0	30000	761
AACC-1C	35000	236	26.3	51.0	0.0	0.0	0.0	33667	731
AACC-1C	40000	234	25.9	51.4	0.0	0.0	0.0	39000	727
AACC-1C	45000	247	25.4	51.6	1.6	1.6	0.0	41000	770
AACC-1C	50000	231	25.8	51.2	0.0	0.0	0.0	48667	717
AACC-2C	25000	210	25.8	51.7	0.0	0.0	0.0	24333	
AACC-2C	30000	207	26.7	51.0	0.0	0.0	0.0	27667	638
AACC-2C	35000	211	26.5	51.1	0.0	0.0	0.0	34333	651
AACC-2C	40000	215	26.5	51.1	0.0	0.0	0.0	37333	664
AACC-2C	45000	210	26.7	50.7	0.0	0.0	0.0	41667	650
AACC-2C	50000	206	28.4	49.4	0.0	0.0	0.0	45667	629
CC-CC	25000	185	29.2	49.4	0.0	0.0	0.0	23333	561
CC-CC	30000	196	28.5	50.2	1.1	1.1	0.0	28333	597
CC-CC	35000	225	25.8	51.7	0.0	0.0	0.0	33000	696
CC-CC	40000	214	27.7	50.3	0.0	0.0	0.0	36667	656
CC-CC	45000	206	26.6	50.9	0.0	0.0	0.0	41667	636
CC-CC	50000	202	27.0	50.5	0.0	0.0	0.0	44667	622
Mean		220	26.3	51.2	0.2	0.2	0.1	35267	681
Probability(%)									
Rotation (R)		0.0	0.0	0.0	60.3	38.2	13.1	2.7	0.0
Density (D)		0.1	39.9	1.2	53.8	19.7	51.1	0.0	0.2
R x D		18.2	9.1	8.4	61.5	79.3	63.0	15.6	16.2
LSD(0.10)									
Rotation (R)		7	0.6	0.5	NS	NS	NS	784	22
Density (D)		7	NS	0.5	NS	NS	NS	858	24
R x D		NS	1.5	1.2	NS	NS	NS	NS	NS

*AGI - Adjusted Gross Income.

Table:1909-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2019.

Rotation	Harvest Date 30-May	2-Jul	8-Aug	24-Sep	Total
	T Dm/A	T Dm/A	T Dm/A	T Dm/A	T Dm/A
AAACC-1A	0.0	0.1	0.9	0.2	1.2
AAACC-2A	1.1	1.2	0.8	0.4	3.4
AAACC-3A	1.0	1.4	0.9	0.4	3.7
AACC(S)-1A	0.0	0.6	0.8	0.2	1.6
AACC(S)-2A	1.0	1.3	0.9	0.5	3.7
AACC-1A	0.0	0.1	1.0	0.2	1.3
AACC-2A	1.1	1.6	1.1	0.4	4.2
Mean	1.0	0.9	0.9	0.3	2.7
Probability (%)					
Rotation (R)	29.9	0.0	76.6	1.3	0.0
LSD 10%					
Rotation (R)	NS	0.2	NS	0.1	0.6

Table:1909-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2019

		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		8.3	51.7	28.3	6.5	14.8	31.4	88.2	62.5	39.1	3308	27499	30144
AACC-2Cs		9.5	47.5	16.7	6.7	16.9	34.6	84.9	56.6	36.2	3103	29642	28876
	25000	9.6	63.8	47.5	7.2	17.3	34.3	87.4	63.2	34.7	3480	33489	25000
	30000	10.7	62.7	47.5	6.8	17.2	34.2	87.2	62.7	35.3	3451	36753	29833
	35000	10.2	64.5	45.0	6.7	18.3	35.5	86.2	61.3	34.4	3449	35172	33500
	40000	10.6	63.9	45.0	6.7	18.2	35.1	86.6	62.0	34.6	3449	36513	37167
	45000	10.4	66.2	46.7	6.6	20.3	37.9	84.4	58.9	31.5	3289	34202	43167
	50000	10.0	66.0	47.5	6.7	19.6	37.0	85.2	60.1	32.3	3353	33547	47500
AACC(S)-1C	25000	9.6	64.9	50.0	7.2	17.4	34.7	87.1	62.8	34.4	3496	33441	24333
AACC(S)-1C	30000	10.6	63.1	48.3	6.6	17.7	35.1	86.7	62.0	34.6	3426	36454	29333
AACC(S)-1C	35000	10.4	64.3	45.0	6.7	17.9	35.2	86.7	62.1	34.4	3451	35998	32667
AACC(S)-1C	40000	10.8	64.8	51.7	6.6	19.2	36.5	85.8	61.0	33.2	3400	36659	38333
AACC(S)-1C	45000	10.7	66.6	46.7	6.5	20.5	38.0	84.3	58.8	31.4	3287	35149	44000
AACC(S)-1C	50000	10.2	65.7	51.7	6.6	19.1	36.3	85.8	60.9	33.3	3407	34614	47667
AACC(S)-2C	25000	9.7	62.8	45.0	7.2	17.1	33.9	87.6	63.6	35.0	3464	33537	25667
AACC(S)-2C	30000	10.7	62.2	46.7	6.9	16.7	33.4	87.7	63.3	36.0	3476	37053	30333
AACC(S)-2C	35000	9.9	64.6	45.0	6.7	18.6	35.9	85.8	60.6	34.5	3446	34346	34333
AACC(S)-2C	40000	10.4	63.0	38.3	6.7	17.2	33.8	87.4	62.9	36.1	3499	36366	36000
AACC(S)-2C	45000	10.1	65.9	46.7	6.7	20.1	37.7	84.5	59.1	31.6	3290	33255	42333
AACC(S)-2C	50000	9.8	66.2	43.3	6.8	20.2	37.8	84.6	59.4	31.3	3299	32479	47333
Mean		10.2	64.5	46.5	6.7	18.5	35.7	86.2	61.4	33.8	3412	34946	36028
Probability(%)													
Rotation (R)		22.8	13.5	6.6	18.0	56.5	43.9	62.2	71.6	51.3	98.1	38.2	94.3
Density (D)		12.1	0.4	97.1	0.0	1.9	2.7	0.9	0.3	7.3	5.7	25.4	0.0
R x D		91.7	62.4	56.7	79.2	62.9	53.1	47.2	41.4	64.8	71.5	94.6	56.5
LSD(0.10)													
Rotation (R)		NS	NS	4.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
Density (D)		NS	1.5	NS	0.2	1.6	2.0	1.4	1.7	2.4	113	NS	2269
R x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

09AC Marshfield

Page 1

09AC Marshfield

Page 2

09AC Marshfield

Page 3

09AC Marshfield

Page 4

FIELD EXPERIMENT HISTORY

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

Experiment: 09CS **Trial ID:** 6423 **Year:** 2019

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

Tillage Operations: Fiel cultivator x 2

Fertilizer:		**Analysis:**	**Rate lbs/A:**	**Date:**
	Preplant :	MAP 11-52-0 0-0-60	325 lbs/A 325 lbs/A	4 /24/19
	Starter :	N/A	N/A	N/A
	Post plant :	28-0-0	CC: 678 CS: 571	6 /28/19
	Manure:	N/A	N/A	N/A

Herbicide: Roundup PowerMax @ 22 oz/A 4/26/19
Dual II - Magnum @ 24 oz/A 4/26/19
Roundup PowerMax @ 22 oz/A 6/20/19

Insecticide: See Seed Treatments

Hybrid: C: Channel 205-19STXRIB
S: Renk RS207NX

Irrigation: No

Planting Date: C: 5/14/19
S: 5/15/19

Row Width: 30"

Planting Depth: 1.5"

Target Plant Density: Corn: 32500 Plants/A
Soybean: 140000 Plants/A

Planting Method: JD 1700 with RTK

Harvest Date: C: 11/04/19
S: 10/09/19

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: 2019

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

Fungicide:

1) UTC
2) Prothioconazole (Proline @ 5.7 oz/A)
3) Picoxystrobin (Approach @ 6 oz/A)

Results: Tables 1909-07 & 1909-08

Table 1909-07. Corn/Soybean Rotation and Tillage Study - Corn.
Arlington, WI - 2019.

Tillage	Rotation	Fungicide	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Conv			237	26.8	53.0	0.4	0.1	0.3	31667	731
Notill			233	28.3	51.4	0.2	0.1	0.1	31464	712
	1C		252	26.5	52.8	0.1	0.0	0.1	31708	779
	2C		238	27.2	52.3	0.6	0.3	0.3	31875	733
	3C		228	28.4	52.1	0.5	0.2	0.3	31833	697
	4C		226	27.5	52.0	0.1	0.0	0.1	31542	693
	5C		224	28.5	51.2	0.1	0.1	0.0	31625	683
	C		252	27.0	52.5	0.4	0.0	0.4	32167	778
	CC		224	27.7	52.4	0.1	0.0	0.1	30208	688
		Picoxystrobin	235	27.2	52.6	0.2	0.0	0.2	31643	724
		Prothioconazole	240	28.5	51.9	0.5	0.1	0.4	31821	733
		UTC	230	27.0	52.1	0.2	0.2	0.1	31232	708
Conv	1C		250	26.3	53.8	0.0	0.0	0.0	30667	774
Conv	2C		246	26.6	53.0	0.3	0.0	0.3	31500	758
Conv	3C		227	27.5	52.8	1.0	0.5	0.5	32417	696
Conv	4C		229	26.8	52.8	0.3	0.0	0.3	31750	707
Conv	5C		229	27.0	51.8	0.3	0.3	0.0	32167	705
Conv	C		248	26.5	53.4	0.5	0.0	0.5	31583	767
Conv	CC		230	26.8	53.3	0.3	0.0	0.3	31583	710
Notill	1C		254	26.7	51.7	0.3	0.0	0.3	32750	784
Notill	2C		231	27.9	51.6	0.8	0.6	0.3	32250	708
Notill	3C		230	29.4	51.5	0.0	0.0	0.0	31250	698
Notill	4C		222	28.3	51.2	0.0	0.0	0.0	31333	679
Notill	5C		219	30.1	50.7	0.0	0.0	0.0	31083	661
Notill	C		257	27.4	51.6	0.2	0.0	0.2	32750	788
Notill	CC		218	28.6	51.5	0.0	0.0	0.0	28833	666
Conv		Picoxystrobin	236	26.5	53.5	0.2	0.0	0.2	31750	730
Conv		Prothioconazole	243	27.7	52.7	0.6	0.0	0.6	31679	744
Conv		UTC	232	26.2	52.8	0.3	0.3	0.0	31571	720
Notill		Picoxystrobin	234	27.9	51.7	0.1	0.0	0.1	31536	718
Notill		Prothioconazole	238	29.3	51.2	0.4	0.2	0.1	31964	721
Notill		UTC	227	27.8	51.4	0.1	0.0	0.1	30893	697
	1C	Picoxystrobin	254	26.0	53.0	0.0	0.0	0.0	31500	787
	1C	Prothioconazole	256	27.2	52.3	0.0	0.0	0.0	32375	788
	1C	UTC	246	26.3	53.0	0.4	0.0	0.4	31250	762
	2C	Picoxystrobin	232	26.4	53.2	0.0	0.0	0.0	31250	718
	2C	Prothioconazole	248	28.3	52.0	1.7	0.8	0.9	31500	757
	2C	UTC	235	27.0	51.8	0.0	0.0	0.0	32875	724
	3C	Picoxystrobin	227	27.7	52.7	0.0	0.0	0.0	31875	696
	3C	Prothioconazole	235	29.9	52.0	0.8	0.0	0.8	31125	710
	3C	UTC	224	27.8	51.6	0.7	0.7	0.0	32500	685

continue

Table 1909-07. Corn/Soybean Rotation and Tillage Study - Corn.
(continued) **Arlington, WI - 2019.**

Tillage	Rotation	Fungicide	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
	4C	Picoxystrobin	227	26.7	52.9	0.4	0.0	0.4	31500	702
	4C	Prothioconazole	230	29.0	51.4	0.0	0.0	0.0	31875	699
	4C	UTC	220	26.9	51.7	0.0	0.0	0.0	31250	677
	5C	Picoxystrobin	226	28.6	51.4	0.0	0.0	0.0	32000	688
	5C	Prothioconazole	227	29.4	51.2	0.0	0.0	0.0	32000	689
	5C	UTC	219	27.6	51.1	0.4	0.4	0.0	30875	672
	C	Picoxystrobin	263	26.8	52.3	0.8	0.0	0.8	32000	810
	C	Prothioconazole	252	28.0	52.1	0.4	0.0	0.4	32625	771
	C	UTC	243	26.1	53.2	0.0	0.0	0.0	31875	752
	CC	Picoxystrobin	217	28.2	52.5	0.0	0.0	0.0	31375	664
	CC	Prothioconazole	234	27.7	52.5	0.4	0.0	0.4	31250	716
	CC	UTC	222	27.2	52.2	0.0	0.0	0.0	28000	683
Conv	1C	Picoxystrobin	247	26.1	54.1	0.0	0.0	0.0	31000	766
Conv	1C	Prothioconazole	260	26.6	53.6	0.0	0.0	0.0	31250	802
Conv	1C	UTC	243	26.1	53.8	0.0	0.0	0.0	29750	754
Conv	2C	Picoxystrobin	241	25.9	54.6	0.0	0.0	0.0	31250	747
Conv	2C	Prothioconazole	255	27.7	52.4	0.9	0.0	0.9	30750	781
Conv	2C	UTC	241	26.2	52.0	0.0	0.0	0.0	32500	747
Conv	3C	Picoxystrobin	227	26.8	54.1	0.0	0.0	0.0	32750	701
Conv	3C	Prothioconazole	233	28.9	52.9	1.6	0.0	1.6	31750	707
Conv	3C	UTC	220	26.9	51.3	1.5	1.5	0.0	32750	679
Conv	4C	Picoxystrobin	235	25.8	53.9	0.8	0.0	0.8	31250	729
Conv	4C	Prothioconazole	230	28.3	52.0	0.0	0.0	0.0	32000	703
Conv	4C	UTC	222	26.3	52.4	0.0	0.0	0.0	32000	687
Conv	5C	Picoxystrobin	227	26.9	51.7	0.0	0.0	0.0	32750	699
Conv	5C	Prothioconazole	236	27.6	52.0	0.0	0.0	0.0	32000	723
Conv	5C	UTC	225	26.4	51.6	0.8	0.8	0.0	31750	695
Conv	C	Picoxystrobin	253	26.6	53.4	0.8	0.0	0.8	31000	783
Conv	C	Prothioconazole	247	27.5	52.3	0.7	0.0	0.7	33000	759
Conv	C	UTC	244	25.3	54.5	0.0	0.0	0.0	30750	761
Conv	CC	Picoxystrobin	222	27.4	52.7	0.0	0.0	0.0	32250	682
Conv	CC	Prothioconazole	239	27.1	53.7	0.8	0.0	0.8	31000	735
Conv	CC	UTC	230	26.1	53.7	0.0	0.0	0.0	31500	714
Notill	1C	Picoxystrobin	260	25.8	51.9	0.0	0.0	0.0	32000	807
Notill	1C	Prothioconazole	252	27.9	51.1	0.0	0.0	0.0	33500	774
Notill	1C	UTC	249	26.4	52.1	0.8	0.0	0.8	32750	770
Notill	2C	Picoxystrobin	223	27.0	51.8	0.0	0.0	0.0	31250	688
Notill	2C	Prothioconazole	241	28.8	51.6	2.5	1.7	0.8	32250	734
Notill	2C	UTC	229	27.8	51.5	0.0	0.0	0.0	33250	701
Notill	3C	Picoxystrobin	226	28.6	51.4	0.0	0.0	0.0	31000	690
Notill	3C	Prothioconazole	237	30.8	51.1	0.0	0.0	0.0	30500	712
Notill	3C	UTC	227	28.7	51.9	0.0	0.0	0.0	32250	692
Notill	4C	Picoxystrobin	220	27.7	51.8	0.0	0.0	0.0	31750	675
Notill	4C	Prothioconazole	230	29.6	50.8	0.0	0.0	0.0	31750	695
Notill	4C	UTC	217	27.4	50.9	0.0	0.0	0.0	30500	667

continue

Table 1909-07. Corn/Soybean Rotation and Tillage Study - Corn.
(continued) **Arlington, WI - 2019.**

Tillage	Rotation	Fungicide	Yield	Moisture	Test weight	Lodged			Harvest density	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Notill	5C	Picoxystrobin	225	30.2	51.1	0.0	0.0	0.0	31250	677
Notill	5C	Prothioconazole	219	31.2	50.3	0.0	0.0	0.0	32000	655
Notill	5C	UTC	213	28.8	50.7	0.0	0.0	0.0	30000	649
Notill	C	Picoxystrobin	272	27.0	51.2	0.7	0.0	0.7	33000	838
Notill	C	Prothioconazole	256	28.4	51.9	0.0	0.0	0.0	32250	783
Notill	C	UTC	241	26.9	51.8	0.0	0.0	0.0	33000	744
Notill	CC	Picoxystrobin	213	29.1	52.4	0.0	0.0	0.0	30500	646
Notill	CC	Prothioconazole	228	28.3	51.3	0.0	0.0	0.0	31500	697
Notill	CC	UTC	214	28.4	50.7	0.0	0.0	0.0	24500	653
Mean			235	27.6	52.2	0.3	0.1	0.2	31565	721
Probability(%)										
Tillage (T)			17.5	0.6	0.6	38.8	83.7	30.5	78.8	6.2
Rotation (R)			0.0	0.0	2.8	71.3	63.9	76.4	47.5	0.0
Fungicide (F)			0.0	0.0	5.8	37.3	46.6	17.3	52.4	1.1
T x R			2.3	7.6	90.3	45.1	33.9	74.5	17.5	2.3
T x F			76.6	90.8	71.5	97.1	12.1	19.3	66.2	74.6
R x F			29.1	34.0	69.9	29.6	40.0	31.3	55.2	35.3
T x R x F			79.2	98.2	25.9	83.7	61.7	89.7	60.7	76.8
LSD(0.10)										
Tillage (T)			NS	0.5	0.5	NS	NS	NS	NS	16
Rotation (R)			6	0.7	0.7	NS	NS	NS	NS	21
Fungicide (F)			4	0.4	0.5	NS	NS	NS	NS	14
T x R			9.2	1.0	NS	NS	NS	NS	NS	30
T x F			NS	NS	NS	NS	NS	NS	NS	NS
R x F			NS	NS	NS	NS	NS	NS	NS	NS
T x R x F			NS	NS	NS	NS	NS	NS	NS	NS

Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.
Arlington, WI - 2019

Tillage	Rotation	Fungicide	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
Conv			63.8	12.9	509
Notill			68.3	13.0	545
	1S		73.3	13.6	584
	2S		71.8	12.6	573
	3S		62.9	12.9	502
	4S		59.6	13.0	475
	5S		66.2	12.6	528
	S		69.0	13.3	550
	SS		59.6	12.7	475
		Picoxystrobin	68.5	13.0	546
		Prothioconazole	65.7	13.0	524
		UTC	64.0	12.9	511
Conv	1S		69.9	13.6	557
Conv	2S		69.1	12.6	552
Conv	3S		57.8	12.9	461
Conv	4S		58.8	13.0	469
Conv	5S		62.9	12.6	502
Conv	S		68.5	13.2	546
Conv	SS		59.6	12.7	475
Notill	1S		76.7	13.6	611
Notill	2S		74.4	12.5	594
Notill	3S		68.0	12.9	542
Notill	4S		60.4	13.0	482
Notill	5S		69.4	12.6	554
Notill	S		69.6	13.4	554
Notill	SS		59.6	12.7	476
Conv		Picoxystrobin	66.5	12.9	530
Conv		Prothioconazole	64.0	13.0	511
Conv		UTC	60.9	12.9	486
Notill		Picoxystrobin	70.4	13.0	562
Notill		Prothioconazole	67.4	13.1	537
Notill		UTC	67.1	12.8	535
	1S	Picoxystrobin	81.7	13.5	651
	1S	Prothioconazole	69.7	13.8	555
	1S	UTC	68.5	13.4	546
	2S	Picoxystrobin	73.2	12.6	584
	2S	Prothioconazole	72.5	12.6	578
	2S	UTC	69.6	12.5	555
	3S	Picoxystrobin	69.3	12.9	553
	3S	Prothioconazole	57.8	13.0	461
	3S	UTC	61.6	12.9	492

continue

Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.
(continued) **Arlington, WI - 2019.**

Tillage	Rotation	Fungicide	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
	4S	Picoxystrobin	60.2	13.2	479
	4S	Prothioconazole	61.5	12.9	490
	4S	UTC	57.2	12.9	456
	5S	Picoxystrobin	67.9	12.6	542
	5S	Prothioconazole	66.8	12.7	533
	5S	UTC	63.9	12.5	510
	S	Picoxystrobin	67.4	13.3	537
	S	Prothioconazole	71.2	13.5	567
	S	UTC	68.4	13.2	546
	SS	Picoxystrobin	59.6	12.9	476
	SS	Prothioconazole	60.5	12.8	483
	SS	UTC	58.7	12.6	468
Conv	1S	Picoxystrobin	78.0	13.4	622
Conv	1S	Prothioconazole	68.5	13.9	546
Conv	1S	UTC	63.3	13.4	505
Conv	2S	Picoxystrobin	70.4	12.6	561
Conv	2S	Prothioconazole	71.2	12.6	568
Conv	2S	UTC	65.9	12.6	526
Conv	3S	Picoxystrobin	64.3	12.9	513
Conv	3S	Prothioconazole	52.0	13.0	415
Conv	3S	UTC	57.2	12.9	457
Conv	4S	Picoxystrobin	58.6	13.3	467
Conv	4S	Prothioconazole	61.3	12.9	489
Conv	4S	UTC	56.4	12.9	450
Conv	5S	Picoxystrobin	66.4	12.5	530
Conv	5S	Prothioconazole	64.2	12.7	512
Conv	5S	UTC	58.2	12.7	464
Conv	S	Picoxystrobin	67.3	13.1	536
Conv	S	Prothioconazole	70.2	13.3	560
Conv	S	UTC	67.9	13.2	541
Conv	SS	Picoxystrobin	60.6	12.9	483
Conv	SS	Prothioconazole	60.7	12.7	484
Conv	SS	UTC	57.5	12.6	458
Notill	1S	Picoxystrobin	85.4	13.6	680
Notill	1S	Prothioconazole	70.9	13.7	565
Notill	1S	UTC	73.8	13.5	588
Notill	2S	Picoxystrobin	76.1	12.6	607
Notill	2S	Prothioconazole	73.8	12.6	589
Notill	2S	UTC	73.3	12.5	585
Notill	3S	Picoxystrobin	74.3	12.9	592
Notill	3S	Prothioconazole	63.6	13.0	507
Notill	3S	UTC	66.0	12.9	527
Notill	4S	Picoxystrobin	61.7	13.2	492
Notill	4S	Prothioconazole	61.6	13.0	492
Notill	4S	UTC	57.9	12.8	462

continue

Table 1909-08. Corn/Soybean Rotation and Tillage Study - Soybean.
(continued) **Arlington, WI - 2019.**

Tillage	Rotation	Fungicide	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
Notill	5S	Picoxystrobin	69.4	12.6	554
Notill	5S	Prothioconazole	69.4	12.7	554
Notill	5S	UTC	69.6	12.4	555
Notill	S	Picoxystrobin	67.5	13.4	538
Notill	S	Prothioconazole	72.2	13.7	575
Notill	S	UTC	69.0	13.2	550
Notill	SS	Picoxystrobin	58.7	12.8	468
Notill	SS	Prothioconazole	60.3	12.8	481
Notill	SS	UTC	59.9	12.6	478
Mean			66.1	13.0	527
Probability(%)					
Tillage (T)			0.8	89.4	0.8
Rotation (R)			0.0	0.0	0.0
Fungicide (F)			0.0	3.5	0.0
T x R			0.5	99.3	0.5
T x F			24.0	47.4	23.7
R x F			0.0	48.1	0.0
T x R x F			87.0	96.7	87.4
LSD(0.10)					
Tillage (T)			1.7	NS	13
Rotation (R)			2.2	0.3	18
Fungicide (F)			1.4	0.1	12
T x R			3.2	NS	25
T x F			NS	NS	NS
R x F			3.8	NS	31
T x R x F			NS	NS	NS

FIELD EXPERIMENT HISTORY

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

Experiment: 09CSW **Trial ID:** 6349 **Year:** 2019

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 :	MAP 11-52-0	200 lbs/A 325 lbs/A	4/24/19
Starter :	N/A	N/A	N/A
Post plant :	C: 28-0-0 W: 46-0-0	C: 714 S: 0 lb/A W: 90 lb/A	6//27/19 4/22/19
Manure:	N/A	N/A	N/A

Herbicide: C,S: Medal II 24 fl oz/a 5/3/19,
Tomahawk 5 @ 20 oz/a 5/3/19
2,4-D low vol 4. 16.0 oz/a 5/3/19
Roundup Pmax 32.0 oz/a 6/20/19
w: Powerflex 2 oz/A 5/15/18
MPC Amine 8 oz/A 5/15/18

Hybrid: C: Channel 205-19STXRIB
S: Renk RS153NR2
W: Growmark FS 624

Planting Date: C: 5/15/19
S: 5/15/19
W: 10/04/18

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: 10/28/19, CS: 9/237/19
S: 10/08/19, W: 7/25/19

Fungicide: N/A

Notes:

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:	**Cover Crop**	**Nitrogen Rate lb/A**
1) CC	In Corn and Soybean plots use:	1) 0
2) SS	1) UTC	2) 30
3) WW	2) Oat pre-harvest	
4) CS-S	3) Oat post-harvest	
5) CS-C	4) Rye pre-harvest	
6) GS1: CSW-C	5) Rye post-harvest	
7) GS1: CSW-S	6) Oat/Rye in Strip/Wheel track post-harvest	
8) GS1: CSW-W		
9) GS2: CWS-W	In wheat plots use Berseem and Red Clover for	
10) GS2: CWS-S	Trtmts. 2-5, and for Trtmt. 6 use radish.	
11) GS2: CWS-W		
12) Flex: CWS-C		
13) Flex: CWS-W		
14) Flex: CWS-S		

Results: Tables 1909-09 to 1809-12

Table: 1909 - 09 . Corn, Soybean and Wheat Rotation - Corn
Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	Test weight	Lodged			Harvest plants	AGI
						Total	Stalk	Root		$3.54/bu
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
CC-C			228	27.4	51.9	0.1	0.1	0.0	31833	702
CSW-C			232	31.5	52.1	0.2	0.1	0.1	32167	696
CWS-C (e)			256	26.8	52.8	0.2	0.1	0.1	32833	790
SC-C			240	27.4	52.1	0.3	0.3	0.1	32583	736
	Oat-1Sep		237	28.1	52.1	0.4	0.0	0.4	32542	725
	Oat-Post		243	27.5	52.6	0.1	0.1	0.0	32792	746
	Oat/Rye		238	27.8	51.8	0.1	0.1	0.0	32125	729
	Rye-1Sep		227	30.1	52.2	0.5	0.5	0.0	32042	686
	Rye-Post		254	27.1	52.3	0.0	0.0	0.0	32542	782
	UTC		235	29.1	52.3	0.0	0.0	0.0	32083	718
		0	238	28.3	52.3	0.2	0.1	0.0	32500	728
		30	240	28.3	52.2	0.2	0.1	0.1	32208	734
CC-C	Oat-1Sep		215	26.8	51.3	0.0	0.0	0.0	32333	662
CC-C	Oat-Post		236	27.1	52.8	0.0	0.0	0.0	32667	725
CC-C	Oat/Rye		228	27.4	51.3	0.0	0.0	0.0	32500	701
CC-C	Rye-1Sep		211	30.0	52.2	0.6	0.6	0.0	30667	642
CC-C	Rye-Post		254	26.2	51.7	0.0	0.0	0.0	31667	787
CC-C	UTC		225	27.1	52.0	0.0	0.0	0.0	31167	692
CSW-C	Oat-1Sep		232	32.0	51.6	0.6	0.0	0.6	32333	693
CSW-C	Oat-Post		234	29.1	52.1	0.5	0.5	0.0	33167	712
CSW-C	Oat/Rye		228	29.8	51.6	0.0	0.0	0.0	30667	691
CSW-C	Rye-1Sep		239	33.9	52.3	0.0	0.0	0.0	31833	704
CSW-C	Rye-Post		241	28.7	53.1	0.0	0.0	0.0	33000	733
CSW-C	UTC		217	35.6	52.0	0.0	0.0	0.0	32000	640
CWS-C (e)	Oat-1Sep		259	26.5	53.4	0.5	0.0	0.5	32833	800
CWS-C (e)	Oat-Post		252	27.5	53.2	0.0	0.0	0.0	33000	774
CWS-C (e)	Oat/Rye		259	26.7	52.6	0.0	0.0	0.0	32500	799
CWS-C (e)	Rye-1Sep		238	27.0	52.4	0.5	0.5	0.0	32833	734
CWS-C (e)	Rye-Post		270	26.3	52.0	0.0	0.0	0.0	33000	835
CWS-C (e)	UTC		260	26.8	53.0	0.0	0.0	0.0	32833	801
SC-C	Oat-1Sep		242	27.3	52.0	0.5	0.0	0.5	32667	744
SC-C	Oat-Post		250	26.2	52.2	0.0	0.0	0.0	32333	773

continue

Table: 1909 - 09 . Corn, Soybean and Wheat Rotation - Corn
(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	Test weight	Lodged			Harvest plants	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
SC-C	Oat/Rye		236	27.4	51.9	0.5	0.5	0.0	32833	725
SC-C	Rye-1Sep		219	29.6	51.9	1.0	1.0	0.0	32833	663
SC-C	Rye-Post		251	27.1	52.2	0.0	0.0	0.0	32500	773
SC-C	UTC		240	27.0	52.3	0.0	0.0	0.0	32333	740
CC-C		0	227	27.6	52.1	0.2	0.2	0.0	32111	699
CC-C		30	229	27.3	51.7	0.0	0.0	0.0	31556	704
CSW-C		0	232	31.2	52.1	0.2	0.2	0.0	32278	695
CSW-C		30	232	31.8	52.2	0.2	0.0	0.2	32056	696
CWS-C (e)		0	256	26.9	52.9	0.2	0.2	0.0	32833	790
CWS-C (e)		30	256	26.7	52.6	0.2	0.0	0.2	32833	791
SC-C		0	237	27.6	52.0	0.2	0.0	0.2	32778	726
SC-C		30	243	27.3	52.1	0.5	0.5	0.0	32389	746
	Oat-1Sep	0	234	28.1	51.8	0.3	0.0	0.3	32417	716
	Oat-1Sep	30	240	28.2	52.3	0.5	0.0	0.5	32667	734
	Oat-Post	0	239	27.8	53.0	0.3	0.3	0.0	32917	732
	Oat-Post	30	247	27.2	52.2	0.0	0.0	0.0	32667	760
	Oat/Rye	0	239	27.8	51.8	0.0	0.0	0.0	32750	731
	Oat/Rye	30	237	27.8	51.9	0.3	0.3	0.0	31500	726
	Rye-1Sep	0	221	30.4	52.6	0.5	0.5	0.0	31667	668
	Rye-1Sep	30	233	29.9	51.9	0.5	0.5	0.0	32417	704
	Rye-Post	0	253	27.3	52.1	0.0	0.0	0.0	33000	779
	Rye-Post	30	254	26.8	52.4	0.0	0.0	0.0	32083	785
	UTC	0	242	28.6	52.3	0.0	0.0	0.0	32250	739
	UTC	30	229	29.6	52.4	0.0	0.0	0.0	31917	698
CC-C	Oat-1Sep	0	208	26.4	50.7	0.0	0.0	0.0	33000	642
CC-C	Oat-1Sep	30	222	27.2	51.9	0.0	0.0	0.0	31667	683
CC-C	Oat-Post	0	231	27.8	53.2	0.0	0.0	0.0	33333	708
CC-C	Oat-Post	30	240	26.4	52.3	0.0	0.0	0.0	32000	743
CC-C	Oat/Rye	0	235	26.8	50.5	0.0	0.0	0.0	33333	726
CC-C	Oat/Rye	30	221	28.1	52.1	0.0	0.0	0.0	31667	676
CC-C	Rye-1Sep	0	204	31.5	53.3	1.1	1.1	0.0	29000	615
CC-C	Rye-1Sep	30	219	28.5	51.2	0.0	0.0	0.0	32333	669
CC-C	Rye-Post	0	253	25.7	51.2	0.0	0.0	0.0	32333	785
CC-C	Rye-Post	30	255	26.7	52.2	0.0	0.0	0.0	31000	789
CC-C	UTC	0	234	27.0	53.5	0.0	0.0	0.0	31667	720
CC-C	UTC	30	216	27.1	50.6	0.0	0.0	0.0	30667	665

continue

Table: 1909 - 09 . Corn, Soybean and Wheat Rotation - Corn
(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	Test weight	Lodged			Harvest plants	AGI $3.54/bu
						Total	Stalk	Root		
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
CSW-C	Oat-1Sep	0	231	32.1	50.9	0.0	0.0	0.0	32667	690
CSW-C	Oat-1Sep	30	232	31.9	52.3	1.1	0.0	1.1	32000	696
CSW-C	Oat-Post	0	232	29.3	52.5	1.0	1.0	0.0	32667	704
CSW-C	Oat-Post	30	236	28.9	51.7	0.0	0.0	0.0	33667	720
CSW-C	Oat/Rye	0	228	30.1	51.9	0.0	0.0	0.0	32333	690
CSW-C	Oat/Rye	30	228	29.5	51.3	0.0	0.0	0.0	29000	692
CSW-C	Rye-1Sep	0	229	34.0	53.1	0.0	0.0	0.0	30667	676
CSW-C	Rye-1Sep	30	249	33.8	51.4	0.0	0.0	0.0	33000	732
CSW-C	Rye-Post	0	239	29.0	53.2	0.0	0.0	0.0	33000	726
CSW-C	Rye-Post	30	243	28.4	53.0	0.0	0.0	0.0	33000	740
CSW-C	UTC	0	231	33.1	50.6	0.0	0.0	0.0	32333	684
CSW-C	UTC	30	203	38.1	53.3	0.0	0.0	0.0	31667	596
CWS-C (e)	Oat-1Sep	0	258	26.1	52.2	0.0	0.0	0.0	32667	799
CWS-C (e)	Oat-1Sep	30	259	26.8	54.6	1.0	0.0	1.0	33000	800
CWS-C (e)	Oat-Post	0	251	27.5	54.0	0.0	0.0	0.0	33000	770
CWS-C (e)	Oat-Post	30	253	27.4	52.3	0.0	0.0	0.0	33000	779
CWS-C (e)	Oat/Rye	0	260	27.1	53.4	0.0	0.0	0.0	32000	799
CWS-C (e)	Oat/Rye	30	258	26.2	51.8	0.0	0.0	0.0	33000	798
CWS-C (e)	Rye-1Sep	0	238	26.4	51.9	1.0	1.0	0.0	33667	734
CWS-C (e)	Rye-1Sep	30	239	27.5	52.9	0.0	0.0	0.0	32000	735
CWS-C (e)	Rye-Post	0	268	27.2	52.5	0.0	0.0	0.0	33333	824
CWS-C (e)	Rye-Post	30	272	25.4	51.5	0.0	0.0	0.0	32667	845
CWS-C (e)	UTC	0	264	26.9	53.2	0.0	0.0	0.0	32333	813
CWS-C (e)	UTC	30	256	26.7	52.7	0.0	0.0	0.0	33333	790
SC-C	Oat-1Sep	0	239	27.6	53.5	1.0	0.0	1.0	31333	733
SC-C	Oat-1Sep	30	245	27.0	50.5	0.0	0.0	0.0	34000	755
SC-C	Oat-Post	0	242	26.6	52.2	0.0	0.0	0.0	32667	747
SC-C	Oat-Post	30	257	25.9	52.3	0.0	0.0	0.0	32000	798
SC-C	Oat/Rye	0	231	27.2	51.5	0.0	0.0	0.0	33333	710
SC-C	Oat/Rye	30	241	27.5	52.2	1.1	1.1	0.0	32333	739
SC-C	Rye-1Sep	0	213	29.5	51.9	0.0	0.0	0.0	33333	647
SC-C	Rye-1Sep	30	225	29.8	52.0	2.1	2.1	0.0	32333	680
SC-C	Rye-Post	0	254	27.3	51.5	0.0	0.0	0.0	33333	781
SC-C	Rye-Post	30	248	26.9	52.8	0.0	0.0	0.0	31667	765
SC-C	UTC	0	241	27.5	51.7	0.0	0.0	0.0	32667	739
SC-C	UTC	30	240	26.5	52.9	0.0	0.0	0.0	32000	740
Mean			239	28.3	52.2	0.2	0.1	0.1	32354	731

continue

Table: 1909 - 09 . Corn, Soybean and Wheat Rotation - Corn

(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	Test weight	Lodged			Harvest	AGI
						Total	Stalk	Root	plants	$3.54/bu
			bu/A	%	lbs/bu	%	%	%	plants/A	$/A
Mean			237	28.2	53.8	0.9	0.7	0.3	32243	691
Probability(%)										
Rotation (R)			0.4	10.3	19.2	79.3	79.9	79.1	11.0	0.4
Cover crop ('C)			0.0	5.2	69.8	16.0	10.2	1.2	40.8	0.1
Fertilizer (F)			54.5	91.9	67.0	72.5	99.2	52.5	24.9	56.5
R x C			27.1	58.6	87.7	90.1	85.0	98.7	43.7	55.7
R x F			90.5	95.7	89.1	57.4	10.4	29.4	88.0	93.2
C x F			28.0	97.5	61.9	87.8	90.4	84.2	22.4	47.7
R x C x F			99.7	99.6	1.5	12.3	32.5	24.7	3.5	99.9
LSD(0.10)										
Rotation (R)			9	NS	NS	NS	NS	NS	NS	33
Cover crop ('C)			9	2	NS	NS	NS	0	NS	34
Fertilizer (F)			NS	NS	NS	NS	NS	NS	NS	NS
R x C			NS	NS	NS	NS	NS	NS	NS	NS
R x F			NS	NS	NS	NS	NS	NS	NS	NS
C x F			NS	NS	NS	NS	NS	NS	NS	NS
R x C x F			NS	NS	2	NS	NS	NS	2045	NS

AGI*: Adjusted Gross Income.

Table: 1909-10. Corn, Soybean and Wheat Rotation - Corn Silage
Arlington, WI - 2019.

			Whole Plant										
		Dry Matter		Kernel	Crude			*In Vitro*			Milk per		Plant
Cover crop	Fertilizer	Yield	Moisture	milk	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre	population
		tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/T	plants/A
Oat-1Sep		11.8	63.7	52.5	6.6	17.6	34.0	87.1	62.0	34.6	3390	40019	34333
Oat-Post		12.6	61.5	50.0	6.1	16.6	33.5	87.2	61.7	35.7	3350	42325	33000
Oat/Rye		14.2	61.0	49.2	5.9	16.7	33.5	87.1	61.5	36.1	3354	47640	33500
Rye-1Sep		11.2	64.0	47.5	6.6	17.8	34.8	87.2	63.2	32.8	3315	37176	33500
Rye-Post		12.0	64.0	47.5	6.5	17.9	35.1	86.3	61.0	33.6	3350	40069	32667
UTC		11.9	63.6	44.2	6.6	17.6	34.0	87.2	62.6	34.9	3428	40815	35500
	0	12.6	62.9	48.6	6.3	17.6	34.4	86.9	62.1	34.3	3350	42307	34444
	30	11.9	63.1	48.3	6.5	17.2	33.9	87.1	61.9	34.9	3379	40374	33056
Oat-1Sep	0	11.3	63.9	51.7	6.4	18.1	34.8	86.4	61.0	34.2	3367	38317	34667
Oat-1Sep	30	12.2	63.5	53.3	6.9	17.2	33.2	87.8	63.1	34.9	3413	41720	34000
Oat-Post	0	11.9	61.5	51.7	5.7	17.1	34.3	86.9	61.9	34.8	3297	39160	34333
Oat-Post	30	13.4	61.4	48.3	6.5	16.1	32.7	87.4	61.4	36.6	3403	45489	31667
Oat/Rye	0	16.6	60.8	48.3	6.0	16.5	33.3	87.4	62.1	36.3	3366	55896	34333
Oat/Rye	30	11.8	61.2	50.0	5.8	16.9	33.7	86.8	61.0	36.0	3342	39385	32667
Rye-1Sep	0	11.6	63.3	48.3	6.7	17.5	34.1	87.7	63.8	33.3	3333	38744	34333
Rye-1Sep	30	10.8	64.7	46.7	6.5	18.2	35.5	86.7	62.6	32.2	3297	35609	32667
Rye-Post	0	12.1	64.0	45.0	6.5	18.3	35.5	85.9	60.2	33.1	3316	40222	32667
Rye-Post	30	11.8	64.0	50.0	6.6	17.5	34.8	86.7	61.7	34.1	3384	39917	32667
UTC	0	12.1	63.7	46.7	6.8	17.8	34.4	87.4	63.6	34.2	3422	41502	36333
UTC	30	11.7	63.5	41.7	6.5	17.3	33.7	87.1	61.6	35.7	3434	40127	34667
Mean		12.3	63.0	48.5	6.4	17.4	34.1	87.0	62.0	34.6	3365	41341	33750
Probability(%)													
Cover crop ('C)		40.5	0.5	11.5	15.5	52.0	66.0	83.5	38.6	15.6	82.3	42.0	22.2
Fertilizer (F)		42.5	71.8	86.5	56.9	48.0	52.1	78.2	74.8	47.1	56.2	49.9	5.3
C x F		33.5	92.2	50.9	62.6	86.8	75.8	67.1	34.9	88.5	95.4	29.1	90.0
LSD(0.10)													
Cover crop ('C)		NS	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fertilizer (F)		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1164
C x F		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table: 1909 - 11 . Corn, Soybean and Wheat Rotation -Soybean
Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
CS-S			63.6	14.2	506.4
CSW-S (e)			72.0	14.2	572.9
CWS(L)-S			66.1	14.1	525.9
CWS-S			71.1	14.1	565.9
SS-S			51.7	14.3	411.2
	Oat-1Sep		66.1	14.2	526.0
	Oat-Post		64.9	14.2	516.3
	Oat/Rye		62.9	14.1	500.4
	Rye-1Sep		66.6	14.3	529.4
	Rye-Post		64.4	14.1	512.6
	UTC		64.6	14.2	514.0
		0	64.6	14.2	514.1
		30	65.2	14.2	518.8
CS-S	Oat-1Sep		64.5	14.3	513.3
CS-S	Oat-Post		64.3	14.1	511.8
CS-S	Oat/Rye		63.6	14.0	506.3
CS-S	Rye-1Sep		59.9	14.4	476.6
CS-S	Rye-Post		63.1	14.1	502.5
CS-S	UTC		66.3	14.1	527.8
CSW-S (e)	Oat-1Sep		75.1	14.5	597.3
CSW-S (e)	Oat-Post		69.9	14.0	556.7
CSW-S (e)	Oat/Rye		67.7	14.3	538.4
CSW-S (e)	Rye-1Sep		73.5	14.4	584.5
CSW-S (e)	Rye-Post		70.9	14.0	564.5
CSW-S (e)	UTC		74.9	14.3	595.9
CWS(L)-S	Oat-1Sep		65.6	14.1	522.0
CWS(L)-S	Oat-Post		66.4	14.2	528.4
CWS(L)-S	Oat/Rye		65.6	13.9	522.6
CWS(L)-S	Rye-1Sep		74.3	14.4	591.0
CWS(L)-S	Rye-Post		66.2	14.1	527.0
CWS(L)-S	UTC		58.4	14.0	464.5
CWS-S	Oat-1Sep		73.9	14.0	588.0
CWS-S	Oat-Post		69.3	14.3	551.0
CWS-S	Oat/Rye		65.1	14.1	518.0

continue

Table: 1909 - 11 . Corn, Soybean and Wheat Rotation -Soybean
(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
CWS-S	Rye-1Sep		75.4	14.0	600.3
CWS-S	Rye-Post		70.8	14.0	563.6
CWS-S	UTC		72.2	14.1	574.8
SS-S	Oat-1Sep		51.5	14.2	409.5
SS-S	Oat-Post		54.5	14.2	433.8
SS-S	Oat/Rye		52.4	14.3	416.7
SS-S	Rye-1Sep		49.6	14.2	394.5
SS-S	Rye-Post		51.0	14.2	405.6
SS-S	UTC		51.2	14.4	407.1
CS-S		0	62.7	14.1	498.8
CS-S		30	64.6	14.2	514.0
CSW-S (e)		0	72.8	14.3	578.8
CSW-S (e)		30	71.3	14.2	566.9
CWS(L)-S		0	65.0	14.1	517.4
CWS(L)-S		30	67.2	14.2	534.5
CWS-S		0	70.7	14.1	562.9
CWS-S		30	71.5	14.1	569.0
SS-S		0	51.9	14.3	412.5
SS-S		30	51.5	14.3	409.9
	Oat-1Sep	0	66.4	14.2	528.2
	Oat-1Sep	30	65.8	14.2	523.8
	Oat-Post	0	65.0	14.2	517.4
	Oat-Post	30	64.7	14.1	515.2
	Oat/Rye	0	61.9	14.1	492.5
	Oat/Rye	30	63.9	14.1	508.3
	Rye-1Sep	0	67.4	14.2	536.3
	Rye-1Sep	30	65.7	14.3	522.5
	Rye-Post	0	63.1	14.1	502.3
	Rye-Post	30	65.7	14.1	522.9
	UTC	0	63.8	14.2	507.7
	UTC	30	65.4	14.2	520.3
CS-S	Oat-1Sep	0	66.3	14.2	527.4
CS-S	Oat-1Sep	30	62.8	14.3	499.1
CS-S	Oat-Post	0	63.8	14.1	508.0
CS-S	Oat-Post	30	64.8	14.1	515.6

continue

Table: 1909 - 11 . Corn, Soybean and Wheat Rotation -Soybean
(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
CS-S	Oat/Rye	0	60.8	13.9	484.4
CS-S	Oat/Rye	30	66.4	14.1	528.2
CS-S	Rye-1Sep	0	60.2	14.4	478.4
CS-S	Rye-1Sep	30	59.7	14.4	474.9
CS-S	Rye-Post	0	60.6	14.1	482.0
CS-S	Rye-Post	30	65.7	14.1	522.9
CS-S	UTC	0	64.4	14.0	512.4
CS-S	UTC	30	68.2	14.1	543.1
CSW-S (e)	Oat-1Sep	0	75.4	14.5	599.5
CSW-S (e)	Oat-1Sep	30	74.8	14.4	595.2
CSW-S (e)	Oat-Post	0	72.7	14.0	578.7
CSW-S (e)	Oat-Post	30	67.1	13.9	534.6
CSW-S (e)	Oat/Rye	0	71.7	14.3	570.5
CSW-S (e)	Oat/Rye	30	63.6	14.2	506.2
CSW-S (e)	Rye-1Sep	0	75.0	14.4	596.6
CSW-S (e)	Rye-1Sep	30	72.0	14.4	572.5
CSW-S (e)	Rye-Post	0	69.5	13.9	553.5
CSW-S (e)	Rye-Post	30	72.3	14.1	575.5
CSW-S (e)	UTC	0	72.2	14.4	574.2
CSW-S (e)	UTC	30	77.6	14.3	617.6
CWS(L)-S	Oat-1Sep	0	63.3	14.1	503.8
CWS(L)-S	Oat-1Sep	30	67.9	14.1	540.3
CWS(L)-S	Oat-Post	0	65.7	14.2	522.7
CWS(L)-S	Oat-Post	30	67.1	14.3	534.0
CWS(L)-S	Oat/Rye	0	64.8	13.9	515.9
CWS(L)-S	Oat/Rye	30	66.5	13.9	529.3
CWS(L)-S	Rye-1Sep	0	72.1	14.1	573.6
CWS(L)-S	Rye-1Sep	30	76.5	14.6	608.4
CWS(L)-S	Rye-Post	0	64.8	14.1	515.8
CWS(L)-S	Rye-Post	30	67.6	14.1	538.1
CWS(L)-S	UTC	0	59.3	13.9	472.3
CWS(L)-S	UTC	30	57.4	14.1	456.7
CWS-S	Oat-1Sep	0	75.8	14.0	603.5
CWS-S	Oat-1Sep	30	71.9	14.0	572.6
CWS-S	Oat-Post	0	67.3	14.4	535.4
CWS-S	Oat-Post	30	71.2	14.2	566.5

continue

Table: 1909 - 11 . Corn, Soybean and Wheat Rotation -Soybean
(continued) Arlington, WI - 2019.

Rotation	Cover crop	Fertilizer	Yield	Moisture	AGI $8.21/bu
			bu/A	%	$/A
CWS-S	Oat/Rye	0	61.6	14.1	490.2
CWS-S	Oat/Rye	30	68.6	14.1	545.8
CWS-S	Rye-1Sep	0	79.4	14.0	632.3
CWS-S	Rye-1Sep	30	71.4	14.0	568.2
CWS-S	Rye-Post	0	69.4	14.0	552.0
CWS-S	Rye-Post	30	72.3	14.1	575.1
CWS-S	UTC	0	70.9	14.0	564.0
CWS-S	UTC	30	73.6	14.1	585.6
SS-S	Oat-1Sep	0	51.2	14.2	407.0
SS-S	Oat-1Sep	30	51.8	14.2	412.0
SS-S	Oat-Post	0	55.6	14.3	442.1
SS-S	Oat-Post	30	53.5	14.2	425.4
SS-S	Oat/Rye	0	50.5	14.4	401.6
SS-S	Oat/Rye	30	54.3	14.3	431.9
SS-S	Rye-1Sep	0	50.3	14.2	400.5
SS-S	Rye-1Sep	30	48.8	14.2	388.4
SS-S	Rye-Post	0	51.3	14.2	408.1
SS-S	Rye-Post	30	50.7	14.2	403.0
SS-S	UTC	0	52.3	14.4	415.6
SS-S	UTC	30	50.1	14.4	398.6
Mean			64.9	14.2	516.5
Probability(%)					
Rotation (R)			0.0	37.3	0.0
Cover crop ('C)			2.9	18.0	3.2
Fertilizer (F)			36.5	62.0	36.9
R x C			0.0	4.8	0.0
R x F			37.2	62.5	38.0
C x F			37.4	93.0	37.4
R x C x F			22.7	99.8	23.0
LSD(0.10)					
Rotation (R)			2.7	NS	22.2
Cover crop ('C)			1.9	NS	15.2
Fertilizer (F)			NS	NS	NS
R x C			4.5	0.3	36.3
R x F			NS	NS	NS
C x F			NS	NS	NS
R x C x F			NS	NS	NS

AGI*: Adjusted Gross Income.

Table: 1909 - 12 . Corn, Soybean and Wheat Rotation -Wheat.
Arlington, WI - 2019.

Rotation	Yield	Moisture	Test weight	AGI $4.69/bu
	bu/A	%	lbs/bu	$/A
CSW-W	88	17.2	53.2	385
CWS-W	77	15.9	53.9	338
CWSL-W(s)	76	17.5	52.0	332
WW-W	--	--	--	--
Mean	80	16.9	53.1	352
Probability(%)				
Rotation (R)	3.4	27.3	55.6	4.7
LSD(0.10)				
Rotation (R)	13	NS	NS	58

AGI*: Adjusted Gross Income.

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

09CSW Marshfield

Page 1

09CSW Marshfield

Page 2

09CSW Marshfield

Page 3

09CSW
Marshfield

Page 4

09CSW Marshfield

Page 5

FIELD EXPERIMENT HISTORY

Title: **Crop Rotation Response to Nrate**

Experiment: 09ACOSW **Trial ID:** 6348 **Year:** 2019

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 :0-20-34	315	4/23/2019
Starter :	C: 9-23-30	195	5/16/2019
Post plant :	C: 34-0-0	See rates	6/9/2017
	W: 34-0-0	30	4/20/2017
	W,O: 34-0-0	315	5/22/2017
	A:0-8.4-37.5-2.9s-0.34B	400	6/18//2019
Manure:	N/A	N/A	N/A

Herbicide: C: Powermax 29 oz/a 5/26/19
Resicore 1.25 qt/ac
A: Raptor 5 oz/a 6/26/19
O: butyrac 3 qt/a 6/1/19
S: Warrant Ult 55 oz/a 6/6/19
powermax 29 oz/a 6/6/19
flexstar GT 3.5 3pts/ac 7/3/19

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

Hybrid: C:LG 5499 STXRIB
S: Asgrow 21x7
W:Croplan 9203
A: Croplan Rebound 6.0
O: Dane

Planting Date: C: 5/16/19 W: 10/25/18
S: 5/31/18 A: 4/24/19
O: 4/24/19

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:12/6/19 S: 10/28/19
O: 7/25/19 W: 7/25/19
A: 6/13; 7/12. 8/21/19

Fungicide: N/A

Notes: Lime (50-59) @ 2.4T/A on 4/21/17

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 1909-17 to 1909-21

Table:1909-17. Corn, Soybean, Wheat, Oats and Alfalfa Rotation - Corn
Lancaster, WI - 2019.

Rotation	Nitrogen rate	Yield	Moisture	Test weight	AGI $3.54/bu
	N lb/A	bu/A	%	lbs/bu	$/A
CC-C		135	19.7	52.9	434
CCCMM-C1		225	19.2	54.2	728
CCCMM-C2		189	19.2	53.2	611
CCCMM-C3		163	19.5	53.7	525
CCOMM-C1		225	20.1	54.1	723
CCOMM-C2		200	19.9	53.9	644
CSb-C		165	19.0	53.1	534
CSbCOM-C1		231	18.8	54.0	748
CSbCOM-C2		193	19.2	53.4	625
CSbW-C		172	18.6	52.7	557
	0	134	18.9	53.1	434
	50	175	18.7	53.4	567
	100	211	19.5	53.8	681
	200	239	20.1	53.9	768
CC-C	0	68	18.5	51.9	222
CC-C	50	117	19.9	53.2	377
CC-C	100	152	19.7	52.4	491
CC-C	200	202	20.7	54.2	648
CCCMM-C1	0	177	19.3	53.6	571
CCCMM-C1	50	214	18.5	54.2	695
CCCMM-C1	100	245	19.4	54.2	791
CCCMM-C1	200	264	19.6	54.7	853
CCCMM-C2	0	136	18.7	52.8	440
CCCMM-C2	50	165	19.6	52.9	532
CCCMM-C2	100	228	18.6	53.9	741
CCCMM-C2	200	226	20.0	53.3	729
CCCMM-C3	0	96	18.9	53.6	311
CCCMM-C3	50	129	18.8	53.1	419
CCCMM-C3	100	185	20.1	53.9	596
CCCMM-C3	200	241	20.5	54.4	774
CCOMM-C1	0	172	20.0	53.4	553
CCOMM-C1	50	238	19.3	54.6	769
CCOMM-C1	100	241	20.6	54.3	772
CCOMM-C1	200	248	20.4	54.2	798

continue

Table:1909-17. Corn, Soybean, Wheat, Oats and Alfalfa Rotation - Corn
(continued) **Lancaster, WI - 2019**

Rotation	Nitrogen rate	Yield	Moisture	Test weight	AGI $3.54/bu
	N lb/A	bu/A	%	lbs/bu	$/A
CCOMM-C2	0	141	20.2	54.0	452
CCOMM-C2	50	179	18.6	53.6	582
CCOMM-C2	100	229	20.4	54.3	735
CCOMM-C2	200	251	20.3	53.9	808
CS-C	0	116	19.1	52.9	376
CS-C	50	134	18.0	52.8	438
CS-C	100	196	18.6	53.9	638
CS-C	200	213	20.4	52.9	683
CSCOM-C1	0	179	19.0	54.2	580
CSCOM-C1	50	232	18.5	54.0	752
CSCOM-C1	100	247	18.2	53.3	805
CSCOM-C1	200	265	19.7	54.4	856
CSCOM-C2	0	136	17.3	51.8	445
CSCOM-C2	50	189	18.8	53.6	614
CSCOM-C2	100	207	20.3	54.1	665
CSCOM-C2	200	241	20.3	54.1	775
CSW-C	0	120	17.9	52.5	391
CSW-C	50	152	17.7	51.8	496
CSW-C	100	179	19.2	53.6	581
CSW-C	200	235	19.7	52.8	759
Mean		190	19.3	53.5	613
Probability(%)					
Rotation (R)		0.0	31.1	6.5	0.0
Nitrogen (N)		0.0	0.1	2.6	0.0
R x N		0.2	84.1	69.7	0.1
LSD (0.10)					
Rotation (R)		14	NS	0.8	44
Nitrogen (N)		6	0.6	0.5	20
R x N		21	NS	NS	68

*AGI: Adjusted Gross Income

Table:1909-18. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Soybean Lancaster, WI - 2019.

Rotation	Nitrogen rate	Yield	Moisture	AGI $8.48/bu
	N lb/A	bu/A	%	$/A
CS-S		53	14.4	425
CSCOM-S		62	14.9	493
CSW-S		61	14.3	486
	0	62	14.6	493
	50	57	14.4	454
	100	58	14.6	464
	200	58	14.5	462
			0.0	
CS-S	0	58	14.5	461
CS-S	50	52	14.4	413
CS-S	100	52	14.5	415
CS-S	200	52	14.1	412
CSCOM-S	0	64	14.9	512
CSCOM-S	50	57	14.7	458
CSCOM-S	100	63	15.0	503
CSCOM-S	200	63	15.1	500
CSW-S	0	63	14.4	506
CSW-S	50	61	14.1	490
CSW-S	100	59	14.3	474
CSW-S	200	59	14.3	473
Mean		59	14.5	468
Probability(%)				
Rotation (R)		15	47.7	15
Nitrogen (N)		10	45.0	10
R x N		59	46.4	59
LSD (0.10)				
Rotation (R)		NS	NS	NS
Nitrogen (N)		NS	NS	NS
R x N		NS	NS	NS

*AGI: Adjusted Gross Income

Table:1909-19. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Wheat. Lancaster, WI - 2019.

Rotation	Nitrogen rate	Yield	Moisture	AGI $3.78/bu
	N lb/A	bu/A	%	$/A
CSW-W	0	40	15	178
CSW-W	50	67	15	297
CSW-W	100	55	15	244
CSW-W	200	57	15	253
Mean		54	15	243
Probability(%)				
Nitrogen (N)		28.0	--	28.0
LSD (0.10)			--	
Nitrogen (N)		NS	--	NS

*AGI: Adjusted Gross Income

-- Average moisture for the trial: 15 %

Table:1909-20. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Oats. Lancaster, WI - 2019.

Rotation	Nitrogen rate	Yield	Moisture	AGI $2.00/bu
	N lb/A	bu/A	%	$/A
CCOAA-O		44	16.6	77
CSCOA-O		39	13.1	68
	0	38	13.8	67
	50	40	13.5	70
	100	40	16.3	72
	200	46	16.0	82
CCOAA-O	0	39	15.0	69
CCOAA-O	50	44	14.0	77
CCOAA-O	100	42	19.0	75
CCOAA-O	200	50	18.5	88
CSCOA-O	0	37	12.5	66
CSCOA-O	50	36	13.0	63
CSCOA-O	100	38	13.5	68
CSCOA-O	200	43	13.5	76
Mean		41	14.9	73
Probability(%)				
Rotation (R)		36	43.8	36
Nitrogen (N)		22	26.6	22
R x N		25	49.1	25
LSD (0.10)				
Rotation (R)		NS	NS	NS
Nitrogen (N)		NS	NS	NS
R x N		NS	NS	NS

*AGI: Adjusted Gross Income

Table:1909-21. Corn, Soybean, Wheat, Oats and Alfalfa (Meadow) Rotation - Alfalfa. Lancaster, WI - 2019.

Rotation	Nitrogen rate	Harvest Date 13-Jun	12-Jul	21-Aug	Total
	N lb/A	T dm/A	T dm/A	T dm/A	T dm/A
CCCMM-M1		0.7	1.3	--	2.0
CCCMM-M2		2.3	1.2	1.5	4.9
CCOMM-M1		1.6	1.0	1.1	3.7
CCOMM-M2		2.4	1.1	1.3	4.9
CSCOM-M		1.9	1.2	1.0	4.1
	0	2.0	1.2	1.2	4.2
	50	1.8	1.2	1.2	3.9
	100	1.8	1.2	1.2	3.9
	200	1.6	1.1	1.3	3.8
CCCMM-M1	0	0.9	1.1	--	2.0
CCCMM-M1	50	0.7	1.2	--	2.0
CCCMM-M1	100	0.7	1.4	--	2.1
CCCMM-M1	200	0.6	1.3	--	1.9
CCCMM-M2	0	2.4	1.1	1.5	5.0
CCCMM-M2	50	2.0	1.1	1.5	4.6
CCCMM-M2	100	2.3	1.3	1.4	5.1
CCCMM-M2	200	2.5	1.0	1.5	5.0
CCOMM-M1	0	2.1	1.2	1.2	4.4
CCOMM-M1	50	1.6	1.0	1.1	3.6
CCOMM-M1	100	1.5	1.0	0.9	3.4
CCOMM-M1	200	1.4	0.8	1.2	3.4
CCOMM-M2	0	2.4	1.1	1.2	4.7
CCOMM-M2	50	2.6	1.2	1.3	5.0
CCOMM-M2	100	2.6	1.2	1.4	5.2
CCOMM-M2	200	2.2	1.1	1.4	4.7
CSCOM-M	0	2.3	1.3	1.0	4.6
CSCOM-M	50	1.9	1.3	1.0	4.2
CSCOM-M	100	1.7	1.0	1.1	3.7
CSCOM-M	200	1.6	1.3	1.0	3.9
Mean		1.8	1.2	1.2	3.9
Probability(%)					
Rotation (R)		2.1	58.5	4.5	1.0
Nitrogen (N)		3.4	75.5	69.0	20.5
R x N		32.3	20.4	51.3	41.8
LSD (0.10)					
Rotation (R)		0.6	NS	0.2	0.9
Nitrogen (N)		0.2	NS	NS	NS
R x N		NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6352 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: ARS411 **Previous Crop:** Alfalfa **Soil Type:** Plano Silt Loamsilt loam

Soil Test: Date: 5 /13/19 **pH** 5.7 **OM (%)** 3.3 **P (ppm)** 30 **K (ppm)** 136

Plot Management

Tillage Operations: Field Cultivator Disk Chisel

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0	35 gal/A	N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/13/2019 5/13/2019
Post plant	N/A	N/A	N/A
Manure:	Dairy	9258 gal/A	N/A

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

Irrigation: None **Hybrid:** Factor

Planting Date: 5/1/18 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/24/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32424 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
2) Dekalb DKC31-10 (81)
3) FS InVision FS37TV1 (87)
4) Jung 39DP338 (89)
5) Federal 4160VT2PRIB (91)
6) Renk RK433RR (92)
7) Jung 46SS427RIB (96)
8) Dairyland RPM-3715AMXT (96)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)
15) Golden Harvest G12W66-3122 (112)
16) Dekalb DKC65-94RIB (115)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-01

Table 1912 - 01. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Arlington, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		245	23.5	54.9	31747	802	4.9	0.3	4.6	112	--	--	--	--	--
	Pop-up		249	22.7	55.0	31250	820	2.5	0.5	2.1	109	--	--	--	--	--
	Starter		242	23.4	55.2	31691	794	7.6	0.4	7.2	112	--	--	--	--	--
		Dairyland RPM-3715AMXT	229	22.9	53.7	29755	753	16.4	0.4	15.9	116	--	--	--	--	--
		Dairyland RPM-4317AMXT	263	22.8	55.4	30176	865	0.1	0.1	0.0	118	--	--	--	--	--
		Dairyland RPM-4816AMXT	247	27.7	54.0	31649	790	11.6	0.8	10.8	117	--	--	--	--	--
		Dekalb DKC31-10	205	17.9	58.0	33670	694	2.6	0.8	1.8	98	--	--	--	--	--
		Dekalb DKC65-94RIB	250	29.9	55.0	32491	789	1.9	0.3	1.7	116	--	--	--	--	--
		FS InVision FS37TV1	229	19.1	55.0	31860	772	3.0	0.4	2.6	107	--	--	--	--	--
		Federal 4160VT2PRIB	253	21.0	55.3	33038	843	0.0	0.0	0.0	108	--	--	--	--	--
		Golden Harvest G12W66-3122	253	28.0	55.2	30345	808	0.7	0.0	0.7	121	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	261	21.6	55.0	32996	865	5.5	0.4	5.1	114	--	--	--	--	--
		Jung 39DP338	254	18.6	55.1	33922	858	0.6	0.5	0.1	102	--	--	--	--	--
		Jung 46SS427RIB	246	21.4	54.1	32154	817	5.6	0.7	4.9	117	--	--	--	--	--
		Jung 4D178RIB	233	18.8	55.7	32197	785	1.6	0.1	1.5	101	--	--	--	--	--
		LG Seeds LG5548STXRIB	253	29.3	54.9	27819	799	5.7	0.9	4.7	117	--	--	--	--	--
		Renk RK433RR	237	20.8	55.2	32070	790	0.5	0.3	0.3	103	--	--	--	--	--
		Renk RK717SSTX	231	26.3	54.5	28114	746	24.0	0.3	23.7	109	--	--	--	--	--
		Wyffels W4196RIB	281	25.3	54.7	32744	913	0.4	0.3	0.1	111	--	--	--	--	--
1	UTC	Jung 4D178RIB	234	19.6	56.7	31565	786	0.8	0.4	0.4	98	4.3	0.5	5.7	0.3	5.2
2	UTC	Dekalb DKC31-10	204	17.9	58.4	34090	693	3.7	0.7	3.0	104	4.1	0.6	6.1	0.4	7.3
3	UTC	FS InVision FS37TV1	236	19.9	54.7	32702	792	3.1	0.4	2.7	105	4.4	0.6	5.0	0.4	5.1
4	UTC	Jung 39DP338	248	18.9	54.5	33207	837	0.8	0.4	0.4	105	4.3	0.6	4.8	0.4	5.9
5	UTC	Federal 4160VT2PRIB	251	20.8	55.5	32828	836	0.0	0.0	0.0	107	4.3	0.6	5.5	0.3	5.5
6	UTC	Renk RK433RR	234	21.7	55.9	32575	776	1.2	0.4	0.8	103	4.3	0.5	6.3	0.4	6.3
7	UTC	Jung 46SS427RIB	246	21.9	54.4	32575	816	3.5	0.0	3.5	124	4.5	0.6	5.6	0.4	5.6
8	UTC	Dairyland RPM-3715AMXT	229	22.7	55.1	30934	753	22.8	0.0	22.8	118	4.6	0.6	5.4	0.4	5.2
9	UTC	Golden Harvest G97N86-3220EZ	258	21.7	54.9	32323	854	10.0	0.4	9.7	117	4.3	0.5	5.2	0.4	5.0
10	UTC	Dairyland RPM-4317AMXT	266	23.2	54.5	30934	875	0.0	0.0	0.0	118	4.4	0.6	4.6	0.4	5.8
11	UTC	Renk RK717SSTX	236	26.4	52.8	28535	760	13.9	0.0	13.9	113	4.5	0.6	5.0	0.3	5.1
12	UTC	Wyffels W4196RIB	278	26.2	54.6	32323	896	0.0	0.0	0.0	109	4.2	0.5	4.3	0.3	5.5
13	UTC	Dairyland RPM-4816AMXT	244	28.2	53.2	32449	779	13.3	0.0	13.3	115	4.6	0.6	5.2	0.3	5.2
14	UTC	LG Seeds LG5548STXRIB	259	29.4	54.1	28156	817	3.5	0.9	2.6	122	4.4	0.6	4.7	0.4	4.7
15	UTC	Golden Harvest G12W66-3122	251	27.4	54.2	31313	804	0.0	0.0	0.0	118	4.3	0.5	4.5	0.3	5.4
16	UTC	Dekalb DKC65-94RIB	240	30.7	54.7	31439	752	1.9	0.8	1.2	116	4.4	0.6	4.2	0.4	5.9

continue

Table 1912 - 01. Corn Hybrid Response to Starter Fertilizer in Wisconsin.

(continued) **Arlington, 2019**

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	hight	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
17	Pop-up	Jung 4D178RIB	238	18.2	55.7	32449	805	0.0	0.0	0.0	100	4.0	0.5	4.6	0.3	9.4
18	Pop-up	Dekalb DKC31-10	207	17.0	57.4	34217	706	0.4	0.0	0.4	95	4.1	0.5	5.0	0.3	9.4
19	Pop-up	FS InVision FS37TV1	223	17.7	54.9	30681	757	1.6	0.0	1.6	107	4.2	0.6	6.3	0.3	9.0
20	Pop-up	Jung 39DP338	259	18.1	54.3	34090	877	1.1	1.1	0.0	102	4.0	0.6	5.1	0.3	8.6
21	Pop-up	Federal 4160VT2PRIB	253	20.8	55.1	33459	844	0.0	0.0	0.0	109	4.1	0.6	6.1	0.4	8.9
22	Pop-up	Renk RK433RR	241	19.9	54.6	31565	806	0.0	0.0	0.0	104	4.2	0.5	6.3	0.4	9.0
23	Pop-up	Jung 46SS427RIB	249	20.6	54.3	30808	831	5.0	2.1	3.0	112	4.3	0.6	5.0	0.3	8.1
24	Pop-up	Dairyland RPM-3715AMXT	229	22.8	53.9	28914	754	9.9	0.0	9.9	114	4.1	0.6	5.7	0.4	8.5
25	Pop-up	Golden Harvest G97N86-3220EZ	255	22.0	55.1	32702	845	2.4	0.8	1.6	111	3.8	0.5	6.1	0.3	7.7
26	Pop-up	Dairyland RPM-4317AMXT	266	21.8	55.1	29419	881	0.0	0.0	0.0	117	4.1	0.6	5.2	0.4	8.8
27	Pop-up	Renk RK717SSTX	250	25.7	54.9	28787	808	9.9	0.4	9.5	110	4.0	0.6	5.9	0.4	8.6
28	Pop-up	Wyffels W4196RIB	292	24.7	55.8	33459	951	0.0	0.0	0.0	111	3.9	0.5	5.2	0.3	8.9
29	Pop-up	Dairyland RPM-4816AMXT	245	28.0	54.6	30681	783	4.8	1.6	3.3	113	4.4	0.5	5.5	0.3	8.0
30	Pop-up	LG Seeds LG5548STXRIB	253	28.8	54.4	26136	802	3.4	1.5	1.9	112	4.1	0.5	5.0	0.3	6.6
31	Pop-up	Golden Harvest G12W66-3122	261	28.6	55.6	30050	831	1.7	0.0	1.7	117	4.0	0.5	5.3	0.3	7.3
32	Pop-up	Dekalb DKC65-94RIB	267	29.3	54.9	32575	846	0.4	0.0	0.4	113	4.1	0.5	5.7	0.3	7.2
33	Starter	Jung 4D178RIB	226	18.6	54.8	32575	763	4.0	0.0	4.0	105	3.8	0.6	5.4	0.3	7.4
34	Starter	Dekalb DKC31-10	203	18.8	58.0	32702	684	3.6	1.6	2.0	94	3.9	0.5	5.6	0.3	10.1
35	Starter	FS InVision FS37TV1	228	19.8	55.5	32197	766	4.3	0.8	3.6	108	4.3	0.5	5.6	0.3	7.8
36	Starter	Jung 39DP338	255	18.9	56.4	34469	860	0.0	0.0	0.0	99	3.9	0.5	5.3	0.4	8.7
37	Starter	Federal 4160VT2PRIB	255	21.4	55.3	32828	848	0.0	0.0	0.0	109	4.0	0.5	5.6	0.4	6.9
38	Starter	Renk RK433RR	236	20.6	55.1	32070	789	0.4	0.4	0.0	102	4.0	0.5	5.8	0.3	8.7
39	Starter	Jung 46SS427RIB	243	21.7	53.7	33080	805	8.3	0.0	8.3	116	4.1	0.5	5.9	0.3	7.0
40	Starter	Dairyland RPM-3715AMXT	229	23.4	52.2	29419	752	16.4	1.2	15.1	116	4.1	0.5	5.7	0.3	6.3
41	Starter	Golden Harvest G97N86-3220EZ	269	21.2	55.1	33964	894	4.1	0.0	4.1	113	4.0	0.4	5.5	0.3	6.9
42	Starter	Dairyland RPM-4317AMXT	256	23.3	56.6	30176	840	0.4	0.4	0.0	120	4.0	0.5	5.1	0.4	7.6
43	Starter	Renk RK717SSTX	209	26.9	55.8	27020	670	48.2	0.5	47.7	102	3.8	0.5	5.4	0.4	6.3
44	Starter	Wyffels W4196RIB	275	25.1	53.8	32449	892	1.1	0.8	0.4	114	3.9	0.5	5.7	0.3	8.2
45	Starter	Dairyland RPM-4816AMXT	252	26.8	54.0	31818	809	16.7	0.8	15.8	124	3.9	0.5	6.1	0.3	7.2
46	Starter	LG Seeds LG5548STXRIB	247	29.8	56.2	29166	779	10.1	0.4	9.7	117	4.0	0.5	5.2	0.3	5.8
47	Starter	Golden Harvest G12W66-3122	247	28.1	55.7	29671	789	0.4	0.0	0.4	128	4.3	0.5	5.6	0.3	6.2
48	Starter	Dekalb DKC65-94RIB	244	29.8	55.5	33459	771	3.4	0.0	3.4	120	4.1	0.5	5.1	0.4	5.6
Mean			245	23.2	55.1	31563	806	5.0	0.4	4.6	111	4.1	0.5	5.4	0.3	7.1
Probability(%):																
Fertilizer(F)			3.0	0.2	51.0	19.4	1.6	0.0	40.8	0.0	3.5	--	--	--	--	--
Hybrid (H)			0.0	0.0	0.0	0.0	0.0	0.0	25.2	0.0	0.0	--	--	--	--	--
F x H			48.3	72.8	20.1	34.7	53.6	0.0	5.4	0.0	20.1	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			4.5	0.4	NS	NS	15.2	1.8	NS	1.8	2.0	--	--	--	--	--
Hybrid (H)			10.3	0.9	1.1	1144.8	35.0	4.2	NS	4.1	4.6	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	7.3	1.0	7.1	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6411 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Sattre silt loam

Soil Test: Date: 5 /4 /19 **pH** 6.5 **OM (%)** 1.3 **P (ppm)** 27 **K (ppm)** 54

Plot Management

Tillage Operations: Field Cultivator Spring Chisel

Fertilizer:

	Analysis	Rate	Date
Preplant	21-0-0-24S	50 lbs/A	N/A
Starter	9-11-30-6S-1Zn	200 lbs/A	5/4/19
	10-34-0	4.08 gal/A	5/4/19
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: Jul - Aug: 4" **Hybrid:** Factor

Planting Date: 5/4/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/17/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.7 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32759 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
7) Jung 46SS427RIB (96)
8) Dairyland RPM-3715AMXT (96)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
13) Dairyland RPM-4816AMXT (108)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-02

Table 1912 - 02. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Chippewa Falls, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		219	26.7	52.8	32796	704	0.9	0.9	0.0	98	--	--	--	--	--
	Pop-up		225	26.2	51.4	32260	724	0.9	0.8	0.1	95	--	--	--	--	--
	Starter		231	27.2	52.3	33222	742	0.5	0.5	0.0	101	--	--	--	--	--
		Dairyland RPM-3715AMXT	232	27.2	50.5	32533	744	0.9	0.7	0.2	101	--	--	--	--	--
		Dairyland RPM-4317AMXT	234	28.3	52.9	32491	746	0.3	0.3	0.0	94	--	--	--	--	--
		Dairyland RPM-4816AMXT	230	35.2	53.0	32239	701	0.3	0.3	0.0	101	--	--	--	--	--
		Federal 4160VT2PRIB	220	23.5	51.3	32533	723	0.4	0.4	0.0	97	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	230	23.5	53.3	33249	755	3.1	3.0	0.1	102	--	--	--	--	--
		Jung 46SS427RIB	221	24.3	52.5	33375	723	0.1	0.1	0.0	97	--	--	--	--	--
		Jung 4D178RIB	202	22.9	51.5	33754	664	0.6	0.6	0.0	89	--	--	--	--	--
		Renk RK717SSTX	230	28.6	52.3	31902	731	0.4	0.4	0.0	104	--	--	--	--	--
1	UTC	Jung 4D178RIB	199	23.0	54.0	33964	654	0.4	0.4	0.0	89	4.0	0.4	3.9	0.3	2.9
5	UTC	Federal 4160VT2PRIB	208	24.2	53.9	31691	678	0.9	0.9	0.0	94	3.8	0.5	4.6	0.3	3.8
7	UTC	Jung 46SS427RIB	223	24.6	53.5	34217	725	0.0	0.0	0.0	97	3.9	0.5	5.2	0.3	3.5
8	UTC	Dairyland RPM-3715AMXT	223	26.5	50.6	32197	718	2.0	2.0	0.0	102	4.2	0.5	4.5	0.3	3.5
9	UTC	Golden Harvest G97N86-3220EZ	220	23.5	53.1	33585	721	3.4	3.4	0.0	104	3.8	0.5	5.0	0.3	3.3
10	UTC	Dairyland RPM-4317AMXT	234	27.6	52.5	32954	749	0.4	0.4	0.0	95	4.0	0.5	4.4	0.3	3.7
11	UTC	Renk RK717SSTX	226	29.0	52.5	32197	717	0.0	0.0	0.0	104	4.1	0.5	4.6	0.3	3.1
13	UTC	Dairyland RPM-4816AMXT	219	35.0	52.5	31565	668	0.4	0.4	0.0	104	4.1	0.5	4.5	0.3	3.3
17	Pop-up	Jung 4D178RIB	210	22.0	48.8	33207	695	0.0	0.0	0.0	86	3.4	0.5	3.6	0.2	3.7
21	Pop-up	Federal 4160VT2PRIB	225	23.2	46.8	33333	739	0.4	0.4	0.0	96	3.3	0.5	3.4	0.2	3.9
23	Pop-up	Jung 46SS427RIB	210	23.4	52.1	32070	691	0.4	0.4	0.0	92	3.8	0.5	3.9	0.2	3.9
24	Pop-up	Dairyland RPM-3715AMXT	233	26.9	50.8	32954	748	0.7	0.0	0.7	98	3.6	0.5	3.5	0.3	3.6
25	Pop-up	Golden Harvest G97N86-3220EZ	228	23.9	54.3	32323	747	4.1	3.7	0.4	97	3.4	0.4	4.2	0.3	4.2
26	Pop-up	Dairyland RPM-4317AMXT	231	28.4	53.3	31313	736	0.4	0.4	0.0	94	3.8	0.5	4.1	0.3	4.5
27	Pop-up	Renk RK717SSTX	230	26.7	52.2	30429	739	0.8	0.8	0.0	101	3.8	0.6	3.6	0.3	3.4
29	Pop-up	Dairyland RPM-4816AMXT	229	35.2	52.6	32449	698	0.4	0.4	0.0	98	3.3	0.4	2.8	0.2	3.8
33	Starter	Jung 4D178RIB	196	23.7	51.9	34090	642	1.5	1.5	0.0	93	3.6	0.5	4.3	0.3	4.7
37	Starter	Federal 4160VT2PRIB	229	23.2	53.3	32575	753	0.0	0.0	0.0	102	3.5	0.5	4.9	0.3	4.9
39	Starter	Jung 46SS427RIB	231	24.8	52.0	33838	752	0.0	0.0	0.0	102	3.8	0.5	4.6	0.3	4.5
40	Starter	Dairyland RPM-3715AMXT	240	28.1	50.2	32449	765	0.0	0.0	0.0	103	3.6	0.5	4.5	0.2	4.8
41	Starter	Golden Harvest G97N86-3220EZ	243	23.0	52.4	33838	799	1.9	1.9	0.0	105	3.5	0.5	4.6	0.3	5.3
42	Starter	Dairyland RPM-4317AMXT	237	28.9	52.8	33207	753	0.0	0.0	0.0	94	3.9	0.6	4.6	0.3	4.2
43	Starter	Renk RK717SSTX	234	30.1	52.2	33080	736	0.4	0.4	0.0	108	3.9	0.5	4.5	0.3	3.9
45	Starter	Dairyland RPM-4816AMXT	242	35.5	53.9	32702	736	0.0	0.0	0.0	100	4.0	0.5	4.6	0.3	4.1
Mean			225	26.7	52.2	32759	723	0.8	0.7	0.0	98	3.8	0.5	4.3	0.3	3.9
Probability(%):																
Fertilizer(F)			3.4	4.7	14.5	5.4	5.4	48.2	50.1	16.8	0.3	--	--	--	--	--
Hybrid (H)			0.2	0.0	31.6	7.5	1.7	0.2	0.2	53.1	0.0	--	--	--	--	--
F x H			89.0	45.6	24.2	42.3	85.8	88.4	80.6	58.6	83.5	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			8	0.6	NS	649	26	NS	NS	NS	2.5	--	--	--	--	--
Hybrid (H)			13	1.1	NS	1059	42	1.2	1.1	NS	4.1	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6412 **Year:** 2019

Personnel: Joe Lauer,Thierno Diallo, Kent Kohn,

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: N/A **Previous Crop:** Soybean **Soil Type:** Oconto Silt Loam

Soil Test: Date: 5 /16/19 **pH** 5.5 **OM (%)** 1.4 **P (ppm)** 28 **K (ppm)** 136

Plot Management

Tillage Operations: Field Cultivator Disk Chisel

Fertilizer:	Analysis	Rate	Date
Preplant	18-46-0 21-0-0-24S	25 lbs/A 75 lbs/A	N/A N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/16/19 5/16/19
Post plant	N/A	N/A	N/A
Manure:	Dairy	5000 gal	N/A

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

Irrigation: None **Hybrid:** Factor

Planting Date: 5/16/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/31/18 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32123 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
2) Dekalb DKC31-10 (81)
4) Jung 39DP338 (89)
5) Federal 4160VT2PRIB (91)
6) Renk RK433RR (92)
7) Jung 46SS427RIB (96)
9) Golden Harvest G97N86-3220EZ (101)
13) Dairyland RPM-4816AMXT (108)

Fertlizer

1) UTC
2) Pop-pop: 10-34-0
3) Starter: 9-11-30-6S-1Zn

Results: Table 1912-03

Table 1912 - 03. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Coleman, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		187	26.1	52.6	32417	602	10.6	10.6	0.0	101	--	--	--	--	--
	Pop-up		192	25.0	52.3	31770	625	10.0	10.0	0.0	102	--	--	--	--	--
	Starter		191	26.0	52.3	32181	619	10.2	10.1	0.1	104	--	--	--	--	--
		Dairyland RPM-4816AMXT	183	36.0	51.9	31313	554	6.4	6.4	0.0	110	--	--	--	--	--
		Dekalb DKC31-10	188	20.3	54.6	33080	628	2.4	2.4	0.0	100	--	--	--	--	--
		Federal 4160VT2PRIB	185	25.6	53.2	32617	598	20.4	20.4	0.0	101	--	--	--	--	--
		Golden Harvest G97N86-322	195	26.5	50.8	31944	629	12.6	12.3	0.3	112	--	--	--	--	--
		Jung 39DP338	201	23.0	52.5	32912	661	17.1	17.1	0.0	95	--	--	--	--	--
		Jung 46SS427RIB	181	25.9	50.8	32828	585	15.9	15.9	0.0	102	--	--	--	--	--
		Jung 4D178RIB	190	22.2	52.7	32702	630	5.8	5.8	0.0	97	--	--	--	--	--
		Renk RK433RR	198	26.2	52.5	29587	639	1.5	1.5	0.0	101	--	--	--	--	--
1	UTC	Jung 4D178RIB	186	22.9	52.3	32954	614	5.8	5.8	0.0	97	4.2	0.5	5.3	0.5	7.4
2	UTC	Dekalb DKC31-10	191	20.4	54.5	33459	637	3.3	3.3	0.0	100	3.9	0.5	5.5	0.4	8.3
4	UTC	Jung 39DP338	208	23.3	52.3	33207	682	10.6	10.6	0.0	94	4.0	0.4	5.9	0.3	6.9
5	UTC	Federal 4160VT2PRIB	153	26.6	56.7	32575	491	32.7	32.7	0.0	98	4.1	0.4	5.8	0.4	6.7
6	UTC	Renk RK433RR	198	26.0	52.0	31060	640	0.8	0.8	0.0	103	4.0	0.4	5.7	0.4	7.2
7	UTC	Jung 46SS427RIB	179	27.0	50.6	33080	575	16.5	16.5	0.0	100	4.2	0.4	5.2	0.5	5.4
9	UTC	Golden Harvest G97N86-322	194	27.2	50.4	31691	622	10.3	10.3	0.0	110	3.9	0.4	5.9	0.4	5.5
13	UTC	Dairyland RPM-4816AMXT	184	35.7	51.8	31313	557	5.0	5.0	0.0	109	3.9	0.4	6.4	0.3	7.2
17	Pop-up	Jung 4D178RIB	188	22.1	53.2	32070	622	6.3	6.3	0.0	98	3.9	0.4	5.2	0.4	8.6
18	Pop-up	Dekalb DKC31-10	178	19.9	54.9	32575	597	0.8	0.8	0.0	95	3.9	0.4	5.1	0.4	8.9
20	Pop-up	Jung 39DP338	194	22.5	53.4	32197	639	23.2	23.2	0.0	96	4.0	0.4	5.0	0.4	8.5
21	Pop-up	Federal 4160VT2PRIB	201	24.7	52.4	32575	653	16.1	16.1	0.0	102	3.9	0.4	5.3	0.4	9.4
22	Pop-up	Renk RK433RR	200	25.3	52.5	29671	650	1.3	1.3	0.0	101	3.9	0.4	5.5	0.5	9.4
23	Pop-up	Jung 46SS427RIB	187	24.5	50.6	32197	608	17.6	17.6	0.0	102	4.3	0.4	4.6	0.4	6.9
25	Pop-up	Golden Harvest G97N86-322	203	24.9	50.5	31565	661	9.2	9.2	0.0	112	4.0	0.4	5.7	0.5	8.4
29	Pop-up	Dairyland RPM-4816AMXT	188	36.0	51.3	31313	569	5.6	5.6	0.0	108	4.0	0.4	6.3	0.4	8.6
33	Starter	Jung 4D178RIB	197	21.8	52.6	33080	653	5.4	5.4	0.0	96	4.1	0.4	4.9	0.4	7.5
34	Starter	Dekalb DKC31-10	195	20.7	54.5	33207	650	3.0	3.0	0.0	105	4.1	0.5	6.3	0.5	8.6
36	Starter	Jung 39DP338	201	23.2	51.9	33333	660	17.5	17.5	0.0	95	4.4	0.5	4.8	0.4	8.3
37	Starter	Federal 4160VT2PRIB	201	25.5	50.5	32702	650	12.3	12.3	0.0	104	4.5	0.4	6.0	0.4	8.5
38	Starter	Renk RK433RR	196	27.2	53.2	28030	628	2.4	2.4	0.0	97	4.0	0.4	6.1	0.4	9.2
39	Starter	Jung 46SS427RIB	177	26.4	51.1	33207	571	13.7	13.7	0.0	104	4.1	0.4	6.0	0.4	8.1
41	Starter	Golden Harvest G97N86-322	188	27.2	51.6	32575	603	18.4	17.6	0.8	115	3.8	0.4	6.5	0.5	8.3
45	Starter	Dairyland RPM-4816AMXT	177	36.1	52.8	31313	535	8.6	8.6	0.0	113	4.5	0.4	5.0	0.4	7.5
Mean			190	25.7	52.4	32123	615	10.3	10.2	0.0	102	4.1	0.4	5.6	0.4	7.9
Probability(%):																
Fertilizer(F)			34.4	0.7	88.2	50.3	24.7	95.3	94.7	37.6	12.4	--	--	--	--	--
Hybrid (H)			4.7	0.0	0.9	0.5	0.1	0.0	0.0	44.4	0.0	--	--	--	--	--
F x H			4.9	74.4	35.3	98.4	3.9	10.0	11.7	46.9	33.3	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			NS	0.6	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			12	1.0	1.7	1519	38	5.6	5.6	NS	3	--	--	--	--	--
F x H			20	NS	NS	NS	66	9.7	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6413 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

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

Soil Test: Date: 6 /4 /19 **pH** 6.6 **OM (%)** 3.0 **P (ppm)** 18 **K (ppm)** 92

Plot Management

Tillage Operations: Field Cultivator Fall Chisel

Fertilizer:	Analysis	Rate	Date
Preplant	46-0-0	391.3 lb/A	N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	6/4/19 6/4/19
Post plant	32-0-0	32 gal/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: 6/4/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 11/5/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

Experimental Design RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32653 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-04

Table 1912 - 04. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Fond Du Lac, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		199	30.9	51.2	32541	623	0.1	0.1	0.0	114	--	--	--	--	--
	Pop-up		208	29.0	52.0	32717	658	0.3	0.3	0.0	114	--	--	--	--	--
	Starter		197	30.8	53.5	32702	617	0.4	0.2	0.2	120	--	--	--	--	--
		Dairyland RPM-4317AMXT	208	30.0	51.5	32235	655	0.1	0.1	0.0	117	--	--	--	--	--
		Dairyland RPM-4816AMXT	185	36.2	55.0	32193	559	0.4	0.3	0.1	118	--	--	--	--	--
		Federal 4160VT2PRIB	205	23.3	51.5	32509	673	0.2	0.2	0.0	118	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	200	25.6	50.9	33414	648	0.0	0.0	0.0	116	--	--	--	--	--
		Jung 4D178RIB	202	21.0	54.2	33750	673	0.5	0.5	0.0	102	--	--	--	--	--
		LG Seeds LG5548STXRIB	195	39.9	52.2	31688	576	0.4	0.1	0.3	123	--	--	--	--	--
		Renk RK717SSTX	203	31.7	50.9	32298	632	0.3	0.3	0.0	118	--	--	--	--	--
		Wyffels W4196RIB	211	34.4	51.5	33140	648	0.1	0.1	0.0	118	--	--	--	--	--
1	UTC	Jung 4D178RIB	207	21.2	53.2	33701	691	0.0	0.0	0.0	105	4.2	0.5	4.5	0.4	3.5
5	UTC	Federal 4160VT2PRIB	201	23.5	51.5	31997	660	0.6	0.6	0.0	107	4.3	0.6	4.5	0.4	3.6
9	UTC	Golden Harvest G97N86-3220EZ	200	26.9	48.9	32944	643	0.0	0.0	0.0	115	4.2	0.4	3.9	0.4	3.2
10	UTC	Dairyland RPM-4317AMXT	205	30.7	50.2	32944	642	0.0	0.0	0.0	114	3.9	0.4	4.0	0.4	3.0
11	UTC	Renk RK717SSTX	202	32.5	51.5	31239	627	0.0	0.0	0.0	120	4.2	0.5	4.1	0.4	3.0
12	UTC	Wyffels W4196RIB	208	34.3	51.5	33133	637	0.0	0.0	0.0	118	4.2	0.5	4.0	0.4	3.7
13	UTC	Dairyland RPM-4816AMXT	184	36.6	50.3	32186	556	0.0	0.0	0.0	115	4.0	0.4	3.7	0.4	3.1
14	UTC	LG Seeds LG5548STXRIB	181	41.8	52.4	32186	528	0.0	0.0	0.0	119	4.3	0.4	4.0	0.4	2.9
17	Pop-up	Jung 4D178RIB	202	20.1	54.9	33712	677	0.8	0.8	0.0	98	4.0	0.5	4.0	0.4	4.6
21	Pop-up	Federal 4160VT2PRIB	210	22.3	51.5	32702	693	0.0	0.0	0.0	109	3.8	0.5	3.9	0.4	4.9
25	Pop-up	Golden Harvest G97N86-3220EZ	199	24.6	52.6	34090	647	0.0	0.0	0.0	116	4.0	0.5	3.9	0.4	4.0
26	Pop-up	Dairyland RPM-4317AMXT	210	29.6	52.9	31691	664	0.4	0.4	0.0	122	4.1	0.5	4.7	0.4	4.8
27	Pop-up	Renk RK717SSTX	215	29.9	51.0	33207	679	0.4	0.4	0.0	115	4.2	0.6	4.7	0.4	3.8
28	Pop-up	Wyffels W4196RIB	227	32.3	51.3	32954	703	0.4	0.4	0.0	114	4.6	0.5	4.0	0.4	4.8
29	Pop-up	Dairyland RPM-4816AMXT	193	35.0	50.2	32575	588	0.0	0.0	0.0	118	4.2	0.5	4.2	0.4	4.4
30	Pop-up	LG Seeds LG5548STXRIB	206	38.2	51.4	30808	615	0.4	0.4	0.0	122	4.1	0.5	4.1	0.4	3.9
33	Starter	Jung 4D178RIB	196	21.7	54.5	33838	649	0.8	0.8	0.0	105	3.9	0.5	4.3	0.4	4.4
37	Starter	Federal 4160VT2PRIB	204	24.2	51.4	32828	665	0.0	0.0	0.0	139	3.9	0.5	4.2	0.4	4.2
41	Starter	Golden Harvest G97N86-3220EZ	202	25.3	51.1	33207	655	0.0	0.0	0.0	117	3.7	0.5	4.1	0.4	3.8
42	Starter	Dairyland RPM-4317AMXT	209	29.8	51.4	32070	658	0.0	0.0	0.0	115	4.3	0.5	4.2	0.4	4.5
43	Starter	Renk RK717SSTX	191	32.7	50.2	32449	590	0.4	0.4	0.0	119	3.8	0.5	4.0	0.5	3.3
44	Starter	Wyffels W4196RIB	199	36.6	51.7	33333	603	0.0	0.0	0.0	122	3.9	0.5	3.5	0.4	3.4
45	Starter	Dairyland RPM-4816AMXT	177	36.9	64.5	31818	533	1.2	0.8	0.4	120	4.1	0.4	3.8	0.3	3.2
46	Starter	LG Seeds LG5548STXRIB	197	39.5	52.9	32070	584	0.8	0.0	0.8	127	4.1	0.5	3.5	0.4	3.7
Mean			201	30.3	52.2	32653	633	0.3	0.2	0.1	116	4.1	0.5	4.1	0.4	3.8
Probability(%):																
Fertilizer(F)			0.6	0.1	43.2	85.6	0.2	39.4	40.9	26.3	18.3	--	--	--	--	--
Hybrid (H)			0.2	0.0	76.0	0.5	0.0	85.1	71.9	72.4	16.2	--	--	--	--	--
F x H			43.3	77.9	63.8	58.4	38.6	77.4	62.7	76.5	76.6	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			6	0.9	NS	NS	21	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			10	1.4	NS	894	33	NS	NS	NS	NS	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6414 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

Location: Galesville, WI **County:** Trempealeau

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

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

Soil Test: Date: 4 /30/18 **pH** 5.6 **OM (%)** 3.5 **P (ppm)** 18 **K (ppm)** 163

Plot Management

Tillage Operations: Field Cultivator

Fertilizer:	Analysis	Rate	Date
Preplant	46-0-0 21-0-0-24S	217.4 lb/A 100 lb/A	N/A N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	4/29/19 4/29/19
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Callisto 3.0 oz/A
Me-too-lachlor 1.25 pt/A
Banvel 2.0 oz/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 4/29/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/17/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 31185 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-05

Table 1912 - 05. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Galesville, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		189	30.6	54.3	31310	594	29.1	2.8	26.3	114	--	--	--	--	--
	Pop-up		200	28.1	54.2	30957	638	17.2	2.8	14.1	114	--	--	--	--	--
	Starter		195	31.5	54.5	31289	609	25.5	2.1	23.2	116	--	--	--	--	--
		Dairyland RPM-4317AMXT	203	28.3	54.3	29705	647	7.3	4.6	2.4	122	--	--	--	--	--
		Dairyland RPM-4816AMXT	184	33.2	54.2	31178	567	35.6	0.3	35.1	117	--	--	--	--	--
		Federal 4160VT2PRIB	210	26.1	52.8	33080	680	6.4	3.7	2.7	114	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	147	27.3	54.5	34969	472	66.5	2.7	63.4	114	--	--	--	--	--
		Jung 4D178RIB	180	27.3	53.3	32391	578	12.3	6.4	5.6	107	--	--	--	--	--
		LG Seeds LG5548STXRIB	185	34.7	55.1	24823	566	23.6	0.5	22.9	119	--	--	--	--	--
		Renk RK717SSTX	175	33.5	54.5	30176	540	35.4	2.4	33.0	112	--	--	--	--	--
		Wyffels W4196RIB	273	29.9	56.0	33159	860	4.5	0.0	4.5	115	--	--	--	--	--
1	UTC	Jung 4D178RIB	168	27.2	53.2	31313	540	20.3	7.2	13.1	106	4.0	0.3	4.2	0.3	4.3
5	UTC	Federal 4160VT2PRIB	213	27.8	53.1	33080	679	2.2	2.2	0.0	117	4.4	0.4	4.3	0.4	4.4
9	UTC	Golden Harvest G97N86-3220EZ	125	26.9	54.8	37910	400	99.3	0.0	99.4	113	4.1	0.3	4.2	0.4	4.0
10	UTC	Dairyland RPM-4317AMXT	199	29.4	54.2	30050	629	13.7	10.3	3.4	118	4.3	0.4	4.2	0.3	4.7
11	UTC	Renk RK717SSTX	187	32.1	54.6	29908	585	46.0	2.6	43.3	111	4.2	0.4	4.3	0.4	2.4
12	UTC	Wyffels W4196RIB	268	30.8	55.2	33317	840	0.5	0.0	0.5	109	4.0	0.3	4.1	0.4	2.9
13	UTC	Dairyland RPM-4816AMXT	171	35.2	55.1	32172	521	28.1	0.0	27.6	117	4.3	0.4	4.7	0.3	4.3
14	UTC	LG Seeds LG5548STXRIB	183	35.2	54.5	22727	557	22.9	0.0	22.9	119	4.5	0.4	4.0	0.4	3.5
17	Pop-up	Jung 4D178RIB	173	21.3	53.1	31850	574	13.2	11.9	1.4	101	3.8	0.4	4.7	0.3	4.9
21	Pop-up	Federal 4160VT2PRIB	210	25.7	52.9	33333	682	5.4	5.4	0.0	115	4.0	0.4	5.0	0.4	8.1
25	Pop-up	Golden Harvest G97N86-3220EZ	170	27.6	54.8	33308	546	41.3	0.0	40.7	114	4.0	0.3	4.5	0.3	6.2
26	Pop-up	Dairyland RPM-4317AMXT	202	26.2	53.8	27248	654	6.5	2.8	3.2	122	4.3	0.4	4.2	0.3	3.6
27	Pop-up	Renk RK717SSTX	154	33.0	54.1	31793	476	14.8	1.1	13.1	111	4.2	0.4	4.0	0.3	3.7
28	Pop-up	Wyffels W4196RIB	288	28.5	55.5	34090	916	2.9	0.0	2.9	116	4.4	0.4	5.0	0.4	7.6
29	Pop-up	Dairyland RPM-4816AMXT	191	29.9	53.9	30303	603	40.8	0.0	40.8	113	4.1	0.4	4.8	0.4	6.5
30	Pop-up	LG Seeds LG5548STXRIB	212	32.5	55.3	25733	658	12.7	1.5	10.6	121	4.1	0.4	4.4	0.3	4.0
33	Starter	Jung 4D178RIB	201	33.3	53.7	34010	621	3.5	0.0	2.2	114	4.0	0.4	4.4	0.3	5.9
37	Starter	Federal 4160VT2PRIB	208	24.7	52.4	32828	678	11.5	3.3	8.2	109	4.2	0.5	5.7	0.4	6.3
41	Starter	Golden Harvest G97N86-3220EZ	146	27.5	53.8	33687	469	58.9	8.2	50.1	115	4.1	0.4	5.6	0.4	6.2
42	Starter	Dairyland RPM-4317AMXT	208	29.4	55.0	31818	659	1.6	0.8	0.8	125	4.7	0.5	5.9	0.4	6.1
43	Starter	Renk RK717SSTX	184	35.3	54.6	28828	559	45.4	3.6	42.5	113	4.3	0.4	5.0	0.4	4.3
44	Starter	Wyffels W4196RIB	262	30.6	57.3	32070	824	10.0	0.0	10.0	119	4.2	0.5	5.7	0.4	6.2
45	Starter	Dairyland RPM-4816AMXT	189	34.4	53.7	31060	577	37.8	0.9	36.9	120	4.3	0.4	5.6	0.4	5.4
46	Starter	LG Seeds LG5548STXRIB	160	36.5	55.6	26010	483	35.2	0.0	35.2	117	4.1	0.5	5.0	0.3	4.2
Mean			195	30.0	54.3	31185	614	23.9	2.6	21.2	115	4.2	0.4	4.7	0.4	5.0
Probability(%):																
Fertilizer(F)			48.4	1.8	79.1	86.4	33.7	15.0	91.2	11.0	26.5	--	--	--	--	--
Hybrid (H)			0.0	0.0	0.3	0.0	0.0	0.0	46.3	0.0	0.1	--	--	--	--	--
F x H			63.3	75.9	86.5	21.8	74.0	49.0	74.5	42.5	25.8	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			NS	2	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			24	3.2	1.3	1987	82	16.5	NS	15.7	5	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6415 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo Kent Kohn

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

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

Soil Test: Date: 4 /30/19 **pH** 5.7 **OM (%)** 0.8 **P (ppm)** 124 **K (ppm)** 122

Plot Management

Tillage Operations: Soil finisher

Fertilizer:		**Analysis**	**Rate**	**Date**
	Preplant	N/A	N/A	N/A
	Starter	9-11-30-6S-1Zn	200 lbs/A	4/30/19
		10-34-0	4.08 gal/A	4/30/19
	Post plant	21-0-0-24S	152.3 lbs/A	N/A
		11-52-0	355 lbs/A	N/A
		32-0-0	331 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: May - Sept: 11.1"

Hybrid: Factor

Planting Date: 4/30/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/24/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 28961 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-06

Table 1912 - 06. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Hancock, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		197	27.0	51.9	29813	634	0.0	0.0	0.0	97	--	--	--	--	--
	Pop-up		199	25.6	54.5	27020	645	0.1	0.1	0.0	96	--	--	--	--	--
	Starter		203	25.4	52.4	30050	659	0.2	0.1	0.1	97	--	--	--	--	--
		Dairyland RPM-4317AMXT	198	25.3	53.1	26767	643	0.3	0.3	0.0	95	--	--	--	--	--
		Dairyland RPM-4816AMXT	190	30.9	51.5	30976	596	0.0	0.0	0.0	101	--	--	--	--	--
		Federal 4160VT2PRIB	217	21.3	52.3	32449	723	0.0	0.0	0.0	94	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	220	23.4	51.7	32659	722	0.0	0.0	0.0	100	--	--	--	--	--
		Jung 4D178RIB	192	20.1	53.9	32954	644	0.3	0.1	0.1	87	--	--	--	--	--
		LG Seeds LG5548STXRIB	169	32.8	52.7	19234	524	0.4	0.2	0.2	97	--	--	--	--	--
		Renk RK717SSTX	183	25.9	51.7	24537	593	0.0	0.0	0.0	101	--	--	--	--	--
		Wyffels W4196RIB	227	28.3	57.0	32112	722	0.0	0.0	0.0	98	--	--	--	--	--
1	UTC	Jung 4D178RIB	194	20.5	52.9	33207	649	0.0	0.0	0.0	87	3.9	0.3	4.2	0.3	5.2
5	UTC	Federal 4160VT2PRIB	214	22.4	51.9	33333	707	0.0	0.0	0.0	94	4.4	0.4	4.8	0.3	6.1
9	UTC	Golden Harvest G97N86-3220EZ	213	23.3	50.8	32954	699	0.0	0.0	0.0	101	4.0	0.4	4.9	0.3	5.6
10	UTC	Dairyland RPM-4317AMXT	199	27.1	52.2	29545	637	0.0	0.0	0.0	96	4.4	0.5	4.4	0.3	5.4
11	UTC	Renk RK717SSTX	180	26.9	51.4	26010	578	0.0	0.0	0.0	99	4.3	0.4	4.6	0.5	5.1
12	UTC	Wyffels W4196RIB	225	29.1	51.2	31313	714	0.0	0.0	0.0	100	3.8	0.4	4.9	0.3	5.7
13	UTC	Dairyland RPM-4816AMXT	184	32.0	51.9	32449	572	0.0	0.0	0.0	101	4.0	0.4	4.5	0.3	4.9
14	UTC	LG Seeds LG5548STXRIB	168	34.6	53.2	19697	514	0.0	0.0	0.0	98	4.2	0.4	4.8	0.3	4.2
17	Pop-up	Jung 4D178RIB	181	19.6	53.7	32197	606	0.4	0.4	0.0	85	4.3	0.4	4.7	0.4	6.3
21	Pop-up	Federal 4160VT2PRIB	219	20.8	53.0	30555	731	0.0	0.0	0.0	91	3.9	0.4	4.4	0.4	7.1
25	Pop-up	Golden Harvest G97N86-3220EZ	215	23.8	52.4	32070	705	0.0	0.0	0.0	100	3.9	0.4	4.9	0.4	7.0
26	Pop-up	Dairyland RPM-4317AMXT	195	24.1	53.6	22222	638	0.0	0.0	0.0	93	3.7	0.4	4.8	0.3	7.0
27	Pop-up	Renk RK717SSTX	181	25.3	51.4	20454	588	0.0	0.0	0.0	105	4.0	0.5	5.1	0.3	8.7
28	Pop-up	Wyffels W4196RIB	232	29.0	67.6	32197	735	0.0	0.0	0.0	98	3.9	0.4	4.3	0.3	6.3
29	Pop-up	Dairyland RPM-4816AMXT	204	29.4	51.7	29166	645	0.0	0.0	0.0	100	4.3	0.5	5.7	0.4	6.3
30	Pop-up	LG Seeds LG5548STXRIB	164	32.7	52.9	17298	508	0.7	0.7	0.0	94	4.0	0.4	4.3	0.3	6.4
33	Starter	Jung 4D178RIB	203	20.2	55.1	33459	678	0.4	0.0	0.4	91	4.0	0.4	4.9	0.4	5.0
37	Starter	Federal 4160VT2PRIB	219	20.6	51.9	33459	730	0.0	0.0	0.0	97	3.8	0.4	4.9	0.3	6.8
41	Starter	Golden Harvest G97N86-3220EZ	232	23.1	51.9	32954	761	0.0	0.0	0.0	99	3.8	0.4	5.4	0.4	9.1
42	Starter	Dairyland RPM-4317AMXT	201	24.9	53.4	28535	653	0.9	0.9	0.0	95	4.0	0.5	4.4	0.3	7.0
43	Starter	Renk RK717SSTX	189	25.5	52.3	27146	612	0.0	0.0	0.0	99	4.7	0.5	4.8	0.3	6.3
44	Starter	Wyffels W4196RIB	223	26.9	52.0	32828	716	0.0	0.0	0.0	95	3.7	0.4	4.9	0.4	6.5
45	Starter	Dairyland RPM-4816AMXT	183	31.4	50.9	31313	570	0.0	0.0	0.0	101	4.0	0.4	4.7	0.4	7.1
46	Starter	LG Seeds LG5548STXRIB	176	31.0	52.1	20707	551	0.6	0.0	0.6	99	4.1	0.4	4.9	0.3	4.3
Mean			200	26.0	53.0	28961	646	0.1	0.1	0.0	97	4.0	0.4	4.8	0.4	6.2
Probability(%):																
Fertilizer(F)			36.9	0.0	22.4	0.0	19.1	27.1	50.1	15.7	57.3	--	--	--	--	--
Hybrid (H)			0.0	0.0	45.7	0.0	0.0	33.9	62.7	53.9	0.0	--	--	--	--	--
F x H			66.3	8.9	40.9	1.8	64.1	82.8	43.1	59.7	49.1	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			NS	1	NS	833	NS	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			11	0.9	NS	1360	37	NS	NS	NS	3	--	--	--	--	--
F x H			NS	2	NS	2355	NS	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6416 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

Location: Janesville **County:** Rock

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: N/A **Previous Crop:** Corn **Soil Type:** Plano Silt Loam

Soil Test: Date: 5 /1 /18 **pH** 6.0 **OM (%)** 3.0 **P (ppm)** 29 **K (ppm)** 93

Plot Management

Tillage Operations: Field Cultivator Chisel plow

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/13/19 5/13/19
Post plant	28-0-0	714.3 lb/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Acuron 3.0 qt/A
Status 10 oz/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/13/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/25/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 31771 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
9) Golden Harvest G97N86-3220EZ (101)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)
15) Golden Harvest G12W66-3122 (112)
16) Dekalb DKC65-94RIB (115)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 19-12-07

Table 1912 - 07. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Janesville, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		220	23.6	55.1	31358	721	3.7	3.5	0.2	122	--	--	--	--	--
	Pop-up		230	23.6	55.2	31444	753	2.4	2.3	0.1	110	--	--	--	--	--
	Starter		239	22.6	55.7	32511	787	1.8	1.6	0.2	111	--	--	--	--	--
		Dairyland RPM-4816AMXT	240	25.4	54.2	31944	778	0.8	0.7	0.1	113	--	--	--	--	--
		Dekalb DKC65-94RIB	238	27.3	55.8	33585	761	0.9	0.9	0.0	115	--	--	--	--	--
		Federal 4160VT2PRIB	223	18.5	56.0	34568	753	1.5	1.5	0.0	104	--	--	--	--	--
		Golden Harvest G12W66-3122	237	27.1	54.0	26136	760	0.2	0.0	0.2	118	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	222	20.3	55.7	32239	741	2.7	1.9	0.8	111	--	--	--	--	--
		Jung 4D178RIB	187	17.4	57.6	33702	636	12.8	12.6	0.2	120	--	--	--	--	--
		LG Seeds LG5548STXRIB	245	26.8	54.0	28535	787	0.9	0.9	0.0	114	--	--	--	--	--
		Wyffels W4196RIB	249	23.4	55.3	33459	816	1.3	1.1	0.1	121	--	--	--	--	--
1	UTC	Jung 4D178RIB	168	18.3	59.4	34828	568	19.1	19.0	0.0	158	3.5	0.5	5.2	0.2	7.8
5	UTC	Federal 4160VT2PRIB	223	18.7	56.1	34343	753	0.7	0.7	0.0	101	3.4	0.5	4.1	0.3	8.7
9	UTC	Golden Harvest G97N86-3220EZ	209	20.3	55.4	30303	698	6.3	5.0	1.4	111	4.0	0.5	3.4	0.2	7.3
12	UTC	Wyffels W4196RIB	234	23.4	54.0	33333	768	2.3	2.3	0.0	146	3.6	0.5	3.6	0.3	8.8
13	UTC	Dairyland RPM-4816AMXT	228	25.9	54.8	32449	738	0.4	0.4	0.0	110	3.6	0.5	4.2	0.3	8.1
14	UTC	LG Seeds LG5548STXRIB	240	27.1	52.2	27651	769	0.4	0.4	0.0	116	3.9	0.5	3.7	0.3	6.2
15	UTC	Golden Harvest G12W66-3122	222	27.4	53.8	24495	710	0.5	0.0	0.5	115	3.9	0.6	4.1	0.3	6.1
16	UTC	Dekalb DKC65-94RIB	240	27.7	55.2	33459	766	0.0	0.0	0.0	116	3.8	0.6	4.7	0.3	7.2
17	Pop-up	Jung 4D178RIB	182	17.7	58.0	29924	617	10.3	10.4	0.0	104	3.7	0.6	4.1	0.2	9.9
21	Pop-up	Federal 4160VT2PRIB	221	18.9	56.2	35523	747	3.4	3.4	0.0	102	3.3	0.5	5.3	0.2	9.2
25	Pop-up	Golden Harvest G97N86-3220EZ	223	20.2	55.1	32954	747	1.1	0.7	0.4	108	3.6	0.5	3.9	0.2	7.9
28	Pop-up	Wyffels W4196RIB	251	23.7	54.1	33080	821	1.6	1.2	0.4	105	3.5	0.5	3.8	0.2	11.1
29	Pop-up	Dairyland RPM-4816AMXT	247	26.6	53.7	31186	796	0.4	0.4	0.0	113	3.8	0.6	4.4	0.2	9.6
30	Pop-up	LG Seeds LG5548STXRIB	238	26.0	53.2	28156	770	1.4	1.4	0.0	113	3.7	0.6	4.8	0.2	8.0
31	Pop-up	Golden Harvest G12W66-3122	244	27.0	54.6	26894	782	0.0	0.0	0.0	120	3.6	0.6	4.1	0.2	7.7
32	Pop-up	Dekalb DKC65-94RIB	235	28.5	56.4	33838	747	0.8	0.8	0.0	116	3.6	0.6	4.6	0.2	7.7
33	Starter	Jung 4D178RIB	210	16.2	55.3	36354	722	9.0	8.5	0.5	97	3.4	0.5	4.8	0.3	10.6
37	Starter	Federal 4160VT2PRIB	224	17.9	55.6	33838	760	0.4	0.4	0.0	108	3.6	0.5	6.1	0.4	10.8
41	Starter	Golden Harvest G97N86-3220EZ	232	20.3	56.5	33459	777	0.7	0.0	0.7	114	3.5	0.5	4.9	0.3	9.5
44	Starter	Wyffels W4196RIB	261	23.2	57.8	33964	857	0.0	0.0	0.0	112	3.6	0.5	5.3	0.3	10.9
45	Starter	Dairyland RPM-4816AMXT	245	23.8	54.0	32197	800	1.6	1.2	0.4	116	3.9	0.6	6.1	0.3	11.5
46	Starter	LG Seeds LG5548STXRIB	257	27.2	56.6	29798	822	0.9	0.9	0.0	112	3.9	0.5	5.7	0.3	7.9
47	Starter	Golden Harvest G12W66-3122	245	26.9	53.6	27020	789	0.0	0.0	0.0	119	3.8	0.5	4.9	0.3	8.4
48	Starter	Dekalb DKC65-94RIB	238	25.6	55.8	33459	771	1.9	1.9	0.0	114	3.8	0.6	5.9	0.4	9.5
Mean			230	23.3	55.3	31771	754	2.6	2.4	0.2	114	3.7	0.5	4.7	0.3	8.8
Probability(%):																
Fertilizer(F)			0.1	1.5	34.5	6.9	0.1	17.7	12.4	75.3	11.8	--	--	--	--	--
Hybrid (H)			0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	69.5	--	--	--	--	--
F x H			74.0	37.5	0.3	24.1	79.1	42.2	24.6	93.5	35.5	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			8	1	NS	921	28	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			13	1.0	1.1	1497	45	2.9	3	NS	NS	--	--	--	--	--
F x H			NS	NS	2	NS	NS	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6417 **Year:**

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

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

Soil Test: Date: 5 /15/19 **pH:** 6.1 **OM (%)** 2.9 **P (ppm)** 67 **K (ppm)** 147

Plot Management

Tillage Operations: Field cultivator Chisel plow

Fertilizer:	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/15/19 5/15/19
Post plant	46-0-0 46-0-0	100 lbs/A 250 lbs/A	N/A N/A
Manure:	N/A	N/A	N/A

Herbicide: Callisto Xtra 26 oz/A
Primero 0.5 oz/A
Charger Max 1.0 pt/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/15/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 11/7/2019 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 28939 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
2) Dekalb DKC31-10 (81)
3) FS InVision FS37TV1 (87)
4) Jung 39DP338 (89)
5) Federal 4160VT2PRIB (91)
6) Renk RK433RR (92)
7) Jung 46SS427RIB (96)
8) Dairyland RPM-3715AMXT (96)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)
15) Golden Harvest G12W66-3122 (112)
16) Dekalb DKC65-94RIB (115)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-08

Table 1912 - 08. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Marshfield, 2019

Treatment number	Fertilizer	Hybrid	Grain yield	Grain moisture	Test weight	Harvest density	*AGI $3.44	Lodged			Plant					
								Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC Pop-up Starter															
		Jung 4D178RIB														
		Dekalb DKC31-10														
		FS InVision FS37TV1														
		Jung 39DP338														
		Federal 4160VT2PRIB														
		Renk RK433RR														
		Jung 46SS427RIB			**											
		Dairyland RPM-3715AMXT														
		Golden Harvest G97N86-3220EZ														
		Dairyland RPM-4317AMXT														
		Renk RK717SSTX														
		Wyffels W4196RIB														
		Dairyland RPM-4816AMXT														
		LG Seeds LG5548STXRIB														
		Golden Harvest G12W66-3122														
		Dekalb DKC65-94RIB														
1	UTC	Jung 4D178RIB														
2	UTC	Dekalb DKC31-10														
3	UTC	FS InVision FS37TV1														
4	UTC	Jung 39DP338														
5	UTC	Federal 4160VT2PRIB			**											
6	UTC	Renk RK433RR														
7	UTC	Jung 46SS427RIB														
8	UTC	Dairyland RPM-3715AMXT														
9	UTC	Golden Harvest G97N86-3220EZ														
10	UTC	Dairyland RPM-4317AMXT														
11	UTC	Renk RK717SSTX														
12	UTC	Wyffels W4196RIB														
13	UTC	Dairyland RPM-4816AMXT														
14	UTC	LG Seeds LG5548STXRIB														
15	UTC	Golden Harvest G12W66-3122														
16	UTC	Dekalb DKC65-94RIB														

continue

*AGI: Adjusted Gross Income.
****Dropped trial due to emergence and stand issues.**

Table 1912 - 08. Corn Hybrid Response to Starter Fertilizer in Wisconsin.

continued **Marshfield, 2019**

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	hight	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
17	Pop-up	Jung 4D178RIB														
18	Pop-up	Dekalb DKC31-10														
19	Pop-up	FS InVision FS37TV1														
20	Pop-up	Jung 39DP338														
21	Pop-up	Federal 4160VT2PRIB														
22	Pop-up	Renk RK433RR														
23	Pop-up	Jung 46SS427RIB														
24	Pop-up	Dairyland RPM-3715AMXT														
25	Pop-up	Golden Harvest G97N86-3220EZ			**											
26	Pop-up	Dairyland RPM-4317AMXT														
27	Pop-up	Renk RK717SSTX														
28	Pop-up	Wyffels W4196RIB														
29	Pop-up	Dairyland RPM-4816AMXT														
30	Pop-up	LG Seeds LG5548STXRIB														
31	Pop-up	Golden Harvest G12W66-3122														
32	Pop-up	Dekalb DKC65-94RIB														
33	Starter	Jung 4D178RIB														
34	Starter	Dekalb DKC31-10														
35	Starter	FS InVision FS37TV1														
36	Starter	Jung 39DP338														
37	Starter	Federal 4160VT2PRIB														
38	Starter	Renk RK433RR			**											
39	Starter	Jung 46SS427RIB														
40	Starter	Dairyland RPM-3715AMXT														
41	Starter	Golden Harvest G97N86-3220EZ														
42	Starter	Dairyland RPM-4317AMXT														
43	Starter	Renk RK717SSTX														
44	Starter	Wyffels W4196RIB														
45	Starter	Dairyland RPM-4816AMXT														
46	Starter	LG Seeds LG5548STXRIB														
47	Starter	Golden Harvest G12W66-3122														
48	Starter	Dekalb DKC65-94RIB														
Mean																
Probability(%):																
Fertilizer(F)																
Hybrid (H)																
F x H																
LSD(0.10):																
Fertilizer(F)																
Hybrid (H)																
F x H																

*AGI: Adjusted Gross Income.

****Dropped trial due to emergence and stand issues.**

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6418 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

Location: Montfort, WI **County:** Grant

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

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

Soil Test: Date: 5 /11/19 **pH:** 6.1 **OM (%)** 3.3 **P (ppm)** 57 **K (ppm)** 135

Plot Management

Tillage Operations: Field cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	32-0-0 12-0-0-26S	20 gal/A 5 gal/A	N/A N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/11/19 5/11/19
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Explorer 3 oz/A
Zidua 3.5 oz/A
Power Max 25.6 oz/A
Atrazine 4L 32 oz/A

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/11/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 10/23/19 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 32084 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
9) Golden Harvest G97N86-3220EZ (101)
12) Wyffels W4196RIB (105)
13) Dairyland RPM-4816AMXT (108)
14) LG Seeds LG5548STXRIB (109)
15) Golden Harvest G12W66-3122 (112)
16) Dekalb DKC65-94RIB (115)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-09

Table 1912 - 09 Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Montfort, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		250	25.0	54.0	32263	811	4.1	0.8	3.3	116	--	--	--	--	--
	Pop-up		245	24.9	54.0	31893	798	7.5	1.8	5.7	117	--	--	--	--	--
	Starter		251	25.3	53.6	32095	813	5.9	2.3	3.6	119	--	--	--	--	--
		Dairyland RPM-4816AMXT	258	26.2	53.8	33291	832	11.7	0.4	11.3	121	--	--	--	--	--
		Dekalb DKC65-94RIB	256	28.0	54.5	33922	817	4.0	0.4	3.7	118	--	--	--	--	--
		Federal 4160VT2PRIB	245	21.4	53.6	33165	814	3.6	3.0	0.5	113	--	--	--	--	--
		Golden Harvest G12W66-3122	244	27.5	54.7	26178	781	3.1	0.8	2.3	123	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	241	22.4	53.2	33568	795	11.7	0.1	11.5	120	--	--	--	--	--
		Jung 4D178RIB	216	19.5	55.7	34215	728	6.9	6.4	0.4	112	--	--	--	--	--
		LG Seeds LG5548STXRIB	249	29.3	52.6	28787	789	4.7	0.7	3.9	120	--	--	--	--	--
		Wyffels W4196RIB	280	26.4	53.0	33543	903	1.2	1.0	0.1	112	--	--	--	--	--
1	UTC	Jung 4D178RIB	229	19.2	56.6	33861	772	2.1	1.1	0.9	109	4.5	0.5	3.6	0.3	5.0
5	UTC	Federal 4160VT2PRIB	245	21.0	53.1	33080	816	3.0	1.9	1.1	112	4.5	0.6	5.0	0.4	5.3
9	UTC	Golden Harvest G97N86-3220EZ	243	23.0	53.1	33838	800	14.3	0.0	14.3	120	4.7	0.5	5.0	0.3	4.9
12	UTC	Wyffels W4196RIB	285	26.3	52.8	34469	920	0.4	0.4	0.0	109	4.6	0.6	4.7	0.4	4.6
13	UTC	Dairyland RPM-4816AMXT	255	26.6	54.1	33712	820	4.9	0.0	4.9	120	4.6	0.6	4.3	0.4	4.9
14	UTC	LG Seeds LG5548STXRIB	237	29.7	53.5	28535	749	3.5	1.3	2.2	116	4.6	0.6	4.8	0.4	3.3
15	UTC	Golden Harvest G12W66-3122	244	27.0	54.2	26010	782	2.4	1.5	1.0	122	4.5	0.6	4.1	0.3	4.1
16	UTC	Dekalb DKC65-94RIB	259	27.6	54.5	34595	827	2.6	0.4	2.2	116	4.7	0.6	4.3	0.4	4.3
17	Pop-up	Jung 4D178RIB	199	19.7	55.6	34618	671	11.9	11.0	0.8	110	4.6	0.6	4.4	0.3	5.6
21	Pop-up	Federal 4160VT2PRIB	251	21.3	53.6	33080	834	0.8	0.8	0.0	110	4.2	0.6	4.0	0.4	6.0
25	Pop-up	Golden Harvest G97N86-3220EZ	234	22.3	53.7	33787	774	6.5	0.0	6.4	121	4.5	0.5	4.9	0.4	5.3
28	Pop-up	Wyffels W4196RIB	273	26.1	53.2	32828	881	1.2	0.8	0.4	112	4.1	0.5	4.1	0.4	5.7
29	Pop-up	Dairyland RPM-4816AMXT	259	25.6	53.9	32954	838	23.0	0.8	22.2	120	4.6	0.6	4.4	0.3	5.0
30	Pop-up	LG Seeds LG5548STXRIB	261	28.6	52.7	28914	831	4.5	0.0	4.5	119	4.5	0.6	4.8	0.3	4.2
31	Pop-up	Golden Harvest G12W66-3122	236	27.8	55.1	26010	755	4.4	0.5	3.9	125	4.9	0.6	5.1	0.3	4.7
32	Pop-up	Dekalb DKC65-94RIB	250	27.8	54.1	32954	798	8.1	0.4	7.7	118	4.6	0.6	3.5	0.3	4.2
33	Starter	Jung 4D178RIB	220	19.6	54.9	34165	739	6.9	7.2	-0.4	117	4.5	0.6	4.3	0.3	4.9
37	Starter	Federal 4160VT2PRIB	239	21.9	54.2	33333	792	6.9	6.5	0.4	115	4.5	0.6	4.9	0.5	5.4
41	Starter	Golden Harvest G97N86-3220EZ	244	21.9	52.7	33080	809	14.4	0.4	14.0	118	4.5	0.6	4.7	0.4	5.7
44	Starter	Wyffels W4196RIB	282	26.7	52.8	33333	908	1.9	1.9	0.0	116	4.6	0.6	4.4	0.4	5.1
45	Starter	Dairyland RPM-4816AMXT	260	26.5	53.3	33207	838	7.2	0.4	6.8	123	5.0	0.7	4.7	0.3	5.0
46	Starter	LG Seeds LG5548STXRIB	249	29.6	51.6	28914	787	6.0	0.9	5.2	124	4.4	0.7	5.5	0.4	3.2
47	Starter	Golden Harvest G12W66-3122	252	27.7	54.8	26515	806	2.4	0.5	2.0	122	4.2	0.6	4.5	0.3	3.7
48	Starter	Dekalb DKC65-94RIB	260	28.5	54.8	34217	827	1.4	0.4	1.1	119	4.5	0.6	4.0	0.3	4.6
Mean			249	25.1	53.9	32084	807	5.9	1.6	4.2	117	4.5	0.6	4.5	0.4	4.8
Probability(%):																
Fertilizer (F)			49.4	30.2	52.4	45.4	57.6	21.8	4.7	34.7	3.0	--	--	--	--	--
Hybrid (H)			0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	--	--	--	--	--
F x H			69.4	69.3	83.2	64.1	67.8	11.5	2.7	16.1	80.6	--	--	--	--	--
LSD(0.10):																
Fertilizer (F)			NS	NS	NS	NS	NS	NS	1	NS	2	--	--	--	--	--
Hybrid (H)			13	0.7	1.1	774	43	5.1	1.6	4.8	4	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	NS	3	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6419 **Year:** 2919

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: N/A **Previous Crop:** Soybean **Soil Type:** Onaway Silt Loam

Soil Test: Date: 5 /15/19 **pH:** 7.2 **OM (%)** 2.4 **P (ppm)** 18 **K (ppm)** 114

Plot Management

Tillage Operations: Field Cultivator Chisel plow

Fertilizer:	Analysis	Rate	Date
Preplant	46-0-0 11-52-0	152.2 lbs/A 154 lbs/A	N/A N/A
Starter	9-11-30-6S-1ZN 10-34-0	200 lbs/A 4.08 gal/A	5/15/19 5/15/19
Post plant	32-0-0	275 lb/A	N/A
Manure:	N/A	N/A	N/A

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

Insecticide: Force 3G 4.4 lbs/A

Hybrid: Factor

Irrigation: None

Planting Date: 5/15/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 11/01/2019 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 31471 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
7) Jung 46SS427RIB (96)
8) Dairyland RPM-3715AMXT (96)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
13) Dairyland RPM-4816AMXT (108)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-10

Table 1912 - 10. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Seymour, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		173	27.3	50.4	31691	556	2.4	2.3	0.1	103	--	--	--	--	--
	Pop-up		173	27.0	49.7	30587	556	1.5	1.5	0.0	103	--	--	--	--	--
	Starter		198	26.9	50.3	32133	635	2.1	1.7	0.3	105	--	--	--	--	--
		Dairyland RPM-3715AMXT	201	27.1	49.3	29166	644	1.7	1.4	0.3	105	--	--	--	--	--
		Dairyland RPM-4317AMXT	188	30.2	51.2	31523	593	2.3	2.3	0.0	106	--	--	--	--	--
		Dairyland RPM-4816AMXT	176	35.9	51.0	31649	534	0.9	0.9	0.0	111	--	--	--	--	--
		Federal 4160VT2PRIB	179	24.0	50.3	32365	587	2.6	2.4	0.2	102	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	196	24.4	50.9	33249	638	1.4	1.4	0.0	104	--	--	--	--	--
		Jung 46SS427RIB	171	25.0	49.6	32028	557	1.5	1.5	0.0	100	--	--	--	--	--
		Jung 4D178RIB	169	20.9	50.6	32575	562	2.0	1.7	0.2	94	--	--	--	--	--
		Renk RK717SSTX	172	28.8	48.5	29208	544	3.3	3.0	0.3	107	--	--	--	--	--
1	UTC	Jung 4D178RIB	164	21.0	52.2	33712	548	1.9	1.9	0.0	91	3.1	0.7	4.4	0.3	6.9
5	UTC	Federal 4160VT2PRIB	171	23.8	49.4	31565	560	4.4	4.4	0.0	101	3.2	0.6	4.7	0.4	7.6
7	UTC	Jung 46SS427RIB	177	24.0	49.5	32070	579	2.9	2.9	0.0	102	3.4	0.6	4.9	0.3	5.8
8	UTC	Dairyland RPM-3715AMXT	204	26.4	49.5	29671	656	1.4	1.4	0.0	106	3.2	0.7	5.0	0.4	8.5
9	UTC	Golden Harvest G97N86-3220EZ	181	24.7	50.9	33964	590	3.3	3.3	0.0	105	3.0	0.5	4.8	0.4	7.5
10	UTC	Dairyland RPM-4317AMXT	164	31.9	50.8	32197	511	0.8	0.8	0.0	103	3.2	0.7	4.8	0.3	5.4
11	UTC	Renk RK717SSTX	162	29.3	50.2	28282	514	3.8	3.4	0.4	107	3.2	0.7	4.7	0.4	6.0
13	UTC	Dairyland RPM-4816AMXT	163	37.1	50.7	32070	490	0.4	0.4	0.0	111	3.1	0.6	5.0	0.3	6.1
17	Pop-up	Jung 4D178RIB	141	20.7	47.8	30303	469	1.8	1.8	0.0	93	3.3	0.6	4.3	0.3	5.5
21	Pop-up	Federal 4160VT2PRIB	168	24.1	49.4	32323	550	2.3	2.3	0.0	96	3.1	0.6	4.8	0.4	6.8
23	Pop-up	Jung 46SS427RIB	154	25.1	49.0	31186	500	1.2	1.2	0.0	99	3.4	0.6	4.8	0.4	5.3
24	Pop-up	Dairyland RPM-3715AMXT	182	28.2	48.3	27525	579	2.5	2.5	0.0	104	3.2	0.7	4.5	0.3	6.1
25	Pop-up	Golden Harvest G97N86-3220EZ	205	24.1	51.5	32702	669	0.0	0.0	0.0	104	3.0	0.6	5.0	0.3	7.9
26	Pop-up	Dairyland RPM-4317AMXT	191	29.3	51.1	30429	603	1.2	1.2	0.0	106	3.5	0.6	4.8	0.3	8.0
27	Pop-up	Renk RK717SSTX	170	28.8	49.9	28787	541	2.6	2.6	0.0	106	3.3	0.7	5.2	0.3	6.8
29	Pop-up	Dairyland RPM-4816AMXT	177	35.5	50.9	31439	539	0.0	0.0	0.0	112	2.8	0.6	3.9	0.3	8.7
33	Starter	Jung 4D178RIB	201	21.0	51.9	33712	669	2.2	1.5	0.7	98	2.9	0.6	5.3	0.4	10.7
37	Starter	Federal 4160VT2PRIB	199	23.9	52.2	33207	650	1.1	0.4	0.7	107	3.1	0.6	6.4	0.4	11.1
39	Starter	Jung 46SS427RIB	183	25.9	50.2	32828	592	0.4	0.4	0.0	98	3.0	0.6	5.2	0.3	9.4
40	Starter	Dairyland RPM-3715AMXT	217	26.7	49.9	30303	698	1.3	0.4	0.8	106	3.1	0.7	6.0	0.3	10.2
41	Starter	Golden Harvest G97N86-3220EZ	201	24.5	50.3	33080	656	0.8	0.8	0.0	103	3.4	0.5	5.6	0.3	10.8
42	Starter	Dairyland RPM-4317AMXT	210	29.5	51.6	31944	665	4.8	4.8	0.0	109	3.0	0.6	5.4	0.3	9.3
43	Starter	Renk RK717SSTX	182	28.3	45.3	30555	579	3.5	3.1	0.4	107	3.3	0.6	5.2	0.4	7.4
45	Starter	Dairyland RPM-4816AMXT	188	35.1	51.4	31439	574	2.4	2.4	0.0	110	3.3	0.6	5.0	0.3	7.7
Mean			182	27.0	50.2	31471	583	2.0	1.8	0.1	104	3.2	0.6	5.0	0.3	7.7
Probability(%):																
Fertilizer(F)			0.0	39.1	52.5	0.6	0.0	43.5	48.7	2.6	47.2	--	--	--	--	--
Hybrid (H)			0.1	0.0	13.2	0.0	0.1	55.2	70.9	52.5	0.0	--	--	--	--	--
F x H			13.1	4.4	16.9	64.6	8.5	53.1	45.6	62.7	81.4	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			9	NS	NS	797	28	NS	NS	NS	NS	--	--	--	--	--
Hybrid (H)			14	0.8	NS	1301	45	NS	NS	NS	5	--	--	--	--	--
F x H			NS	1	NS	NS	79	NS	NS	NS	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

FIELD EXPERIMENT HISTORY

Title: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experiment: 12Fertilizer **Trial ID:** 6420 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

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

Supported By: HATCH, Wisconsin Fertilizer Research Program

Site Information

Field: N/A **Previous Crop:** Soybean **Soil Type:** Kewaunee Clay Loam

Soil Test: Date: 5/31/2019 **pH:** 7.3 **OM (%)** 3.6 **P (ppm)** 46 **K (ppm)** 230

Plot Management

Tillage Operations: Field Cultivator Chisel Plow

Fertilizer:	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	9-11-30-6S-1Zn 10-34-0	200 lbs/A 4.08 gal/A	5/31/2019 5/31/2019
Post plant	32-0-0	40 gal/A	N/A
Manure:	Dairy	10000 gal/A	N/A

Herbicide: TripleFlex 3.0 pts/A **Insecticide:** Force 3G 4.4 lbs/A

Irrigation: None **Hybrid:** Factor

Planting Date: 5/31/2019 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Almaco Precision Planter

Harvest Date: 11/10/2019 **Harvest Method:** Massey 8XP

Notes: Corn Hybrid Response to Starter Fertilizer in Wisconsin.

Experimental Design

Experimental Design RCB in a split-plot

Replications: 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.28 Acre

Harvest Plot Size: 5' x 23' **Harvest Plant Density:** 31672 **plants per acre**

Factors/Treatments:

Hybrid (RM):

1) Jung 4D178RIB (84)
5) Federal 4160VT2PRIB (91)
7) Jung 46SS427RIB (96)
8) Dairyland RPM-3715AMXT (96)
9) Golden Harvest G97N86-3220EZ (101)
10) Dairyland RPM-4317AMXT (103)
11) Renk RK717SSTX (105)
13) Dairyland RPM-4816AMXT (108)

Fertilzer:

1). UTC
2). Pop-up: 10-34-0
3). Starter: 9-11-30-6S-1Zn

Results: Table 1912-11

Table 1912 - 11. Corn Hybrid Response to Starter Fertilizer in Wisconsin.
Valders, 2019

Treatment			Grain	Grain	Test	Harvest	*AGI	Lodged			Plant					
number	Fertilizer	Hybrid	yield	moisture	weight	density	$3.44	Total	Stalk	Root	height	N	P	K	S	DM
			bu/A	%	lb/bu	plants/A	$/A	%	%	%	in	%	%	%	%	gr
	UTC		131	42.5	48.4	31983	386	1.0	0.9	0.1	97	--	--	--	--	--
	Pop-up		146	40.1	47.9	31705	436	1.2	1.2	0.0	98	--	--	--	--	--
	Starter		130	44.5	48.8	31328	376	0.4	0.4	0.0	94	--	--	--	--	--
		Dairyland RPM-3715AMXT	149	37.1	45.4	30850	453	0.2	0.2	0.0	99	--	--	--	--	--
		Dairyland RPM-4317AMXT	136	43.7	49.4	31102	393	0.7	0.7	0.0	98	--	--	--	--	--
		Dairyland RPM-4816AMXT	91	57.9	48.8	32365	237	0.6	0.6	0.0	103	--	--	--	--	--
		Federal 4160VT2PRIB	154	35.3	47.2	32449	470	0.0	0.0	0.0	95	--	--	--	--	--
		Golden Harvest G97N86-3220EZ	138	38.3	47.5	30826	414	2.8	2.6	0.2	95	--	--	--	--	--
		Jung 46SS427RIB	148	40.9	49.9	32236	441	0.4	0.4	0.0	93	--	--	--	--	--
		Jung 4D178RIB	140	35.2	49.2	32320	428	1.6	1.6	0.0	88	--	--	--	--	--
		Renk RK717SSTX	130	50.7	49.5	31229	360	0.6	0.6	0.0	102	--	--	--	--	--
1	UTC	Jung 4D178RIB	142	33.1	49.6	33080	439	1.9	1.9	0.0	85	1.7	0.5	4.2	0.3	5.0
5	UTC	Federal 4160VT2PRIB	151	36.2	45.0	32070	460	0.0	0.0	0.0	99	1.8	0.3	4.6	0.3	7.3
7	UTC	Jung 46SS427RIB	139	41.5	50.1	32575	408	0.4	0.4	0.0	97	1.7	0.4	3.9	0.3	4.5
8	UTC	Dairyland RPM-3715AMXT	140	38.9	46.3	30934	423	0.0	0.0	0.0	97	1.8	0.4	4.0	0.3	5.1
9	UTC	Golden Harvest G97N86-3220EZ	129	38.0	47.3	32379	387	2.8	2.2	0.6	97	1.7	0.4	4.0	0.4	5.7
10	UTC	Dairyland RPM-4317AMXT	128	45.7	49.3	30934	363	0.8	0.8	0.0	96	1.4	0.3	3.8	0.3	5.2
11	UTC	Renk RK717SSTX	141	46.6	50.8	30934	398	1.7	1.7	0.0	106	2.2	0.4	4.1	0.4	5.8
13	UTC	Dairyland RPM-4816AMXT	82	60.2	49.0	32954	210	0.4	0.4	0.0	102	1.4	0.3	4.0	0.3	4.0
17	Pop-up	Jung 4D178RIB	143	36.3	48.9	31811	436	1.0	1.0	0.0	90	2.3	0.4	4.6	0.3	12.8
21	Pop-up	Federal 4160VT2PRIB	167	31.3	48.7	32954	522	0.0	0.0	0.0	93	1.5	0.3	4.2	0.3	7.5
23	Pop-up	Jung 46SS427RIB	134	44.4	50.4	32568	388	0.4	0.4	0.0	95	1.7	0.3	4.3	0.3	9.5
24	Pop-up	Dairyland RPM-3715AMXT	165	34.3	43.6	32449	505	0.0	0.0	0.0	100	2.3	0.4	4.6	0.3	8.2
25	Pop-up	Golden Harvest G97N86-3220EZ	158	32.5	47.7	29924	493	5.3	5.3	0.0	101	2.0	0.3	4.4	0.4	9.0
26	Pop-up	Dairyland RPM-4317AMXT	156	38.8	49.0	31060	467	1.2	1.2	0.0	103	2.1	0.4	4.7	0.4	8.5
27	Pop-up	Renk RK717SSTX	141	48.5	47.8	30429	396	0.0	0.0	0.0	103	2.4	0.3	4.4	0.3	10.5
29	Pop-up	Dairyland RPM-4816AMXT	106	54.8	47.3	32449	284	1.5	1.5	0.0	103	2.1	0.3	4.2	0.3	8.2
33	Starter	Jung 4D178RIB	135	36.2	49.1	32070	410	2.0	2.0	0.0	88	1.5	0.4	4.1	0.3	3.9
37	Starter	Federal 4160VT2PRIB	143	38.4	48.1	32323	427	0.0	0.0	0.0	94	1.4	0.3	4.2	0.4	6.8
39	Starter	Jung 46SS427RIB	171	36.7	49.2	31565	527	0.4	0.4	0.0	86	1.5	0.3	4.2	0.3	4.1
40	Starter	Dairyland RPM-3715AMXT	144	38.1	46.4	29166	431	0.5	0.5	0.0	99	1.8	0.3	3.8	0.3	6.4
41	Starter	Golden Harvest G97N86-3220EZ	126	44.4	47.5	30176	362	0.4	0.4	0.0	88	1.5	0.2	3.9	0.3	3.6
42	Starter	Dairyland RPM-4317AMXT	124	46.5	50.1	31313	348	0.0	0.0	0.0	95	1.7	0.3	4.0	0.3	5.9
43	Starter	Renk RK717SSTX	109	57.0	50.0	32323	284	0.0	0.0	0.0	96	1.5	0.3	3.9	0.3	2.4
45	Starter	Dairyland RPM-4816AMXT	84	58.6	50.1	31691	218	0.0	0.0	0.0	104	1.7	0.3	3.9	0.4	6.2
Mean			136	42.4	48.4	31672	399	0.9	0.8	0.0	97	1.8	0.3	4.2	0.3	6.5
Probability(%):																
Fertilizer(F)			16.3	6.8	40.4	20.0	15.0	27.9	28.6	8.2	5.1	--	--	--	--	--
Hybrid (H)			0.4	0.0	0.1	1.1	0.1	3.0	4.6	3.4	0.0	--	--	--	--	--
F x H			92.9	54.4	52.5	11.2	88.7	43.1	37.8	2.6	50.2	--	--	--	--	--
LSD(0.10):																
Fertilizer(F)			NS	3	NS	NS	NS	NS	NS	0	3	--	--	--	--	--
Hybrid (H)			25	5.0	1.7	1001	88	1.4	1.3	0	5	--	--	--	--	--
F x H			NS	NS	NS	NS	NS	NS	NS	0	NS	--	--	--	--	--

*AGI: Adjusted Gross Income.

Table 1912 - 12. Corn Hybrid Response to Starter Fertilizer in Wisconsin - Soil analysis.

Arlington, 2019

Location	OM			pH			P			K		
	%	CV	STDDEV	value	CV	STDDEV	ppm	CV	STDDEV	ppm	CV	STDDEV
Arlington, WI	3.30	5.25	0.17	5.73	5.33	0.31	29.67	13.62	4.04	136.00	10.11	13.75
Chippewa Falls, WI	1.33	8.66	0.12	6.53	0.88	0.06	26.67	5.73	1.53	54.33	13.81	7.51
Coleman, WI	1.40	12.37	0.17	5.47	5.59	0.31	32.67	24.93	8.14	136.00	11.49	15.62
Fond du Lac, WI	2.97	18.56	0.55	6.63	4.85	0.32	21.33	27.47	5.86	92.33	4.10	3.79
Galesville, WI	3.47	1.67	0.06	5.57	4.15	0.23	18.00	5.56	1.00	163.33	8.49	13.87
Hancock, WI	0.80	12.50	0.10	5.70	3.04	0.17	124.00	31.74	39.36	122.33	13.71	16.77
Janesville, WI	3.60	10.02	0.36	6.13	0.94	0.06	38.67	6.51	2.52	115.67	16.73	19.35
Marshfield, WI	2.93	1.97	0.06	6.07	0.95	0.06	66.67	8.53	5.69	147.33	5.77	8.50
Montfort, WI	3.33	1.73	0.06	6.07	0.95	0.06	57.00	3.04	1.73	135.33	2.38	3.21
Seymour, WI	2.37	16.00	0.38	7.17	1.61	0.12	22.33	33.90	7.57	114.00	8.90	10.15
Valders, WI	3.57	8.57	0.31	7.30	1.37	0.10	46.00	17.25	7.94	230.00	13.16	30.27
Overall STD			1.01			0.62			31.57			44.14

Table: 1912-13. Hybrid Maturity - Corn Leaf Development.
Arlington, WI - 2019.

Hybrid	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
	156	2.0	2.9	3.8	4.1
	169	4.3	5.7	7.5	12.0
	184	8.0	10.5	12.1	39.6
	197	12.8	15.2	16.7	85.6
	211	18.2	18.4	19.1	109.0
Dairyland RPM-3715AMXT		9.2	10.4	11.7	51.3
Dairyland RPM-4317AMXT		8.9	12.1	11.4	50.2
Dairyland RPM-4816AMXT		8.8	10.0	11.6	48.8
Dekalb DKC31-10		9.7	11.5	12.4	49.3
Dekalb DKC65-94RIB		8.8	10.2	11.7	47.1
FS InVision FS37TV1		9.4	10.6	12.9	50.7
Federal 4160VT2PRIB		9.5	11.1	12.5	51.6
Golden Harvest G12W66-3122		8.4	9.5	11.1	49.5
Golden Harvest G97N86-3220EZ		8.9	9.4	11.6	51.8
Jung 39DP338		9.3	10.8	12.2	49.9
Jung 46SS427RIB		8.5	10.0	11.4	51.0
Jung 4D178RIB		9.4	11.1	12.1	49.1
LG Seeds LG5548STXRIB		8.9	10.0	11.7	49.7
Renk RK433RR		9.1	10.8	11.9	48.6
Renk RK717SSTX		8.9	10.4	11.6	47.4
Wyffels W4196RIB		8.6	10.1	11.6	52.6
Dairyland RPM-3715AMXT	156	1.9	2.8	3.8	3.9
Dairyland RPM-3715AMXT	169	4.5	5.3	7.2	12.7
Dairyland RPM-3715AMXT	184	7.9	10.3	12.0	39.8
Dairyland RPM-3715AMXT	197	12.7	14.9	16.4	90.3
Dairyland RPM-3715AMXT	211	18.9	18.9	19.2	109.9
Dairyland RPM-4317AMXT	156	2.0	3.0	3.9	4.2
Dairyland RPM-4317AMXT	169	4.1	5.3	6.9	12.3
Dairyland RPM-4317AMXT	184	7.6	9.5	11.3	38.6
Dairyland RPM-4317AMXT	197	12.1	15.1	16.3	82.8
Dairyland RPM-4317AMXT	211	18.6	27.4	18.8	113.3
Dairyland RPM-4816AMXT	156	2.0	3.0	3.8	3.8
Dairyland RPM-4816AMXT	169	4.1	5.4	6.9	10.5
Dairyland RPM-4816AMXT	184	7.7	9.8	11.4	36.8
Dairyland RPM-4816AMXT	197	11.7	14.8	16.4	81.7
Dairyland RPM-4816AMXT	211	18.6	17.1	19.6	111.3
Dekalb DKC31-10	156	2.0	3.6	4.0	4.3
Dekalb DKC31-10	169	4.9	6.8	8.3	12.9
Dekalb DKC31-10	184	9.0	12.0	13.6	44.1
Dekalb DKC31-10	197	15.1	17.4	17.9	92.7
Dekalb DKC31-10	211	18.6	18.6	18.6	98.0

Continued

Table: 1912-13. Hybrid Maturity - Corn Leaf Development.
(continued) **Arlington, WI - 2019.**

Hybrid	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
Dekalb DKC65-94RIB	156	2.0	2.7	3.6	3.4
Dekalb DKC65-94RIB	169	4.0	5.7	6.7	9.3
Dekalb DKC65-94RIB	184	7.6	9.9	11.7	34.3
Dekalb DKC65-94RIB	197	11.8	15.2	16.7	77.6
Dekalb DKC65-94RIB	211	18.7	17.6	19.7	111.1
FS InVision FS37TV1	156	2.0	3.0	4.0	4.2
FS InVision FS37TV1	169	4.5	6.1	11.8	12.3
FS InVision FS37TV1	184	8.5	11.0	12.7	41.4
FS InVision FS37TV1	197	13.9	15.2	17.1	89.7
FS InVision FS37TV1	211	18.3	17.6	18.8	105.9
Federal 4160VT2PRIB	156	2.0	3.1	4.1	4.4
Federal 4160VT2PRIB	169	4.5	5.9	7.7	13.2
Federal 4160VT2PRIB	184	8.6	11.6	13.2	41.6
Federal 4160VT2PRIB	197	13.7	16.3	17.7	87.7
Federal 4160VT2PRIB	211	18.9	18.6	19.6	111.3
Golden Harvest G12W66-3122	156	1.9	2.1	3.0	4.0
Golden Harvest G12W66-3122	169	4.0	4.9	6.2	11.1
Golden Harvest G12W66-3122	184	7.0	9.1	10.9	34.8
Golden Harvest G12W66-3122	197	11.3	14.3	15.9	78.7
Golden Harvest G12W66-3122	211	17.8	17.2	19.2	118.7
Golden Harvest G97N86-3220EZ	156	2.0	2.8	3.9	4.4
Golden Harvest G97N86-3220EZ	169	4.3	5.5	6.9	13.4
Golden Harvest G97N86-3220EZ	184	7.7	9.7	11.5	41.1
Golden Harvest G97N86-3220EZ	197	12.2	13.6	16.2	88.2
Golden Harvest G97N86-3220EZ	211	18.3	15.6	19.7	111.7
Jung 39DP338	156	2.0	3.1	4.0	4.5
Jung 39DP338	169	4.8	6.2	7.9	12.5
Jung 39DP338	184	8.6	11.1	13.2	42.4
Jung 39DP338	197	13.9	15.4	16.9	87.4
Jung 39DP338	211	17.2	18.2	18.8	102.7
Jung 46SS427RIB	156	2.0	2.7	3.6	4.1
Jung 46SS427RIB	169	4.1	5.6	7.0	12.8
Jung 46SS427RIB	184	7.7	10.3	11.8	40.6
Jung 46SS427RIB	197	12.3	14.6	16.2	88.2
Jung 46SS427RIB	211	16.3	17.0	18.5	109.2
Jung 4D178RIB	156	2.0	3.2	4.0	4.2
Jung 4D178RIB	169	4.8	6.2	7.8	12.3
Jung 4D178RIB	184	8.6	11.7	12.9	39.3
Jung 4D178RIB	197	13.7	16.0	17.1	88.3
Jung 4D178RIB	211	18.1	18.2	18.4	101.4

Continued

Table: 1912-13. Hybrid Maturity - Corn Leaf Development.
(continued) **Arlington, WI - 2019.**

Hybrid	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
LG Seeds LG5548STXRIB	156	2.0	2.8	3.5	3.6
LG Seeds LG5548STXRIB	169	4.1	5.2	6.8	10.9
LG Seeds LG5548STXRIB	184	7.3	9.9	11.6	36.8
LG Seeds LG5548STXRIB	197	12.0	14.3	16.5	82.8
LG Seeds LG5548STXRIB	211	19.3	17.9	19.9	114.2
Renk RK433RR	156	2.0	2.7	3.8	4.2
Renk RK433RR	169	4.3	5.9	7.2	12.1
Renk RK433RR	184	8.2	11.2	12.7	40.2
Renk RK433RR	197	13.3	15.6	16.9	82.9
Renk RK433RR	211	17.4	18.5	19.1	103.4
Renk RK717SSTX	156	1.9	2.8	3.6	4.0
Renk RK717SSTX	169	4.1	5.3	6.8	11.3
Renk RK717SSTX	184	8.0	10.4	12.0	37.9
Renk RK717SSTX	197	12.3	15.5	16.8	83.1
Renk RK717SSTX	211	19.3	18.9	19.4	107.3
Wyffels W4196RIB	156	2.0	2.9	3.9	4.8
Wyffels W4196RIB	169	4.1	5.8	7.2	12.2
Wyffels W4196RIB	184	7.9	9.8	11.7	44.4
Wyffels W4196RIB	197	12.4	14.8	16.3	88.3
Wyffels W4196RIB	211	16.6	17.4	19.1	113.3
Mean		9.0	10.5	11.8	49.9
Probability(%)					
Hybrid(H)		0.0	11.2	0.2	0.4
Sample DOY (S)		0.0	0.0	0.0	0.0
H x S		0.0	27.4	0.8	0.0
LSD(0.10)					
Hybrid(H)		0.3	NS	0.5	1.8
Sample DOY (S)		0.1	NS	0.2	0.7
H x S		0.4	2.1	1.0	2.7

FIELD EXPERIMENT HISTORY

Title: Sweet Corn Stand Reduction

Experiment: 16Sweet **Trial ID:** 6421 **Year:** 2019

Personnel: Joe Lauer, Thierno Diallo, Kent Kohn.

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

Supported By: HATCH, National Crop Insurance Services.

Site Information

Field: ARS 375 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test Date: 11/12/19 **pH:** 7.0 **OM (%):** 2.6 **P (ppm):** 15 **K (ppm):** 109

Plot Management

Tillage Operations: Field Cultivator cultivated 7/11/19

		Analysis:	Product Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	240	5 /14/19
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Medal II EC @ 24 oz/A 5/17/19
Explorer @ 5 oz/A 5/17/19

Insecticide: N/A

Hybrid: Syngenta - Overland

Irrigation: N/A

Planting Date: 5/14/19 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 24000 plants per acre **Planting Method:** JD1700 w RTK

Harvest Date: 8/26/19 **Harvest Method:** Hand Harvest

Notes:

Experimental Design

Design: RCB 3 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:** 22900 **plants per acre**

Factors/Treatments:

Stand reduction or Leaf removal @ stage:

1) 0% @ 5 leaf stage (approximately V3 stage by collar method)
2) 25% @ 5 leaf stage (approximately V3 stage by collar method)
3) 50% @ 5 leaf stage (approximately V3 stage by collar method)
4) 75% @ 5 leaf stage (approximately V3 stage by collar method)
5) Leaf removal of 50% @ 5 leaf stage (approximately V3 stage by collar method)
6) 0% @ 10 leaf stage (approximately V8 stage by collar method)
7) 25% @ 10 leaf stage (approximately V8 stage by collar method)
8) 50% @ 10 leaf stage (approximately V8 stage by collar method)
9) 75% @ 10 leaf stage (approximately V8 stage by collar method)
10) Leaf removal of 50% @ 10 leaf stage (approximately V8 stage by collar method)
11) 0% @ 15 leaf stage (approximately V13 stage by collar method)
12) 25% @ 15 leaf stage (approximately V13 stage by collar method)
13) 50% @ 15 leaf stage (approximately V13 stage by collar method)
14) 75% @ 15 leaf stage (approximately V13 stage by collar method)
15) Leaf removal of 50% @ 15 leaf stage (approximately V13 stage by collar method)

Results: Table 1916-01

Table:1916-01. Influence of Sweet Corn Stand Reduction on Yield.
Arlington, WI - 2019.

Thin time	Thin percent	Main Unhusked ear yield	Secondary Unhusked ear yield	5-ear Unhusked yield	5-ear Husked yield	Cut grain moisture	Fresh grain yield	Dry grain yield	Tiller		Silking day of year	Plant height	Harvest density
									number	height			
	%	T/A	T/A	T/A	T/A	%	T/A	T/A	no.	in	DOY	in	plants/A
V3		7.7	0.8	8.5	7.2	74.3	5.1	1.3	5	24	210	63	18250
V8		7.7	0.8	8.5	7.0	73.8	4.8	1.3	2	22	210	61	17750
V13		6.8	1.1	7.9	6.8	74.0	4.8	1.3	3	22	210	62	17500
	0	8.6	0.7	9.3	8.6	73.5	6.0	1.6	2	22	210	65	22917
	25	7.9	0.8	8.7	7.0	73.9	5.0	1.3	4	22	210	62	17583
	50	6.6	1.2	7.8	6.5	74.1	4.4	1.2	5	23	210	61	15167
	75	5.7	0.8	6.5	4.3	74.7	3.0	0.7	3	25	211	60	9833
	L50	8.2	0.9	9.2	8.6	73.9	6.1	1.6	3	21	210	63	23667
V3	0	8.3	0.7	9.0	8.4	73.4	5.8	1.5	2	23	210	65	22500
V3	25	8.1	0.7	8.7	7.3	73.5	5.3	1.4	5	19	210	63	18500
V3	50	7.4	1.0	8.4	7.0	74.6	5.0	1.3	7	23	211	62	16750
V3	75	6.5	1.1	7.5	5.3	75.7	3.6	0.9	5	35	211	63	11500
V3	L50	8.4	0.4	8.8	8.3	74.4	5.8	1.5	4	22	210	63	22000
V8	0	9.1	0.4	9.6	8.4	74.1	5.7	1.5	2	19	210	65	21750
V8	25	8.3	0.9	9.2	6.7	73.6	4.7	1.2	3	26	210	62	16500
V8	50	6.2	1.4	7.5	6.8	73.3	4.3	1.2	4	26	209	61	15000
V8	75	5.9	0.4	6.3	4.4	74.3	3.1	0.8	2	17	210	57	10250
V8	L50	9.1	0.7	9.8	8.6	73.7	6.1	1.6	2	20	210	62	25250
V13	0	8.4	0.9	9.3	9.2	72.9	6.6	1.8	4	25	210	64	24500
V13	25	7.4	0.9	8.2	7.0	74.6	4.9	1.2	4	21	210	63	17750
V13	50	6.3	1.1	7.4	5.7	74.4	4.0	1.0	5	21	211	61	13750
V13	75	4.8	0.9	5.7	3.1	74.1	2.2	0.6	1	22	211	60	7750
V13	L50	7.1	1.7	8.8	8.9	73.8	6.3	1.6	3	23	210	64	23750
Mean		7.4	0.9	8.3	7.0	74.0	4.9	1.3	3	23	210	62	17833
Probability(%)													
Thin time (T)		0.3	0.4	5.0	59.3	39.7	54.5	74.4	2.9	39.0	26.7	5.4	71.2
Thin percent (P)		0.0	0.6	0.0	0.0	16.3	0.0	0.0	4.2	75.6	72.0	0.0	0.0
T x P		24.8	0.0	17.0	44.0	31.2	41.6	40.3	84.7	1.9	31.4	22.5	28.2
LSD (0.10)													
Thin time (T)		0.5	0.2	0.5	NS	NS	NS	NS	1	NS	NS	1.2	NS
Thin percent (P)		0.6	0.2	0.6	0.9	NS	0.7	0.2	2	NS	NS	2	2005
T x P		NS	0.4	NS	NS	NS	NS	NS	NS	8	NS	NS	NS

FIELD EXPERIMENT HISTORY

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

Experiment: 17Tillage **Trial ID:** 6422 **Year:** 2019

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 :	28-0-0	CC: 678 CS: 571	6/26/19 6/26/19
	Manure:	N/A	N/A	N/A

Herbicide: Medal II EC 24 oz/A 5/3/19
Tomahawk 5 @ 28 oz/A 5/3/19
2,4-D Low Vol 4 @ 16 oz/A 5/3/19
Tomahawk 5 @ 32 oz/A 6/29/19

Hybrid/Variety: C: SS:Jung 52SS507RIB
S: RR: Asgrow AG20X9

Irrigation: NO

Planting Date: C: 5/23/19
S: 6/3/19

Row Width: 30"

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 **Plants/Acre**

Harvest Date: C: 11/5/19
S: 11/24/19

Notes: T2 and T3 were similar as well as T4 and T5 in 2016

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 with fertilizer surface broadcast (2016)
2) T1: Strip-Till with fertilizer banded. Soybean planted to 15-inch rows.
3) T2: Strip-Till with fertilizer banded. Soybean planted to 30-inch rows.
4) T3: Strip-Till with fertilizer surface broadcast. Soybean planted to 15-inch rows.
5) T4: Strip-Till with fertilizer surface broadcast. Soybean planted to 30-inch rows.
6) NT: Spring one 13-wave coulter with trash whippers on planter; with fertilizer surface broadcast

Density:

1) S1 - 35000
2) S2 - 45000

Results: Tables 1917-01 & 1917-02

Table:1917- 01 .Tillage in Corn and Soybean Production Systems - Corn Arlington, WI - 2019.

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			182	31.7	49.0	0.8	0.7	0.1	36521	542
CS			198	27.9	49.2	0.3	0.2	0.1	37229	607
	NT		192	29.6	49.4	0.7	0.7	0.0	37313	581
	RT		175	31.6	48.5	0.4	0.4	0.0	36438	522
	T1		192	29.5	49.0	0.5	0.3	0.2	36438	583
	T2		198	28.7	49.5	0.5	0.0	0.5	37125	604
	T3		194	29.9	49.0	1.0	1.0	0.0	37188	587
	T4		188	29.7	49.3	0.2	0.2	0.0	36750	570
		35000	188	29.8	49.1	0.3	0.3	0.1	33063	568
		45000	192	29.8	49.1	0.7	0.6	0.2	40688	582
CC	NT		180	31.5	49.1	1.3	1.3	0.0	37500	538
CC	RT		166	33.7	48.4	0.4	0.4	0.0	34375	488
CC	T1		189	31.0	49.0	0.7	0.3	0.4	36250	568
CC	T2		196	30.3	49.6	0.3	0.0	0.3	37250	590
CC	T3		183	32.0	48.9	2.0	2.0	0.0	37125	545
CC	T4		175	31.6	48.9	0.0	0.0	0.0	36625	523
CS	NT		203	27.6	49.6	0.0	0.0	0.0	37125	624
CS	RT		184	29.4	48.5	0.3	0.3	0.0	38500	556
CS	T1		195	27.9	49.1	0.3	0.3	0.0	36625	598
CS	T2		201	27.0	49.4	0.6	0.0	0.6	37000	618
CS	T3		205	27.8	49.2	0.0	0.0	0.0	37250	629
CS	T4		201	27.8	49.6	0.3	0.3	0.0	36875	616
CC		35000	184	31.5	49.1	0.7	0.5	0.1	32625	550
CC		45000	179	31.9	48.8	0.9	0.8	0.1	40417	535
CS		35000	191	28.1	49.1	0.0	0.0	0.0	33500	586
CS		45000	205	27.8	49.4	0.5	0.3	0.2	40958	628
	NT	35000	192	29.8	49.1	0.7	0.7	0.0	33125	580
	NT	45000	192	29.3	49.6	0.6	0.6	0.0	41500	582
	RT	35000	172	31.1	48.3	0.4	0.4	0.0	31625	515
	RT	45000	178	32.0	48.6	0.3	0.3	0.0	41250	530
	T1	35000	190	29.5	48.9	0.4	0.0	0.4	33750	575
	T1	45000	195	29.4	49.2	0.6	0.6	0.0	39125	592
	T2	35000	196	28.6	49.8	0.0	0.0	0.0	33125	598
	T2	45000	200	28.7	49.1	0.9	0.0	0.9	41125	610
	T3	35000	196	30.1	49.4	0.4	0.4	0.0	34375	593
	T3	45000	192	29.7	48.6	1.6	1.6	0.0	40000	582
	T4	35000	180	29.7	49.1	0.0	0.0	0.0	32375	546
	T4	45000	196	29.7	49.4	0.3	0.3	0.0	41125	594
CC	NT	35000	180	31.7	49.0	1.5	1.5	0.0	33500	537
CC	NT	45000	180	31.4	49.3	1.2	1.2	0.0	41500	539
CC	RT	35000	165	33.2	48.2	0.9	0.9	0.0	28250	487
CC	RT	45000	167	34.3	48.6	0.0	0.0	0.0	40500	489

continue

Table:1917- 01 .Tillage in Corn and Soybean Production Systems - Corn
(continued) **Arlington, WI - 2019.**

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	197	30.7	49.1	0.8	0.0	0.8	32500	591
CC	T1	45000	182	31.3	48.8	0.6	0.6	0.0	40000	545
CC	T2	35000	201	30.4	50.3	0.0	0.0	0.0	33500	606
CC	T2	45000	190	30.3	48.8	0.6	0.0	0.6	41000	574
CC	T3	35000	186	32.2	49.4	0.8	0.8	0.0	35500	553
CC	T3	45000	180	31.7	48.4	3.1	3.1	0.0	38750	538
CC	T4	35000	175	31.0	48.8	0.0	0.0	0.0	32500	524
CC	T4	45000	176	32.1	49.0	0.0	0.0	0.0	40750	523
CS	NT	35000	204	28.0	49.2	0.0	0.0	0.0	32750	623
CS	NT	45000	203	27.2	50.0	0.0	0.0	0.0	41500	625
CS	RT	35000	178	29.0	48.4	0.0	0.0	0.0	35000	542
CS	RT	45000	189	29.8	48.5	0.6	0.6	0.0	42000	571
CS	T1	35000	183	28.3	48.7	0.0	0.0	0.0	35000	559
CS	T1	45000	208	27.5	49.5	0.6	0.6	0.0	38250	638
CS	T2	35000	191	26.9	49.3	0.0	0.0	0.0	32750	590
CS	T2	45000	210	27.1	49.4	1.3	0.0	1.3	41250	646
CS	T3	35000	207	27.9	49.5	0.0	0.0	0.0	33250	632
CS	T3	45000	204	27.7	48.9	0.0	0.0	0.0	41250	627
CS	T4	35000	186	28.4	49.4	0.0	0.0	0.0	32250	568
CS	T4	45000	216	27.3	49.9	0.6	0.6	0.0	41500	664
Mean			190	29.8	49.1	0.5	0.4	0.1	36875	575
Probability(%)										
Rotation (R)			7.3	0.1	29.7	25.2	24.0	92.5	30.6	3.4
Tillage (T)			0.4	0.0	7.8	86.9	66.0	28.0	90.8	0.1
Density (D)			13.9	98.1	96.7	22.7	28.7	53.9	0.0	13.7
R x T			25.7	83.3	79.6	44.4	40.5	75.5	23.6	23.5
R X D			0.4	20.3	13.4	68.8	99.7	35.7	77.4	0.3
T x D			54.1	66.4	23.7	76.0	70.3	13.9	21.1	58.9
R x T x D			26.9	72.5	79.6	58.8	51.0	87.6	14.6	25.7
LSD(0.10)										
Rotation (R)			15	0.7	NS	NS	NS	NS	NS	41
Tillage (T)			9	0.9	1	NS	NS	NS	NS	29
Density (D)			NS	NS	NS	NS	NS	NS	973	NS
R x T			NS	NS	NS	NS	NS	NS	NS	NS
R X D			10	NS	NS	NS	NS	NS	NS	29
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:1917- 02 .Tillage, Rotation and Planting Density in Corn and Soybean - Soybean . Arlington, WI - 2019

Tillage treatment	Yield	Moisture	*AGI $8.21/bu
	bu/A	%	$/A
NT	54	16.7	426
RT	51	16.7	402
T1	54	16.6	424
T2	58	16.8	457
T3	58	17.0	455
T4	55	16.9	434
Mean	55	16.8	433
Probability(%)			
Tillage (T)	16.5	0.1	16.9
LSD(0.10)			
Tillage (T)	NS	0.1	NS

*AGI - Adjusted Gross Income

FIELD EXPERIMENT HISTORY

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

Experiment: 19Systems **Trial ID:** 6337 **Year:** 2019

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 :	MAP 11-52-0	325 lbs/A	4/24/19
	0-0-60	325 lbs/A	4/24/19
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	See factors	6 /12/18
Manure:	N/A	N/A	N/A

Herbicide: Roundup Power Max @ 22 oz/A 6/20/19
Dual II Magnum @ 24 oz/A 4/26/19
Roundup Power Max @ 22 oz/A 4/26/19

Insecticide: N/A

Hybrid: 1) RR: P9998AMXT
2) SS:Jung 52SS507RIB
3) Soybean: Asgrow AG20X9

Irrigation: None

Planting Date: C: 5/23/19
S: 6/03/19

Planting Depth: 1.5"

Target Plant Density: See Factors

Row Width: 30"

Harvest Date: C: 11/5/19
S: 11/24/19

Planting Method: JD1700 w RTK

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

Notes: No C/S rotation in 2019, map same as in 2018.

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 1919-01

Table: 1919-01 . Multi-factor effects on continuous and rotated corn.
Arlington, WI - 2019.

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	$
					Headline	206	31.1	51.8	-0.1	0.0	-0.1	36731	617
					UTC	204	30.2	53.0	0.6	0.3	0.3	36716	615
				160		203	30.8	52.5	0.4	0.3	0.1	36810	610
				160	Headline	204	31.4	51.8	0.0	0.0	0.0	36750	610
				160	UTC	202	30.1	53.2	0.7	0.6	0.1	36870	609
				210		207	30.6	52.3	0.2	0.0	0.2	36637	622
				210	Headline	208	30.8	51.9	-0.1	0.0	-0.1	36712	624
				210	UTC	206	30.3	52.7	0.4	0.0	0.4	36563	620
			35000			204	30.4	52.9	0.1	0.0	0.1	32873	614
			35000		Headline	206	31.1	52.2	0.0	0.0	0.0	32438	617
			35000		UTC	202	29.8	53.7	0.1	0.0	0.1	33308	610
			35000	160		201	30.7	53.1	0.1	0.0	0.1	32495	604
			35000	210		206	30.1	52.8	0.0	0.0	0.0	33250	623
			45000			206	30.9	51.9	0.5	0.3	0.2	40575	618
			45000		Headline	206	31.2	51.5	-0.1	0.0	-0.1	41024	616
			45000		UTC	206	30.7	52.2	1.1	0.6	0.4	40125	619
			45000	160		205	30.8	51.9	0.6	0.6	0.0	41125	615
			45000	210		207	31.0	51.9	0.3	0.0	0.3	40024	620
		P9998AMXT (RR)				204	28.9	53.4	0.1	0.1	0.1	36529	622
		P9998AMXT (RR)			Headline	205	29.4	53.0	0.0	0.0	0.0	36500	621
		P9998AMXT (RR)			UTC	204	28.4	53.9	0.3	0.2	0.1	36558	623
		P9998AMXT (RR)		160		202	29.1	53.1	0.3	0.2	0.1	36120	613
		P9998AMXT (RR)		210		207	28.8	53.8	0.0	0.0	0.0	36938	631
		P9998AMXT (RR)	35000			205	28.3	54.0	0.1	0.0	0.1	32995	627
		P9998AMXT (RR)	45000			204	29.6	52.9	0.2	0.2	0.0	40063	617
		Jung 52SS507RIB (SS)				205	32.4	51.4	0.4	0.2	0.2	36918	610
		Jung 52SS507RIB (SS)			Headline	207	32.8	50.7	-0.1	0.0	-0.1	36962	613
		Jung 52SS507RIB (SS)			UTC	203	32.1	52.0	0.9	0.5	0.4	36875	606
		Jung 52SS507RIB (SS)		160		204	32.4	51.9	0.5	0.5	0.0	37500	606
		Jung 52SS507RIB (SS)		210		206	32.4	50.8	0.3	0.0	0.3	36337	613
		Jung 52SS507RIB (SS)	35000			202	32.6	51.9	0.0	0.0	0.0	32750	600
		Jung 52SS507RIB (SS)	45000			208	32.3	50.8	0.8	0.5	0.3	41087	619
	CC					206	30.7	52.4	0.1	0.1	0.1	36998	620
	CC				Headline	208	31.0	51.6	0.0	0.0	0.0	37563	624
	CC				UTC	204	30.4	53.3	0.3	0.2	0.1	36433	615
	CC			160		204	30.8	52.5	0.3	0.2	0.1	37620	613
	CC			210		208	30.6	52.4	0.0	0.0	0.0	36375	626
	CC		35000			206	30.3	53.1	0.1	0.0	0.1	33370	620
	CC		45000			206	31.1	51.8	0.2	0.2	0.0	40625	619
	CC	P9998AMXT (RR)				205	28.6	53.3	0.3	0.2	0.1	36683	626
	CC	Jung 52SS507RIB (SS)				207	32.8	51.5	0.0	0.0	0.0	37313	613

continue

Table: 1919-01 . Multi-factor effects on continuous and rotated corn.
(continued) **Arlington, WI - 2019.**

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					203	30.7	52.4	0.4	0.2	0.2	36450	612
	CS				Headline	204	31.3	52.1	-0.1	0.0	-0.1	35899	610
	CS				UTC	203	30.0	52.6	0.9	0.5	0.4	37000	614
	CS			160		202	30.8	52.5	0.5	0.5	0.0	36000	606
	CS			210		205	30.6	52.2	0.3	0.0	0.3	36899	617
	CS		35000			202	30.6	52.7	0.0	0.0	0.0	32375	607
	CS		45000			205	30.8	52.0	0.8	0.5	0.3	40524	617
	CS	P9998AMXT (RR)				203	29.2	53.5	0.0	0.0	0.0	36375	618
	CS	Jung 52SS507RIB (SS)				203	32.1	51.2	0.8	0.5	0.3	36524	606
CT						212	29.7	53.2	0.2	0.2	0.0	36113	640
CT					Headline	213	30.2	52.1	-0.1	0.0	-0.1	35564	643
CT					UTC	210	29.3	54.2	0.5	0.3	0.2	36661	638
CT				160		211	29.7	53.7	0.3	0.3	0.0	36723	638
CT				210		212	29.7	52.6	0.1	0.0	0.1	35502	643
CT			35000			211	29.5	54.0	0.0	0.0	0.0	32536	640
CT			45000			212	29.9	52.3	0.4	0.3	0.1	39689	640
CT		P9998AMXT (RR)				211	27.8	54.2	0.0	0.0	0.0	35911	646
CT		Jung 52SS507RIB (SS)				212	31.7	52.1	0.4	0.3	0.1	36314	634
CT	CC					214	29.6	53.3	0.0	0.0	0.0	36348	649
CT	CS					209	29.9	53.0	0.4	0.3	0.1	35877	631
NT						198	31.6	51.6	0.3	0.2	0.2	37335	591
NT					Headline	198	32.0	51.6	0.0	0.0	0.0	37897	591
NT					UTC	197	31.2	51.7	0.7	0.3	0.4	36772	591
NT				160		195	31.8	51.3	0.4	0.3	0.1	36897	582
NT				210		201	31.4	52.0	0.2	0.0	0.2	37772	600
NT			35000			196	31.3	51.9	0.1	0.0	0.1	33210	587
NT			45000			200	31.9	51.4	0.6	0.3	0.2	41460	595
NT		P9998AMXT (RR)				198	30.1	52.6	0.3	0.1	0.1	37147	597
NT		Jung 52SS507RIB (SS)				198	33.2	50.6	0.4	0.2	0.2	37522	585
NT	CC					198	31.8	51.5	0.3	0.1	0.1	37647	590
NT	CS					198	31.4	51.7	0.4	0.2	0.2	37022	592
Mean						205	30.7	52.4	0.3	0.2	0.1	36724	616

continue

Table: 1919-01 . Multi-factor effects on continuous and rotated corn.
(continued) **Arlington, WI - 2019.**

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	$
Probability(%)													
Fungicide						52.9	2.9	7.0	0.2	5.0	4.6	98.1	81.7
Genotype						81.1	0.0	0.1	19.3	33.3	49.3	52.0	23.6
Genotype*Fungicide						67.4	74.0	68.4	7.5	34.0	19.3	90.6	65.7
Genotype*NRate						63.0	69.9	17.0	71.4	34.0	17.4	11.0	58.9
Genotype*PD						26.1	4.7	96.8	6.9	34.3	17.4	30.2	17.3
NRate						24.7	68.4	75.1	32.3	5.0	49.3	77.4	25.1
NRate*Fungicide						97.1	31.7	66.1	64.0	5.3	19.3	82.5	87.2
PD						52.1	23.2	8.6	3.9	4.9	49.3	0.0	68.3
PD*Fungicide						48.9	30.3	53.5	1.2	5.2	19.3	15.2	61.2
PD*NRate						58.1	29.2	79.9	67.2	5.2	17.4	13.4	50.1
Rotation						43.0	93.4	89.5	19.3	33.3	49.3	36.6	46.2
Rotation*Fungicide						60.5	35.1	31.6	7.5	34.0	19.3	7.3	54.7
Rotation*Genotype						79.0	13.9	67.0	1.1	5.3	17.4	69.5	99.6
Rotation*NRate						91.1	93.0	81.5	71.4	34.0	17.4	8.4	93.1
Rotation*PD						62.0	48.5	64.7	6.9	34.3	17.4	46.6	57.1
Tillage						0.0	0.0	1.3	49.3	97.3	41.5	4.3	0.0
Tillage*Fungicide						77.8	91.0	9.3	60.7	90.6	45.4	7.0	81.9
Tillage*Genotype						81.8	30.7	88.1	45.8	40.4	90.8	98.1	99.3
Tillage*NRate						51.3	68.4	14.9	99.9	90.6	90.8	8.7	51.3
Tillage*PD						63.5	83.2	30.8	95.5	84.7	90.8	36.6	68.2
Tillage*Rotation						36.7	39.3	65.4	45.8	40.4	90.8	89.9	32.5
LSD(0.10)													
Fungicide						NS	0.7	1.0	0.3	0.3	0.3	NS	NS
Genotype						NS	0.7	1.0	NS	NS	NS	NS	NS
Genotype*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*PD						NS	1.0	NS	0.5	NS	NS	NS	NS
NRate						NS	NS	NS	NS	0.3	NS	NS	NS
NRate*Fungicide						NS	NS	NS	NS	0.4	NS	NS	NS
PD						NS	NS	NS	0.3	0.3	NS	1006	NS
PD*Fungicide						NS	NS	NS	0.5	0.4	NS	NS	NS
PD*NRate						NS	NS	NS	NS	0.4	NS	NS	NS
Rotation						NS	NS	NS	NS	NS	NS	NS	NS
Rotation*Fungicide						NS	NS	NS	0.5	NS	NS	1429	NS
Rotation*Genotype						NS	NS	NS	0.5	0.4	NS	NS	NS
Rotation*NRate						NS	NS	NS	NS	NS	NS	1429	NS
Rotation*PD						NS	NS	NS	0.5	NS	NS	NS	NS
Tillage						5	0.7	1.0	NS	NS	NS	988	17
Tillage*Fungicide						NS	NS	1.4	NS	NS	NS	1414	NS
Tillage*Genotype						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*NRate						NS	NS	NS	NS	NS	NS	1414	NS
Tillage*PD						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*Rotation						NS	NS	NS	NS	NS	NS	NS	NS

*AGI: Adjusted Gross Income

FIELD EXPERIMENT HISTORY

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

Experiment: 19Systems **Trial ID:** 6338 **Year:** 2019

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 :	MAP 11-52-0	325 lbs/A	4/24/19
	0-0-60	325 lbs/A	4/24/19
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	See factors	6 /12/18
Manure:	N/A	N/A	N/A

Herbicide: Roundup Power Max @ 22 oz/A 6/20/19
Dual II Magnum @ 24 oz/A 4/26/19
Roundup Power Max @ 22 oz/A 4/26/19

Insecticide: N/A

Hybrid: 1) RR: P9998AMXT
2) SS:Jung 52SS507RIB

Irrigation: None

Planting Date: C: 5/23/19

Planting Depth: 1.5"

Target Plant Density: See Factors

Row Width: 30"

Planting Method: JD1700 w RTK

Harvest Date: C: 11/5/19

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) - Smart trio

Plant Density:

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

Genotype:

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

Results: Table 1919-02

Table: 1919-02 . Multi-factor effects on continuous corn.
Arlington, WI - 2019

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	193	32.6	51.2	0.2	0.1	0.1	37427	574
					UTC	200	30.5	52.3	0.7	0.7	0.0	37635	603
				Quatro		195	31.8	51.5	0.4	0.4	0.0	37625	583
				Quatro	Headline	190	33.2	50.7	0.1	0.1	0.0	37198	564
				Quatro	UTC	200	30.4	52.3	0.7	0.7	0.0	38052	602
				UTC		198	31.3	51.9	0.6	0.5	0.1	37438	594
				UTC	Headline	196	32.1	51.7	0.4	0.1	0.3	37656	584
				UTC	UTC	201	30.6	52.2	0.7	0.8	-0.1	37219	605
			160			194	31.4	52.1	0.9	0.8	0.1	37688	581
			160		Headline	190	32.7	51.1	0.4	0.1	0.3	37031	564
			160		UTC	198	30.1	53.1	1.4	1.5	-0.1	38344	599
			160	Quatro		192	32.0	51.5	0.7	0.7	0.0	38250	574
			160	UTC		196	30.8	52.7	1.1	0.9	0.2	37125	588
			210			200	31.7	51.4	0.0	0.0	0.0	37375	596
			210		Headline	197	32.6	51.3	0.1	0.1	0.0	37823	584
			210		UTC	202	30.9	51.5	0.0	0.0	0.0	36927	608
			210	Quatro		198	31.6	51.6	0.1	0.1	0.0	37000	592
			210	UTC		201	31.9	51.2	0.0	0.0	0.0	37750	600
		35000				202	31.5	51.7	0.4	0.3	0.1	34000	604
		35000			Headline	199	32.6	51.3	0.4	0.1	0.3	33906	592
		35000			UTC	204	30.3	52.0	0.4	0.5	-0.1	34094	616
		35000		Quatro		202	30.9	51.7	0.0	0.0	0.0	34250	607
		35000		UTC		202	32.0	51.7	0.8	0.6	0.2	33750	602
		35000	160			202	31.3	51.8	0.8	0.6	0.2	34750	605
		35000	210			202	31.7	51.6	0.0	0.0	0.0	33250	603
		45000				192	31.7	51.8	0.5	0.5	0.0	41063	573
		45000			Headline	187	32.6	51.1	0.1	0.1	0.0	40948	555
		45000			UTC	196	30.7	52.5	1.0	1.0	0.0	41177	590
		45000		Quatro		188	32.7	51.4	0.7	0.7	0.0	41000	559
		45000		UTC		195	30.7	52.2	0.3	0.3	0.0	41125	587
		45000	160			186	31.5	52.4	1.0	1.0	0.0	40625	557
		45000	210			197	31.8	51.2	0.1	0.1	0.0	41500	589
	P9998AMXT (RR)					199	30.5	52.6	0.7	0.6	0.1	36750	600
	P9998AMXT (RR)				Headline	194	31.7	51.7	0.4	0.1	0.3	37531	580
	P9998AMXT (RR)				UTC	204	29.3	53.4	1.0	1.1	-0.1	35969	620
	P9998AMXT (RR)			Quatro		197	31.0	52.1	0.7	0.7	0.0	36875	592
	P9998AMXT (RR)			UTC		201	29.9	53.0	0.8	0.6	0.2	36625	608
	P9998AMXT (RR)		160			196	30.0	53.2	1.4	1.2	0.2	36875	591
	P9998AMXT (RR)		210			203	30.9	51.9	0.0	0.0	0.0	36625	608
	P9998AMXT (RR)	35000				204	30.8	52.0	0.5	0.3	0.2	33500	613
	P9998AMXT (RR)	45000				194	30.1	53.2	1.0	1.0	0.0	40000	587

continue

Table: 1919-02 . Multi-factor effects on continuous corn.
(continued) **Arlington, WI - 2019**

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 52SS507RIB (SS)					194	32.7	50.9	0.2	0.2	0.0	38313	577
	Jung 52SS507RIB (SS)				Headline	192	33.6	50.7	0.1	0.1	0.0	37323	567
	Jung 52SS507RIB (SS)				UTC	197	31.8	51.2	0.3	0.3	0.0	39302	587
	Jung 52SS507RIB (SS)			Quatro		193	32.6	50.9	0.1	0.1	0.0	38375	574
	Jung 52SS507RIB (SS)			UTC		196	32.8	50.9	0.3	0.3	0.0	38250	581
	Jung 52SS507RIB (SS)		160			192	32.8	50.9	0.3	0.3	0.0	38500	571
	Jung 52SS507RIB (SS)		210			196	32.6	50.9	0.1	0.1	0.0	38125	584
	Jung 52SS507RIB (SS	35000				200	32.2	51.4	0.3	0.3	0.0	34500	596
	Jung 52SS507RIB (SS	45000				189	33.2	50.5	0.1	0.1	0.0	42125	559
CT						203	30.3	52.3	0.6	0.6	0.0	36927	611
CT					Headline	201	31.2	51.4	0.1	0.2	-0.1	37104	602
CT					UTC	205	29.3	53.2	1.1	1.1	0.0	36750	621
CT				Quatro		206	30.1	52.1	0.7	0.7	0.0	37573	621
CT				UTC		200	30.4	52.5	0.5	0.6	-0.1	36281	602
CT			160			201	29.7	53.0	1.1	1.2	-0.1	36656	609
CT			210			204	30.8	51.6	0.1	0.1	0.0	37198	613
CT		35000				208	30.4	52.1	0.5	0.6	-0.1	34031	626
CT		45000				198	30.1	52.5	0.7	0.7	0.0	39823	597
CT	P9998AMXT (RR)					203	29.0	53.2	1.1	1.2	-0.1	36156	618
CT	Jung 52SS507RIB (SS)					202	31.6	51.5	0.1	0.1	0.0	37698	605
NT						191	32.9	51.2	0.3	0.2	0.1	38135	566
NT					Headline	186	34.0	51.0	0.4	0.0	0.4	37750	546
NT					UTC	196	31.7	51.3	0.3	0.4	-0.1	38521	586
NT				Quatro		184	33.5	51.0	0.0	0.0	0.0	37677	545
NT				UTC		197	32.2	51.4	0.6	0.4	0.3	38594	587
NT			160			187	33.1	51.2	0.6	0.4	0.3	38719	553
NT			210			195	32.6	51.2	0.0	0.0	0.0	37552	579
NT		35000				196	32.5	51.2	0.3	0.1	0.3	33969	583
NT		45000				185	33.2	51.1	0.3	0.3	0.0	42302	549
NT	P9998AMXT (RR)					195	31.9	51.9	0.3	0.0	0.3	37344	582
NT	Jung 52SS507RIB (SS)					187	33.8	50.4	0.3	0.3	0.0	38927	550
Fungicide						4.8	0.1	1.5	25.9	8.6	24.6	76.9	1.4
Genotype						19.5	0.1	0.1	21.0	25.2	56.5	4.2	5.7
Genotype*Fungicide						43.0	61.4	16.4	67.3	34.3	26.8	2.6	40.1
Genotype*Micro						83.6	30.4	31.6	83.2	63.1	57.4	93.3	70.4
Genotype*NRate						69.8	35.6	12.0	17.9	21.1	57.4	93.3	85.4
Genotype*PD						79.6	14.3	2.0	35.7	21.1	57.4	45.2	61.4
Micro						33.9	43.0	32.8	62.5	77.1	56.5	79.6	32.2
Micro*Fungicide						53.6	26.6	22.4	72.7	91.7	26.8	38.9	44.2
NRate						13.4	55.4	9.8	4.6	4.8	56.5	66.7	20.4
NRate*Fungicide						72.7	44.6	3.8	22.5	7.5	26.8	14.8	64.6
NRate*Micro						99.8	17.5	7.7	54.8	67.3	57.4	21.6	79.1

continue

Table: 1919-02 . Multi-factor effects on continuous corn.
(continued) **Arlington, WI - 2019**

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						0.8	74.4	75.3	80.6	60.2	56.5	0.0	1.1
PD*Fungicide						54.2	74.1	36.5	29.2	49.2	26.8	97.8	62.6
PD*Micro						33.4	1.3	33.7	15.2	17.7	57.4	67.4	17.0
PD*NRate						13.6	88.3	28.3	90.8	70.9	57.4	12.2	16.3
Tillage						0.2	0.0	0.9	50.0	21.5	24.6	10.0	0.1
Tillage*Fungicide						36.8	71.5	11.0	19.5	46.8	10.3	45.2	39.0
Tillage*Genotype						32.9	53.1	81.6	19.7	6.3	26.8	97.8	43.4
Tillage*Micro						1.8	17.2	95.7	28.5	48.0	26.8	14.8	1.5
Tillage*NRate						47.5	16.8	9.9	61.6	30.1	26.8	25.8	35.4
Tillage*PD						90.1	35.2	53.2	71.4	93.2	26.8	9.9	81.1
LSD(0.10)													
Fungicide						5.9	0.9	0.7	NS	0.6	NS	NS	18.9
Genotype						NS	1.0	0.7	NS	NS	NS	1239	19.4
Genotype*Fungicide						NS	NS	NS	NS	NS	NS	1752	NS
Genotype*Micro						NS	NS	NS	NS	NS	NS	1764	NS
Genotype*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Genotype*PD						NS	NS	1.0	NS	NS	NS	NS	NS
Micro						NS	NS	NS	NS	NS	NS	NS	NS
Micro*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
NRate						NS	NS	0.7	0.7	0.6	NS	NS	NS
NRate*Fungicide						NS	NS	1.0	NS	0.9	NS	NS	NS
NRate*Micro						NS	NS	1.0	NS	NS	NS	NS	NS
PD						6.0	NS	NS	NS	NS	NS	1239	19.4
PD*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
PD*Micro						NS	1.4	NS	NS	NS	NS	NS	NS
PD*NRate						NS	NS	NS	NS	NS	NS	NS	NS
Tillage						6	0.9	0.7	NS	NS	NS	NS	19
Tillage*Fungicide						NS	NS	NS	NS	NS	NS	NS	NS
Tillage*Genotype						NS	NS	NS	NS	0.9	NS	NS	NS
Tillage*Micro						8.5	NS	NS	NS	NS	NS	NS	NS
Tillage*NRate						NS	NS	1.0	NS	NS	NS	NS	NS
Tillage*PD						NS	NS	NS	NS	NS	NS	1752	NS

*AGI: Adjusted Gross Income

Printing for Spine of Book

2019 Annual Research Report – Lauer, Kohn, and Diallo