2003
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

2003 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
Grain Research Specialist
454 Moore Hall
(608) 262-1840
kdkohn@wisc.edu

Pat Flannery
Silage Research Specialist
573 Moore Hall
(608) 263-7062
pjflanne@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 2003. 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 This information is **NOT FOR PUBLICATION** unless prior approval is received.

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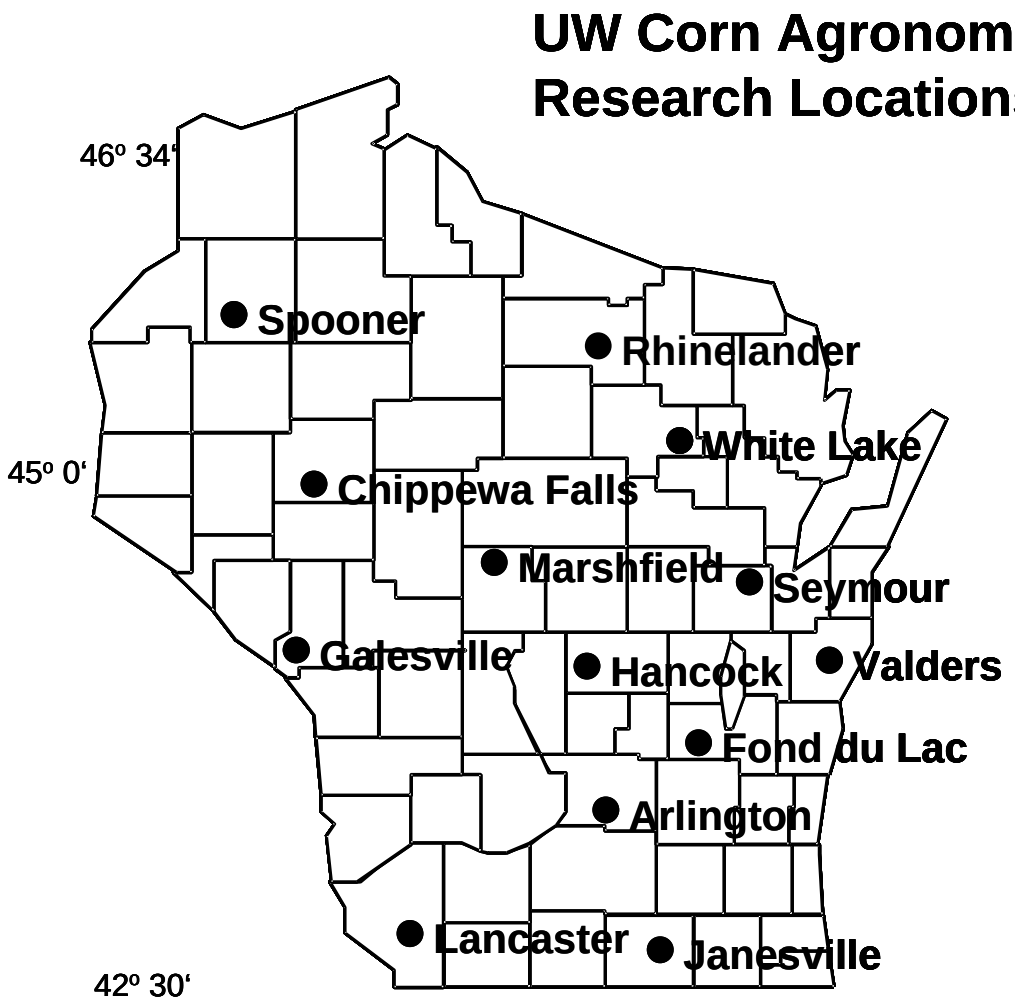

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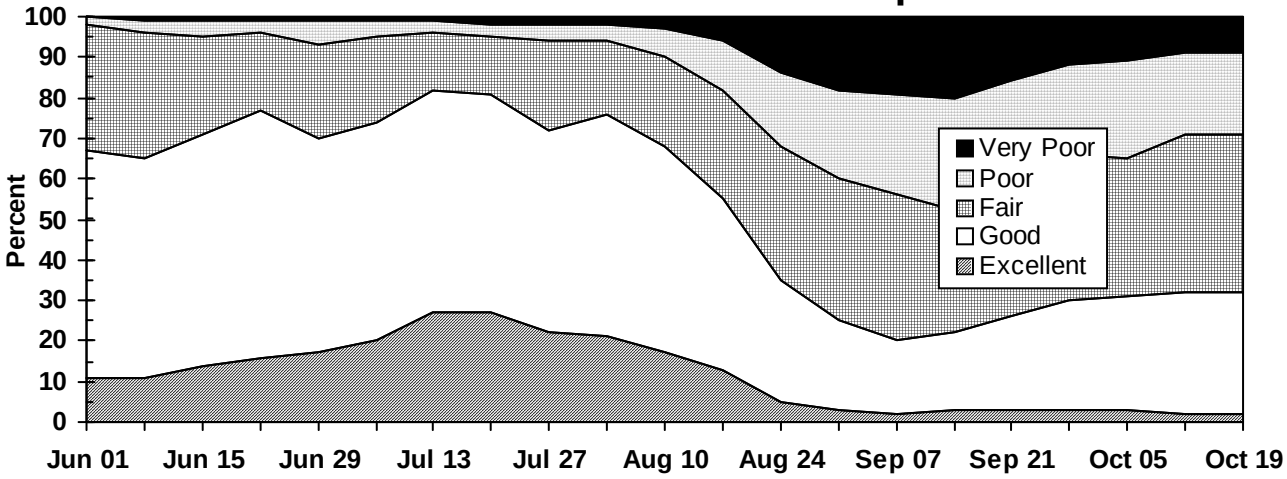
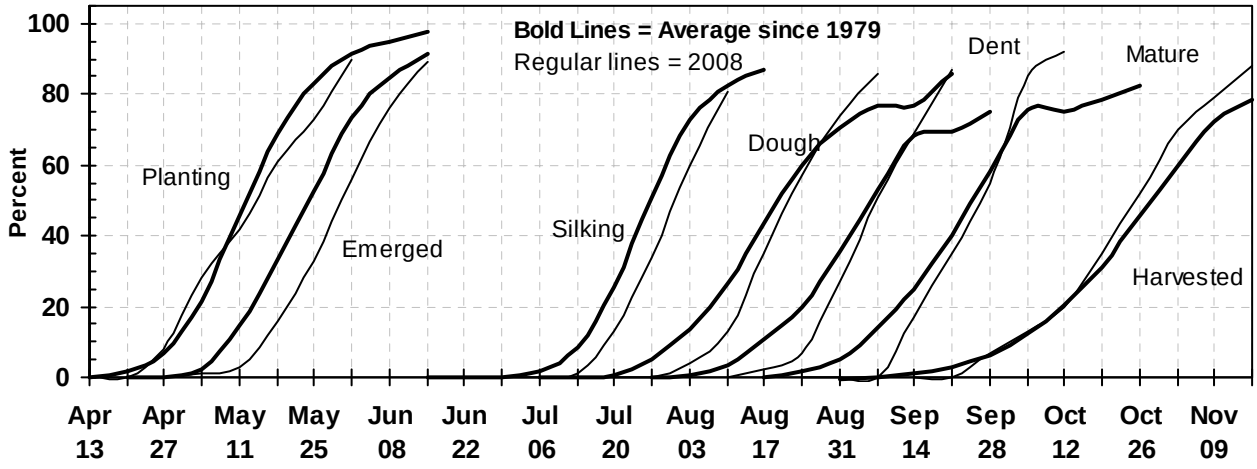
2003 Crop Summary for Wisconsin

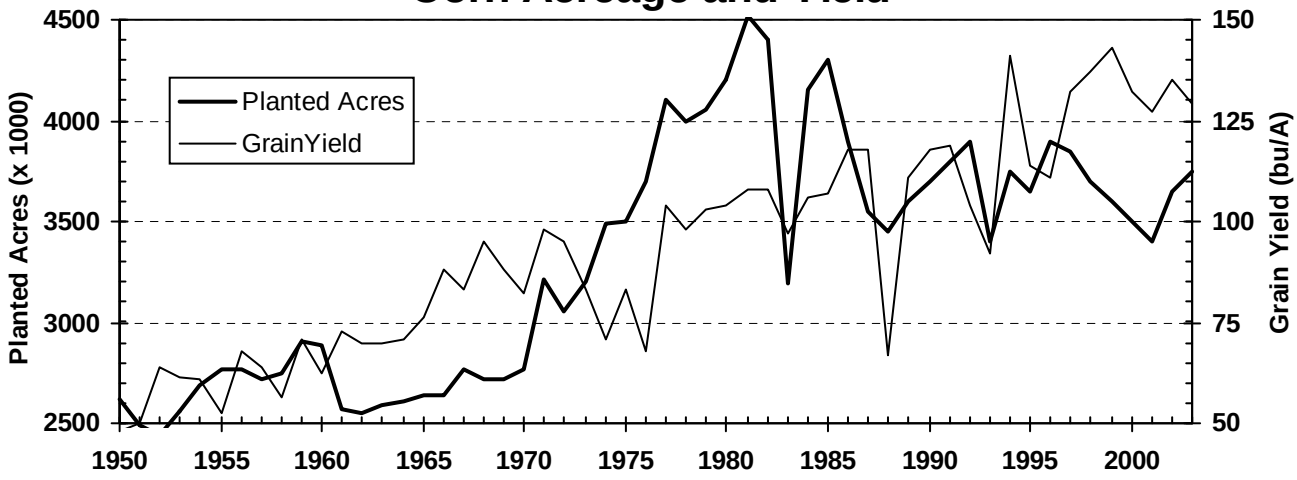
Condition of Corn Crop



Progress of Corn Crop



Corn Acreage and Yield



2003 Wisconsin Growing Season
(Derived from USDA Reports)

Weather: Dry August Challenges Crops

One of the driest August's in Wisconsin's history had a major impact on fall crops. Corn and soybean yields fell due to lack of moisture during pollination and grain fill stages. Hay and pastures suffered, and late season regrowth was minimal. Additionally, severe winterkill of hay crops in northern Wisconsin caused many fields to be reseeded or planted to other crops.

On the other hand, small grains and irrigated vegetables had excellent yields in 2003. Low moisture levels came too late in the season to have much effect on these crops.

This crop year also had cooler than normal weather from April through June, which delayed the planting season and slowed the vegetative growth of most crops. Warmer than normal temperatures during August and September speeded up maturation and the harvesting of crops. Moisture levels were mostly adequate from spring until late July. Harvest weather was generally favorable.

December 2002 was warmer than usual, as temperatures averaged 6 degrees above normal. El Nino conditions kept temperatures warm and held precipitation below normal. Large areas of Wisconsin were without snow cover for the holidays. **January** continued the El Nino trend. Temperatures were near normal, but precipitation for the month was under 0.5 inch. Average temperatures were in the 4 to 27 degree range, with short periods when lows were in the minus teens and others when highs reached the low 50's. Lack of significant snow cover continued statewide. Dry conditions continued through **February**. Monthly precipitation was under 0.5 inch for most of the state. February turned mostly colder than normal as daily low temperatures fell below January numbers. Concerns about low moisture levels for spring and winterkill for alfalfa began to surface. **March** remained cooler than normal. The cold temperatures mixed with low amounts of snow cover pushed frost levels deeper across the northern two-thirds of the state. Northwestern Wisconsin was hit with a late season snowstorm, while most of the state remained without snow cover.

April began with mostly cooler than normal temperatures. Temperatures had the usual wide range, with readings from 17 to 74 degrees for the first week of April. Snow covered the northern half of the state, and frost depths in the far north were reported as deep as 7 feet. Precipitation in the form of rain, sleet, and snow hit most parts of the state. Early April soil moisture conditions were rated as 1 percent very short, 29 percent short, 54 percent adequate, and 16 percent surplus. The third week of April brought warmer than normal temperatures, with some areas reaching the high 80's. Rains were common in the north, but the southern counties missed most of the heavier rains. The end of April brought tractors out in force in the south with good fieldwork conditions, though temperatures fell back to below normal. Wet fields continued to slow fieldwork progress in the north.

The first two weeks of **May** brought normal temperature ranges to most of the state. Dry weather conditions allowed for fieldwork to advance rapidly in all but the far north. Fieldwork and planting in the south were pushed forward and finally slowed with well-appreciated rains. The north saw dry conditions for a few extra days; farmers were able to take advantage of good weather to work on spring crop duties. Widespread rains of 2 inches or more hit Wisconsin during the second week of May. These timely rains helped to ensure moisture for germination of newly-planted crops and to boost winter wheat and alfalfa growth. The cool nights held pasture conditions slightly behind normal. Mid-May saw soil moisture ratings at 1 percent short, 52 percent adequate, and 47 percent surplus. Precipitation for the period of March 1 to May 11 was above normal for most of the state, with the Milwaukee area at less than 1 inch below normal for the period. With topsoil moisture levels adequate for new growth, farmers began to hope for warmer temperatures. Unfortunately, temperatures remained below normal through the end of the month. The cool nights kept pastures and alfalfa behind schedule around the state.

Cool weather would not seem to leave the Badger State, as temperatures during the first two weeks of **June** remained below normal. Drier weather allowed Wisconsin farmers to complete large portions of grain planting. With most of the crop in the ground, farmers waited for the warm-up to kick start the growing season. Mid-June brought welcome rains over the upper two-thirds of the state, while the lower third of the state missed the rains. Year-to-date precipitation totals in the

southern counties were 4 to 5 inches below normal. Topsoil moisture conditions, statewide, were reported at 1 percent very short, 9 percent short, 78 percent adequate, and 12 percent surplus. The last week of June finally recorded the first at or above normal temperatures since early May. This first week of summer also brought significant rains across the state. Weekly totals ranged from 0.75 to 1.50 inches. Although southern areas of the state still had low year-to-date precipitation levels, the rains at least arrived at appropriate times for good crop development. Pasture conditions were reported as 1 percent very poor, 7 percent poor, 35 percent fair, 50 percent good, and 7 percent excellent.

During the first week of **July,** temperatures ranged from the mid 50's at night to slightly above 90 degrees. These slightly above normal temperatures, combined with scattered rains, helped to push crop development and allow corn to reach "knee-high by the 4th of July." Mid-July temperatures were slightly below normal, but were sufficient for crop development. Scattered rains helped to boost growth in the areas that received precipitation. Rainfall amounts through the end of the month were described as hit or miss. Some areas received adequate amounts of rain, while others continued to be on the low side. Reports of moisture stress in some areas began to be heard. By the last week of July, soil moisture conditions were reported at 10 percent very short, 39 percent short, 50 percent adequate, and 1 percent surplus. Areas reporting short to very short moisture levels increased by 20 percent compared to the previous week. Year-to-date moisture levels in the southern half of the state were 3.5 to 7.0 inches behind normal. Pasture conditions were rated at 2 percent very poor, 9 percent poor, 37 percent fair, 46 percent good, and 6 percent excellent.

The first week of **August** brought some rain to relieve the dry conditions from the previous month. These rains were scattered and amounts were mostly under 0.5 inches. The northeast received heavy downpours that totaled over 5 inches in localized areas. Precipitation remained stingy in the middle of August, and crops in most areas of the state began to show moisture stress. Southern and western Wisconsin were the furthest behind in rain for the season. Soil moisture ratings for August 22 were 85 percent very short or short. Temperatures for the month were mostly above normal. The heat raised growing degree day units to above normal for the first time this season. The above average heat and lack of significant widespread rain continued through the end of the month. Pastures, as well as crops, were showing poor condition by month's end.

The weather for early **September** was a continuation of the dry, hot August. Warm temperatures kept growing degree days above normal, but parched crops could barely take advantage of the heat units. Topsoil moisture conditions for September 5 were 68 percent very short, 25 percent short, and 7 percent adequate. This peak in the very short and short category (at 93 percent) was reflected in lower corn and soybean crop condition ratings. Crops were in normal chronological development stages, but had no moisture reserves to set and fill the corn and soybean plants. Pastures were mostly dormant at this point. Rain finally began to fall by mid-September. Widespread rains continued over most of the state during the middle of the month. The exception was the far southeast that was mostly missed again. These rains helped to raise topsoil moisture levels, aid dry alfalfa fields, and boost pastures, but were too late to improve the corn and soybean crops. The last week of September and the first week of autumn brought slightly cooler than normal temperatures. Year-to-date precipitation levels continued to be far behind normal.

Unusually cold weather arrived in early **October**. The first week's average was at least 10 degrees below normal, with record lows set in some areas. Lows in the 20's statewide ushered in a hard killing frost that effectively ended the 2003 growing season. The second week brought a return to above normal temperatures, and farmers worked long hours to harvest the corn and soybean crops. Rainfall was scattered and mostly light during the month. This allowed producers to take advantage of the dry conditions and harvest crops at a rapid pace. Each week the days available for fieldwork ranged from 5.5 to 6.7 days per week. By month's end, soybeans harvested, at 92 percent, were well ahead of both last year's 68 percent and the 5-year average of 80 percent. Harvest of corn for grain moved at a rapid pace also, but many producers were waiting for lower grain moisture. By the end of October, topsoil moisture levels were rated at 18 percent very short, 42 percent short, and 40 percent adequate.

November began with temperatures 4 to 9 degrees below normal. Harvest activities came to a standstill, as most of the state was covered by rain during the first full week of November. Most of the

state received 1.0 to 2.5 inches of rain, with some areas receiving as much as 5 inches. Although it did slow down harvest, farmers were thankful for the added moisture. Normal temperatures returned for the second week, and then temperatures climbed 10 degrees above normal for the third week. Days suitable for fieldwork ranged from 3.7 to 5.0 days per week. Producers were able to advance corn harvest to 94 percent by November 23. Moisture levels for corn remained above 20 percent in some instances, but farmers felt that crops could be dried in the bins, rather than risk not being able to harvest them. High winds during the middle of the month caused concerns about lodging in some areas. The above normal precipitation for November allowed soil moisture to return to mostly adequate levels and bring fall-seeded wheat into good condition for the winter.

CORN

The 2003 corn growing season began in late April in southern Wisconsin. As of April 27, farmers reported 8 percent of the crop planted. Soil moisture levels were adequate for the new crop, but soil temperatures were still below optimum planting conditions for most of the state. Wet fields held producers back in the northern areas of the state. Late May had more days suitable for fieldwork, and the crop was quickly put in the ground. By the end of the month, the state average for corn planted reached 90 percent, slightly behind the 5-year average of 93 percent. At the same time, corn emerged was at 56 percent, compared to 72 percent for the 5- year average. The cool spring temperatures were blamed for the slow start of vegetative growth. Summer arrived with most of the state running behind normal year-to-date precipitation levels. Farmers in the south had sufficient moisture for crop development, but were worried about soil moisture reserves. Temperatures for July were near normal and provided enough heat units to move the crop along normally. As of July 25, the crop condition was rated 2 percent very poor, 4 percent poor, 22 percent fair, 50 percent good, and 22 percent excellent. Farmers were very optimistic about the future of the corn crop. Early August brought light, scattered rains to relieve some producers' worries about soil moisture. The spotty rains left many fields with little extra moisture for the start of tasseling and pollination of the crop. The state average for corn silked on August 3 was 60 percent, compared to a 5-year average of 79 percent silked. This confirmed that the crop was still running behind normal in development for the year. Temperatures for August averaged above normal, but rain was a scarce commodity. On August 8, soil moisture conditions were rated 15 percent very short, 37 percent short, 44 percent adequate, and 4 percent surplus. This was the first week when the very short and short ratings combined to over 50 percent. August was a very trying time for farmers hoping for rain. There were incidences of rain, but they were very scattered and light. By the end of August, corn crop condition reports were worsening. Farmers reported fields that had looked excellent a few weeks earlier, were now showing significant stress.

The first reports of silage harvest came in mid-August. The crop was ranked as 57 percent in dough stage or beyond, but many fields had ears that were filling poorly due to lack of moisture. On September 5, soil moisture conditions were at 68 percent very short, 25 percent short, and 7 percent adequate. Warm weather had allowed the crop to catch up in stage of development, but many areas now had plants that were drying out. Corn harvested for silage was at 49 percent, compared to the 5-year average of 27 percent. In the dry areas of the state, more corn than usual was harvested as silage to salvage a crop that had small ear development. The first widespread rains did not occur until mid-September. This was, unfortunately, too late to help most of the crop. Harvest of corn for grain began in late September. The first week of October brought a statewide killing frost that ended the growing season. Corn rated as mature was at 85 percent, compared to the 5-year average of 78 percent. October was again a mostly dry month, and farmers were able to harvest the corn crop at a good pace when plant moisture levels were low enough. Producers reported yields were extremely variable. Fields with heavier soils had very good yields, while those with lighter soils had very low yields. Overall, farmers were pleasantly surprised at the yields, considering the dry conditions that summer had brought.

SOYBEANS

Seeding of soybeans began the second week of May. Wet soil conditions kept many producers out of the fields. By the beginning of June, soybeans planted had reached 73 percent complete, compared to the 5-year average of 77 percent. Soybeans emerged, at 20 percent, were behind schedule with the cool weather. This compared to a 5-year average of 48 percent emerged. The cool nights and cloudy days in May were blamed for the slow start. By the end of spring, soybeans emerged was at 91 percent, nearly equal to the 5-year average of 92 percent. Soybean condition at

this time was rated 1 percent very poor, 3 percent poor, 16 percent fair, 68 percent good, and 12 percent excellent. Warmer weather and adequate moisture allowed soybeans blooming to be at 14 percent by July 13, equal to the 5- year average. Soybean condition was ranked at 80 percent good to excellent at this time. The end of July brought dry, hot conditions, and soybeans began to show stress from lack of moisture. Growers began to report large populations of aphids. Plant height was also reported to be shorter than normal in some areas. The start of August brought scattered rains as a relief in a few dry areas. Soybeans setting pods were at 29 percent, compared to the 5-year average of 38 percent. By mid-August, hot weather had dried fields out, and soybeans were showing obvious stress during the pod development and seed-filling period. Soybean condition ratings began to slip out of good to excellent and into poor and fair categories. After a month of very little precipitation, soybeans turning color on August 31 was reported at 22 percent, compared to 14 percent for the 5-year average. Many producers were questioning whether the early color change was from maturity or moisture stress. Early September had reports of soybeans being harvested for silage to supplement low forage supplies and to utilize marginal fields. When rains finally arrived in mid-September, soybeans dropping leaves were at 39 percent, ahead of the 5-year average of 28 percent. The rains were mostly too late to help the crop. Soybean condition was rated at 24 percent very poor, 27 percent poor, 28 percent fair, 17 percent good, and 4 percent excellent. Soybean harvest began in late September. Early yields were disappointing. Bean size was small, and there were fewer beans per plant. The hot, dry weather during seed filling proved to be hard on the stressed plants. Favorable harvest weather in October allowed for soybean harvest to reach 92 percent complete by October 26. This compared to 68 percent last year and a 5-year average of 80 percent. Soybean yields were drastically affected by the summer temperatures and lack of moisture. Average yields were reported to be in the 20’s in many areas.

OATS

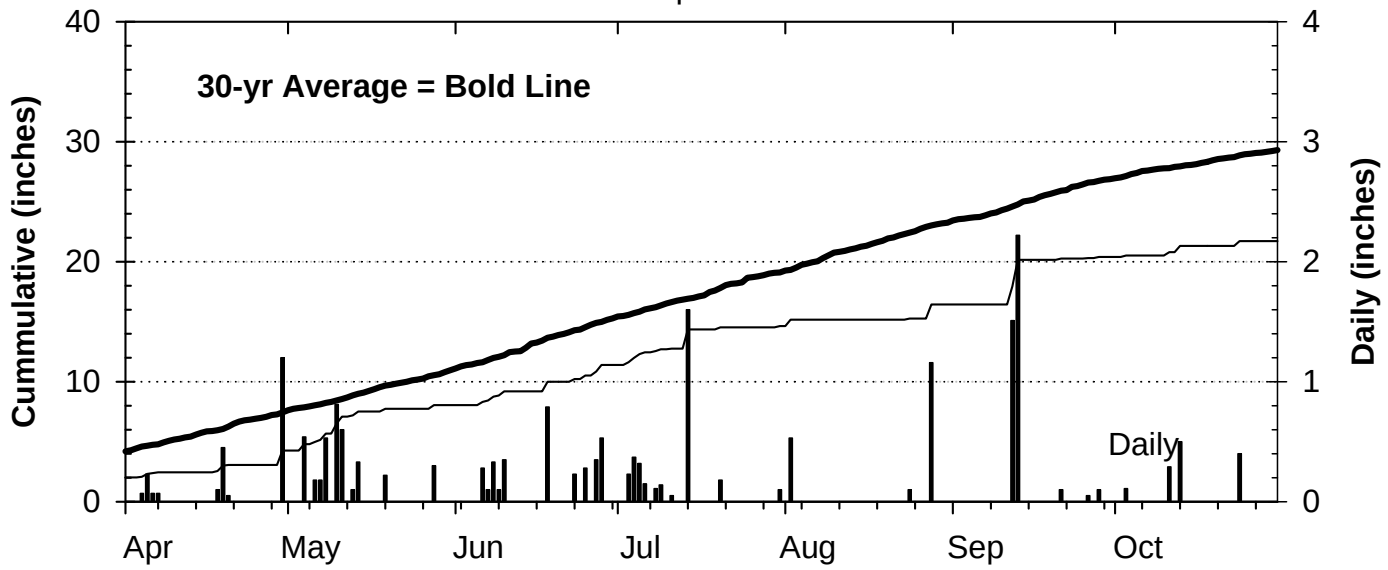
A cool, wet spring delayed seeding of oats in southern Wisconsin. Planting began a week later than normal. Farmers were caught up in planting progress by early May. Oats planted on May 4 were at 71 percent, compared to the 5-year average of 69 percent. Oats emerged were at 22 percent, compared to 25 percent for the 5-year average. The cool weather kept oats emerged behind normal, but by early June, 97 percent of the crop had emerged. The oat crop began to head out by mid-June. The crop condition was rated at 77 percent good to excellent. At the end of June, the crop had caught up to the 5-year average for oats headed at 68 percent. Early July saw harvesting of oatlage with good silage yields. Oats harvested for grain began in late July. Weeds were reported to be a problem in some fields. Oat harvest ran behind schedule due to weeds and reports of slow dry-down of grain. By August 24, oats harvested reached 90 percent, compared to 93 percent for the 5-year average. Yields and quality were said to be above average in most areas.

WINTER WHEAT

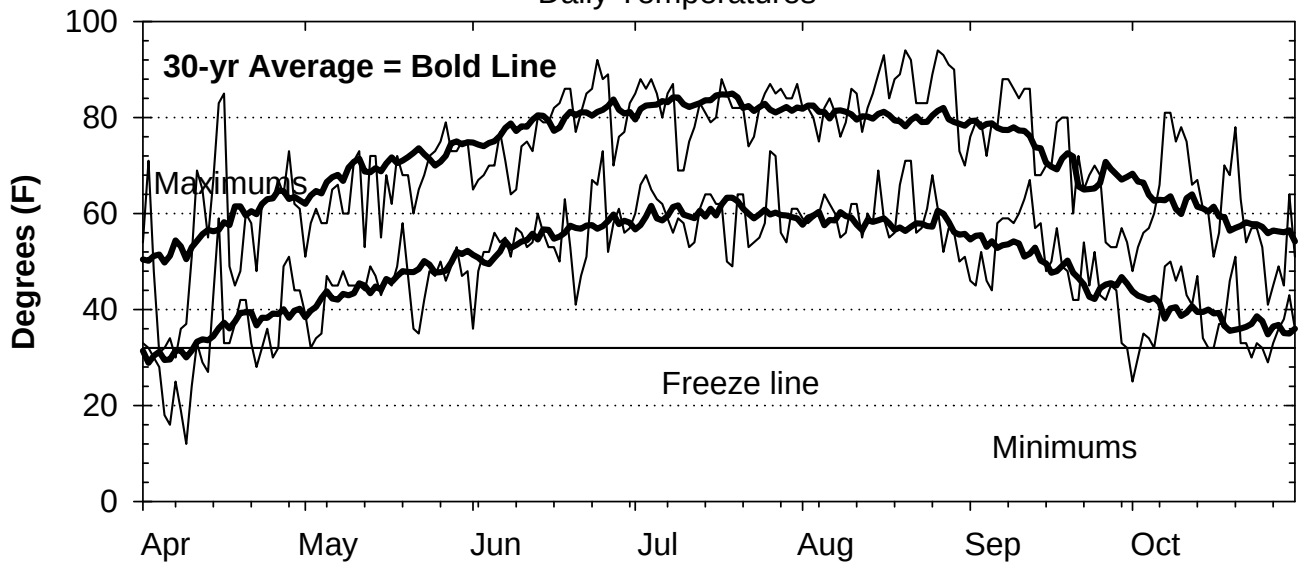
Early spring brought discussions of possible winterkill damage to the winter wheat crop. The lack of snow cover and deep frost had many producers looking closely at their wheat crop as it began to green up. By late April, winter freeze damage to wheat was rated at 63 percent none, 26 percent light, 7 percent moderate, and 4 percent severe. In early June, the crop was looking very good, but weeds were beginning to be reported in some light stands. Southern Wisconsin wheat began to head out in mid-June. Crop condition was reported at 1 percent very poor, 3 percent poor, 26 percent fair, 56 percent good, and 14 percent excellent. The cool spring weather delayed the start of harvest until late July. Winter wheat harvested by July 27 was at 16 percent, compared to the 5-year average of 62 percent. Very good yields were reported on early-harvested wheat in southern Wisconsin. By the end of August, winter wheat was 96 percent harvested, compared to the 5-year average of 100 percent. Yields were good to very good for the season.

2003 Weather Summary for Arlington, WI

Precipitation



Daily Temperatures



Growing Degree Units (modified - base= 50, max = 86)

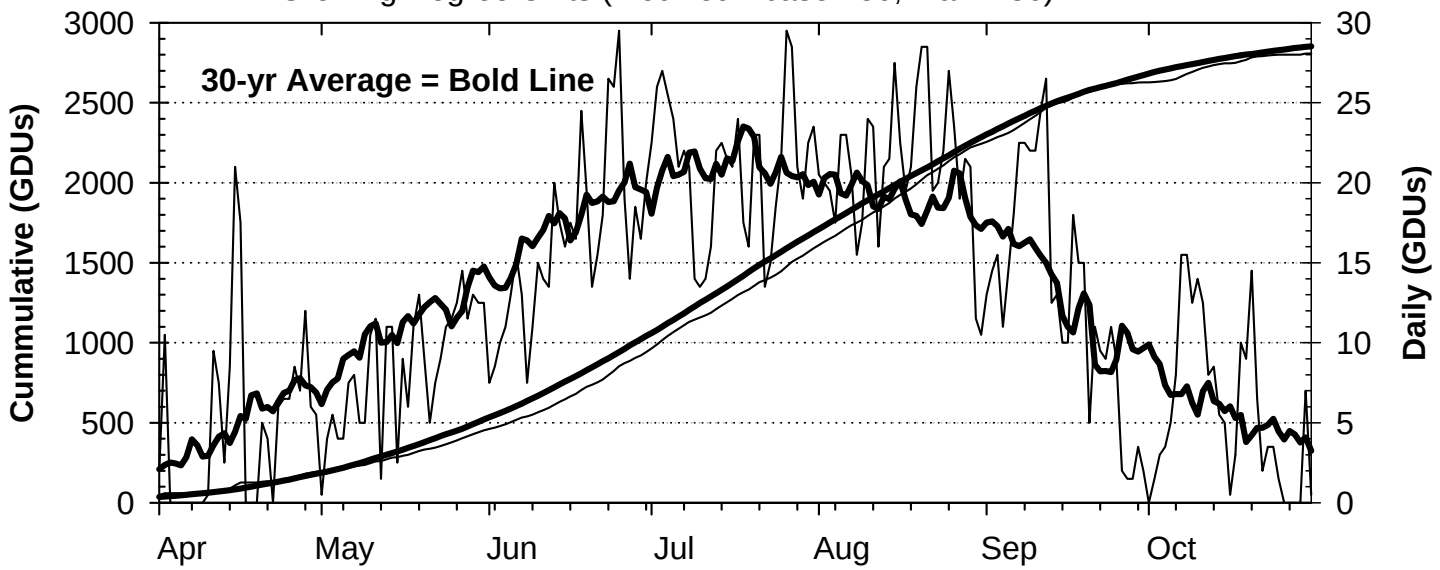


Table A-1. Daily Precipitation, Solar Radiation, Soil and Air Temperatures and Growing Degree Units at the Arlington Research Station during 2003.

Day of year		Precipitation		Daily Solar	Soil Temperature at 2 inches		Air Temperature		Growing Degree Units (86/50 F)	
		Daily	Total	Radiation	Max	Min	Max	Min	Daily	Total
		inches		W m^{-2}	^{o}F		^{o}F			
91	1-Apr	0.00	2.0	224	70	34	54	33	2	49
92	2-Apr	0.00	2.0	95	48	35	71	32	11	60
93	3-Apr	0.00	2.0	21	36	32	48	30	0	60
94	4-Apr	0.07	2.1	27	34	32	31	28	0	60
95	5-Apr	0.23	2.3	207	32	32	32	18	0	60
96	6-Apr	0.07	2.4	197	34	32	34	16	0	60
97	7-Apr	0.07	2.5	78	32	32	30	25	0	60
98	8-Apr	0.00	2.5	255	32	32	36	19	0	60
99	9-Apr	0.00	2.5	298	34	32	37	12	0	60
100	10-Apr	0.00	2.5	294	65	32	51	24	1	60
101	11-Apr	0.00	2.5	272	72	33	69	33	10	70
102	12-Apr	0.00	2.5	291	67	33	65	29	8	77
103	13-Apr	0.00	2.5	285	67	33	55	27	3	80
104	14-Apr	0.00	2.5	272	71	38	67	43	9	88
105	15-Apr	0.00	2.5	252	76	49	83	59	21	109
106	16-Apr	0.00	2.5	47	50	35	85	33	18	127
107	17-Apr	0.00	2.5	132	57	34	49	33	0	127
108	18-Apr	0.10	2.6	72	49	38	45	37	0	127
109	19-Apr	0.45	3.0	121	69	39	48	42	0	127
110	20-Apr	0.05	3.1	129	67	46	60	42	5	132
111	21-Apr	0.00	3.1	106	51	36	58	33	4	136
112	22-Apr	0.00	3.1	313	67	33	48	28	0	136
113	23-Apr	0.00	3.1	311	73	33	62	32	6	142
114	24-Apr	0.00	3.1	183	61	34	63	36	7	148
115	25-Apr	0.00	3.1	285	70	35	63	30	7	155
116	26-Apr	0.00	3.1	311	79	33	67	32	9	163
117	27-Apr	0.00	3.1	300	80	40	64	49	7	170
118	28-Apr	0.00	3.1	282	84	46	73	51	12	182
119	29-Apr	0.00	3.1	189	80	43	62	44	6	188
120	30-Apr	1.20	4.3	42	52	47	61	44	6	194
121	1-May	0.00	4.3	212	71	47	51	39	1	194
122	2-May	0.00	4.3	301	71	39	58	32	4	198
123	3-May	0.00	4.3	319	76	35	61	34	6	204
124	4-May	0.54	4.8	106	55	37	58	35	4	208
125	5-May	0.00	4.8	64	60	48	58	47	4	212
126	6-May	0.18	5.0	256	80	50	65	45	8	219
127	7-May	0.18	5.2	48	54	49	66	45	8	227
128	8-May	0.53	5.7	144	66	49	60	48	5	232
129	9-May	0.00	5.7	203	74	51	60	45	5	237
130	10-May	0.81	6.5	225	79	47	71	45	11	248
131	11-May	0.60	7.1	58	57	47	73	45	12	259
132	12-May	0.00	7.1	330	72	44	53	44	2	261
133	13-May	0.10	7.2	341	83	45	72	49	11	272
134	14-May	0.33	7.5	40	55	50	72	47	11	283
135	15-May	0.00	7.5	177	73	48	55	43	3	285
136	16-May	0.00	7.5	283	81	44	68	46	9	294
137	17-May	0.00	7.5	180	73	48	62	45	6	300
138	18-May	0.00	7.5	228	74	50	72	49	11	311
139	19-May	0.22	7.8	61	68	58	68	58	13	324
140	20-May	0.00	7.8	346	80	48	68	47	9	333
141	21-May	0.00	7.8	325	80	45	60	36	5	338
142	22-May	0.00	7.8	302	82	42	65	35	8	346
143	23-May	0.00	7.8	301	87	48	68	42	9	355
144	24-May	0.00	7.8	328	89	44	72	48	11	366
145	25-May	0.00	7.8	330	93	50	73	47	12	377

Table A-1. Daily Precipitation, Solar Radiation, Soil and Air Temperatures and Growing Degree Units at the Arlington Research Station during 2003.

Day of year		Precipitation		Daily Solar	Soil Temperature at 2 inches		Air Temperature		Growing Degree Units (86/50 F)	
		Daily	Total	Radiation	Max	Min	Max	Min	Daily	Total
		inches		W m^{-2}	°F		°F			
146	26-May	0.00	7.8	315	93	49	75	50	13	390
147	27-May	0.00	7.8	325	96	52	79	46	15	404
148	28-May	0.30	8.1	125	83	54	73	49	12	416
149	29-May	0.00	8.1	296	89	52	73	53	13	429
150	30-May	0.00	8.1	191	78	53	75	47	13	441
151	31-May	0.00	8.1	233	82	49	75	48	13	454
152	1-Jun	0.00	8.1	322	84	44	65	36	8	461
153	2-Jun	0.00	8.1	177	67	46	67	48	9	470
154	3-Jun	0.00	8.1	151	76	53	68	52	10	480
155	4-Jun	0.00	8.1	322	88	55	70	52	11	491
156	5-Jun	0.00	8.1	337	100	54	70	56	13	504
157	6-Jun	0.28	8.3	80	69	56	77	54	16	519
158	7-Jun	0.10	8.4	216	81	55	71	55	13	532
159	8-Jun	0.33	8.8	192	80	54	64	51	8	540
160	9-Jun	0.10	8.9	273	89	51	65	57	11	551
161	10-Jun	0.35	9.2	105	76	58	74	56	15	566
162	11-Jun	0.00	9.2	85	74	54	75	53	14	580
163	12-Jun	0.00	9.2	165	86	54	73	54	14	593
164	13-Jun	0.00	9.2	259	98	55	80	60	20	613
165	14-Jun	0.00	9.2	248	100	59	79	56	18	631
166	15-Jun	0.00	9.2	303	111	58	79	53	16	647
167	16-Jun	0.00	9.2	279	114	58	82	53	18	664
168	17-Jun	0.00	9.2	323	118	56	83	50	17	681
169	18-Jun	0.79	10.0	261	117	66	86	63	25	705
170	19-Jun	0.00	10.0	371	96	56	86	53	20	725
171	20-Jun	0.00	10.0	324	95	49	77	41	14	738
172	21-Jun	0.00	10.0	314	100	52	81	47	16	754
173	22-Jun	0.00	10.0	329	105	56	85	51	18	772
174	23-Jun	0.23	10.2	237	106	60	86	67	27	798
175	24-Jun	0.00	10.2	265	97	67	92	66	26	824
176	25-Jun	0.28	10.5	133	93	68	88	73	30	854
177	26-Jun	0.00	10.5	273	87	58	89	52	19	873
178	27-Jun	0.35	10.9	288	95	54	70	58	14	887
179	28-Jun	0.53	11.4	187	83	62	76	61	19	905
180	29-Jun	0.00	11.4	341	93	60	77	56	17	922
181	30-Jun	0.00	11.4	340	96	58	83	57	20	942
182	1-Jul	0.00	11.4	354	99	59	85	60	23	964
183	2-Jul	0.00	11.4	318	98	60	88	66	26	990
184	3-Jul	0.23	11.6	256	93	66	86	68	27	1017
185	4-Jul	0.37	12.0	308	97	69	88	65	26	1043
186	5-Jul	0.32	12.3	329	99	69	85	63	24	1067
187	6-Jul	0.15	12.5	178	89	66	80	62	21	1088
188	7-Jul	0.00	12.5	269	98	65	85	59	22	1110
189	8-Jul	0.11	12.6	136	82	63	87	56	21	1131
190	9-Jul	0.14	12.7	138	74	59	69	59	14	1145
191	10-Jul	0.00	12.7	109	76	62	69	58	14	1158
192	11-Jul	0.05	12.8	285	86	61	75	53	14	1172
193	12-Jul	0.00	12.8	350	92	57	78	54	16	1188
194	13-Jul	0.00	12.8	337	94	58	83	61	22	1210
195	14-Jul	1.60	14.4	298	91	62	81	64	23	1233
196	15-Jul	0.00	14.4	284	90	64	79	64	22	1254
197	16-Jul	0.00	14.4	318	88	59	80	62	21	1275
198	17-Jul	0.00	14.4	267	97	63	88	62	24	1299
199	18-Jul	0.00	14.4	360	91	60	85	50	18	1317
200	19-Jul	0.00	14.4	345	93	56	82	49	16	1333

Table A-1. Daily Precipitation, Solar Radiation, Soil and Air Temperatures and Growing Degree Units at the Arlington Research Station during 2003.

Day of year		Precipitation		Daily Solar	Soil Temperature at 2 inches		Air Temperature		Growing Degree Units (86/50 F)	
		Daily	Total	Radiation	Max	Min	Max	Min	Daily	Total
		inches		W m^{-2}	°F		°F			
201	20-Jul	0.18	14.5	186	86	65	82	64	23	1356
202	21-Jul	0.00	14.5	294	90	67	82	64	23	1379
203	22-Jul	0.00	14.5	282	90	62	74	53	14	1392
204	23-Jul	0.00	14.5	340	96	58	76	54	15	1407
205	24-Jul	0.00	14.5	320	97	58	82	55	19	1426
206	25-Jul	0.00	14.5	289	96	59	85	58	22	1447
207	26-Jul	0.00	14.5	205	93	68	87	73	30	1477
208	27-Jul	0.00	14.5	260	100	71	85	72	29	1505
209	28-Jul	0.00	14.5	213	91	64	86	56	21	1526
210	29-Jul	0.00	14.5	324	105	59	84	54	19	1545
211	30-Jul	0.00	14.5	236	96	66	84	61	23	1568
212	31-Jul	0.10	14.6	249	106	64	87	61	24	1591
213	1-Aug	0.00	14.6	290	104	63	82	59	21	1612
214	2-Aug	0.53	15.2	275	102	62	82	58	20	1632
215	3-Aug	0.00	15.2	240	95	62	80	59	20	1651
216	4-Aug	0.00	15.2	187	80	63	75	60	18	1669
217	5-Aug	0.00	15.2	261	93	60	82	64	23	1692
218	6-Aug	0.00	15.2	281	98	65	84	62	23	1715
219	7-Aug	0.00	15.2	303	96	64	81	60	21	1735
220	8-Aug	0.00	15.2	248	95	64	76	55	16	1751
221	9-Aug	0.00	15.2	251	89	60	79	56	18	1768
222	10-Aug	0.00	15.2	299	101	60	86	62	24	1792
223	11-Aug	0.00	15.2	88	77	66	85	62	24	1816
224	12-Aug	0.00	15.2	213	86	63	77	55	16	1832
225	13-Aug	0.00	15.2	274	96	60	82	60	21	1853
226	14-Aug	0.00	15.2	243	100	62	85	58	22	1874
227	15-Aug	0.00	15.2	274	105	66	89	69	28	1902
228	16-Aug	0.00	15.2	259	109	68	93	59	23	1924
229	17-Aug	0.00	15.2	294	93	60	84	55	20	1944
230	18-Aug	0.00	15.2	291	95	57	88	56	21	1965
231	19-Aug	0.00	15.2	255	94	66	89	66	26	1991
232	20-Aug	0.00	15.2	265	100	67	94	71	29	2019
233	21-Aug	0.00	15.2	274	101	71	92	71	29	2048
234	22-Aug	0.00	15.2	295	101	61	83	56	20	2067
235	23-Aug	0.00	15.2	257	99	61	83	57	20	2087
236	24-Aug	0.10	15.3	263	100	65	83	61	22	2109
237	25-Aug	0.00	15.3	163	92	70	89	68	27	2136
238	26-Aug	0.00	15.3	269	102	66	94	61	24	2160
239	27-Aug	0.00	15.3	277	101	61	93	52	19	2179
240	28-Aug	1.16	16.4	229	97	59	91	57	22	2200
241	29-Aug	0.00	16.4	251	85	65	90	56	21	2221
242	30-Aug	0.00	16.4	230	81	61	73	50	12	2233
243	31-Aug	0.00	16.4	126	70	56	70	51	11	2243
244	1-Sep	0.00	16.4	252	80	53	76	46	13	2256
245	2-Sep	0.00	16.4	262	82	50	79	45	15	2271
246	3-Sep	0.00	16.4	256	86	59	79	52	16	2286
247	4-Sep	0.00	16.4	267	81	56	72	46	11	2297
248	5-Sep	0.00	16.4	264	86	51	79	44	15	2312
249	6-Sep	0.00	16.4	236	88	55	78	58	18	2330
250	7-Sep	0.00	16.4	224	90	59	88	59	23	2352
251	8-Sep	0.00	16.4	213	89	59	88	59	23	2375
252	9-Sep	0.00	16.4	221	90	62	86	58	22	2397
253	10-Sep	0.00	16.4	200	88	61	84	60	22	2419
254	11-Sep	0.00	16.4	215	90	62	86	63	25	2443
255	12-Sep	1.51	17.9	83	75	65	86	67	27	2470

Table A-1. Daily Precipitation, Solar Radiation, Soil and Air Temperatures and Growing Degree Units at the Arlington Research Station during 2003.

Day of year		Precipitation		Daily Solar	Soil Temperature at 2 inches		Air Temperature		Growing Degree Units (86/50 F)	
		Daily	Total	Radiation	Max	Min	Max	Min	Daily	Total
		inches		W m^{-2}	^{o}F		^{o}F			
256	13-Sep	2.22	20.2	30	69	64	68	57	13	2482
257	14-Sep	0.00	20.2	120	71	56	68	58	13	2495
258	15-Sep	0.00	20.2	.	.	.	70	48	10	2505
259	16-Sep	0.00	20.2	.	.	.	70	50	10	2515
260	17-Sep	0.00	20.2	238	78	51	79	57	18	2533
261	18-Sep	0.00	20.2	232	81	56	80	49	15	2548
262	19-Sep	0.00	20.2	142	72	47	80	48	15	2563
263	20-Sep	0.00	20.2	221	81	43	60	42	5	2568
264	21-Sep	0.10	20.3	164	77	46	72	42	11	2579
265	22-Sep	0.00	20.3	109	74	50	65	54	10	2589
266	23-Sep	0.00	20.3	227	81	45	68	45	9	2598
267	24-Sep	0.00	20.3	160	77	47	70	52	11	2609
268	25-Sep	0.00	20.3	158	71	43	68	43	9	2618
269	26-Sep	0.05	20.3	70	61	49	54	42	2	2620
270	27-Sep	0.00	20.3	82	63	44	53	45	2	2621
271	28-Sep	0.10	20.4	88	62	46	53	44	2	2623
272	29-Sep	0.00	20.4	188	74	38	57	33	4	2626
273	30-Sep	0.00	20.4	180	70	37	54	32	2	2628
274	1-Oct	0.00	20.4	197	66	34	48	25	0	2628
275	2-Oct	0.00	20.4	207	70	31	53	30	2	2630
276	3-Oct	0.11	20.5	65	60	42	56	35	3	2633
277	4-Oct	0.00	20.5	181	69	39	57	34	4	2636
278	5-Oct	0.00	20.5	198	72	38	60	32	5	2641
279	6-Oct	0.00	20.5	194	73	36	66	39	8	2649
280	7-Oct	0.00	20.5	188	82	43	81	49	16	2665
281	8-Oct	0.00	20.5	186	81	46	81	50	16	2680
282	9-Oct	0.00	20.5	135	76	48	75	46	13	2693
283	10-Oct	0.00	20.5	168	80	48	78	49	14	2707
284	11-Oct	0.29	20.8	138	79	50	75	43	13	2719
285	12-Oct	0.00	20.8	184	75	44	66	41	8	2727
286	13-Oct	0.50	21.3	124	70	42	67	47	9	2736
287	14-Oct	0.00	21.3	130	64	42	61	34	6	2741
288	15-Oct	0.00	21.3	170	67	37	60	32	5	2746
289	16-Oct	0.00	21.3	137	56	35	51	32	1	2747
290	17-Oct	0.00	21.3	136	64	33	56	37	3	2750
291	18-Oct	0.00	21.3	156	73	40	70	37	10	2760
292	19-Oct	0.00	21.3	159	67	39	68	46	9	2769
293	20-Oct	0.00	21.3	138	71	44	78	51	15	2783
294	21-Oct	0.00	21.3	105	66	40	63	33	7	2790
295	22-Oct	0.00	21.3	142	65	34	54	33	2	2792
296	23-Oct	0.00	21.3	138	64	37	57	30	4	2795
297	24-Oct	0.40	21.7	47	52	34	57	33	4	2799
298	25-Oct	0.00	21.7	136	65	38	53	32	2	2800
299	26-Oct	0.00	21.7	29	46	36	41	29	0	2800
300	27-Oct	0.00	21.7	121	56	35	45	33	0	2800
301	28-Oct	0.00	21.7	49	52	40	49	36	0	2800
302	29-Oct	0.00	21.7	78	54	40	45	38	0	2800
303	30-Oct	0.00	21.7	119	61	39	64	43	7	2807
304	31-Oct	0.00	21.7	17	52	44	51	36	1	2808

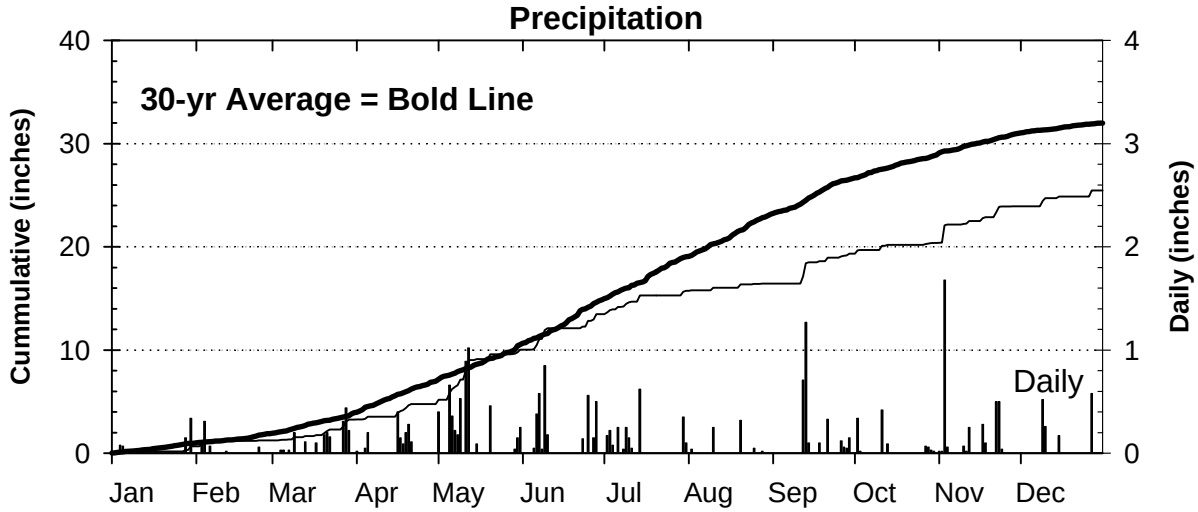
Table A-2. Monthly and total precipitation (inches) data for the Arlington Research Station.

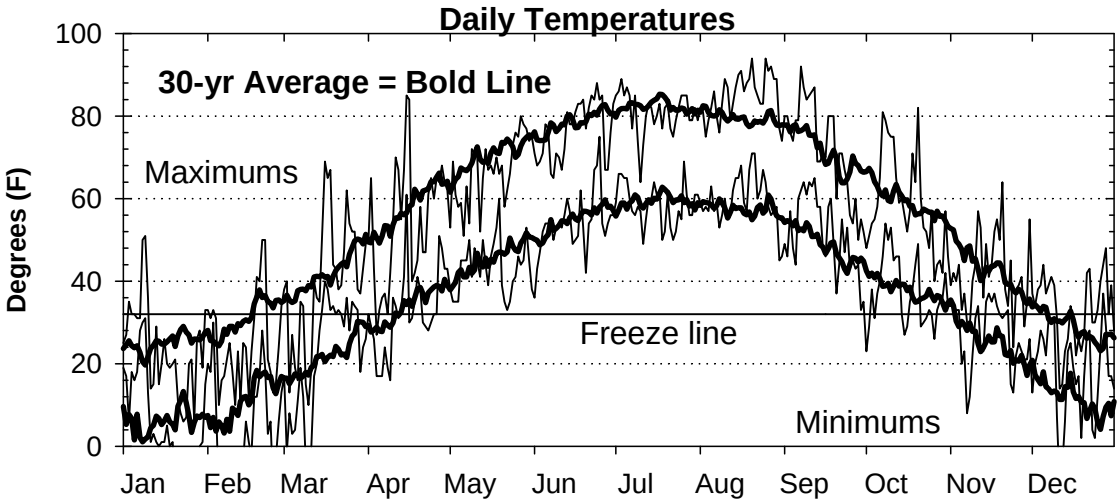
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	2.0	0.9	2.9	4.2	4.9	3.5	3.2	3.1	1.5	3.1	2.4	1.8	33.5
1975	0.7	1.0	2.2	3.5	3.5	5.7	1.7	5.2	0.9	1.0	3.3	0.2	28.7
1976	0.5	1.5	4.1	4.4	1.3	0.8	4.6	3.3	1.0	1.7	0.1	0.3	23.5
1977	0.5	1.4	3.1	2.6	2.4	2.7	5.4	2.7	2.6	2.3	2.3	1.0	28.9
1978	0.5	0.2	0.2	3.0	7.1	8.0	4.1	1.0	5.3	1.7	3.2	1.0	35.2
1979	1.2	0.7	3.1	1.7	2.7	3.8	2.7	7.7	0.2	2.9	1.8	1.5	29.8
1980	1.2	0.2	0.5	1.8	2.1	3.6	2.1	12.9	9.8	1.1	1.2	0.7	37.2
1981	0.1	2.7	0.6	3.7	0.3	3.6	7.0	4.5	3.4	3.1	1.1	0.9	31.0
1982	1.4	0.1	2.3	3.8	4.0	3.1	2.6	3.2	1.0	1.3	4.8	4.1	31.5
1983	0.4	1.8	2.4	2.0	3.9	2.1	4.5	4.5	3.1	3.6	3.1	2.4	33.8
1984	0.7	1.5	1.2	4.1	3.2	7.6	2.9	1.8	3.6	5.9	2.5	1.5	36.4
1985	1.4	1.8	2.1	2.4	2.8	3.5	5.9	3.6	6.9	3.1	5.3	1.4	40.1
1986	1.2	1.0	1.5	2.7	2.1	4.2	4.6	4.9	10.7	1.9	1.3	0.5	36.7
1987	0.5	0.0	1.9	2.6	4.7	0.6	4.0	4.9	4.9	1.6	4.9	1.4	32.2
1988	2.1	1.0	1.3	3.3	1.0	1.5	1.6	2.9	3.9	2.2	1.5	1.2	23.4
1989	0.7	0.9	1.5	1.4	1.8	2.0	3.8	4.3	3.8	2.4	1.3	0.5	24.3
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
30-yr Average	1.0	1.1	1.8	3.3	3.5	4.3	3.9	4.0	3.6	2.4	2.4	1.3	32.6

Table A-3. Average monthly and annual temperature (^{o}F) data for the Arlington Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	18	20	33	48	54	64	73	68	57	50	38	25	46
1975	21	20	25	40	62	68	71	71	57	53	41	25	46
1976	15	27	35	49	55	70	73	68	60	45	28	12	45
1977	3	22	40	53	66	66	74	66	62	49	35	18	46
1978	10	12	28	45	58	67	70	70	66	48	35	20	44
1979	6	11	30	42	56	66	70	67	62	48	35	29	44
1980	17	17	28	47	60	66	73	71	61	45	37	22	45
1981	20	25	37	49	56	67	70	69	59	47	38	22	47
1982	8	19	29	41	62	62	72	68	60	52	36	30	45
1983	23	27	34	43	53	67	75	74	62	51	38	10	46
1984	15	30	27	46	55	69	69	72	61	52	36	26	46
1985	12	17	38	52	62	64	71	66	62	50	32	12	45
1986	18	19	36	50	59	66	72	64	62	51	32	25	46
1987	23	31	38	51	61	71	74	68	62	45	40	27	49
1988	13	18	35	47	63	72	75	75	64	45	37	24	47
1989	28	15	30	46	57	66	73	70	60	51	33	13	45
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
30-yr Average	17	22	33	46	58	67	71	69	61	49	36	23	46

2003 Weather Summary for Hancock, WI





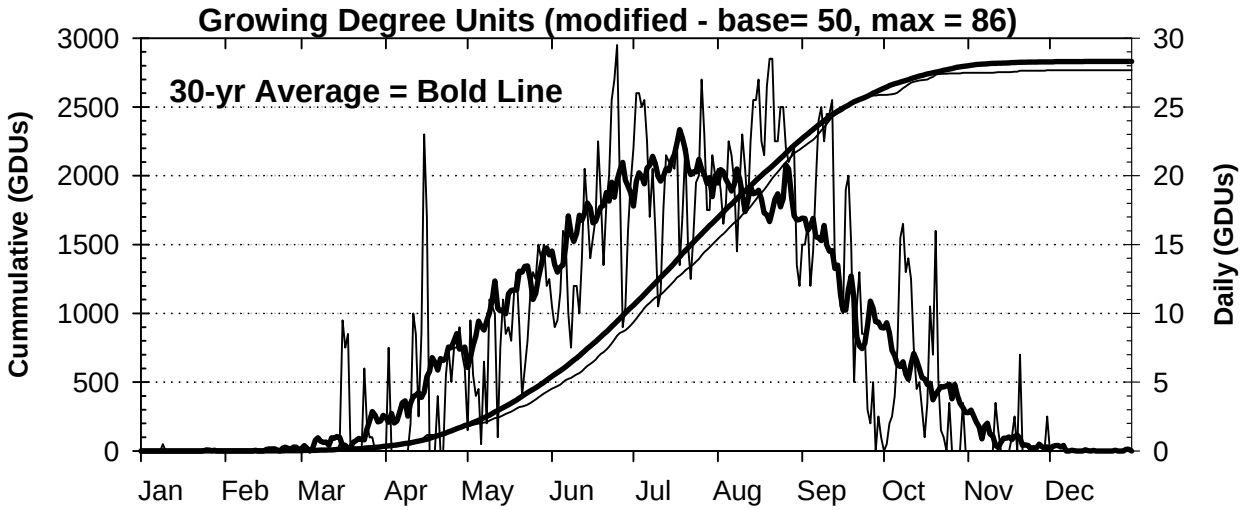


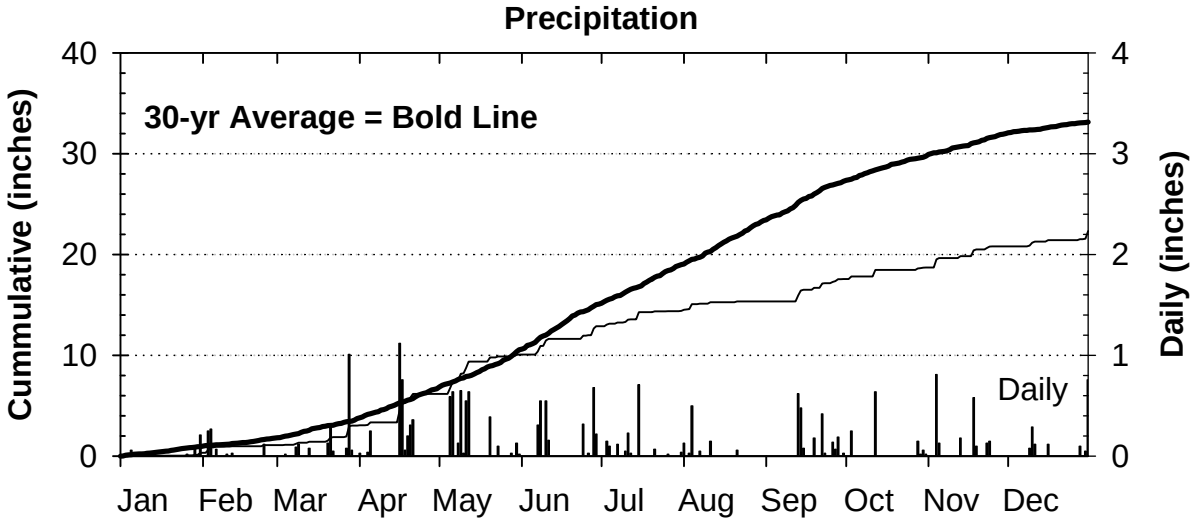
Table A-4. Monthly and total precipitation (inches) data for the Hancock Research Station.

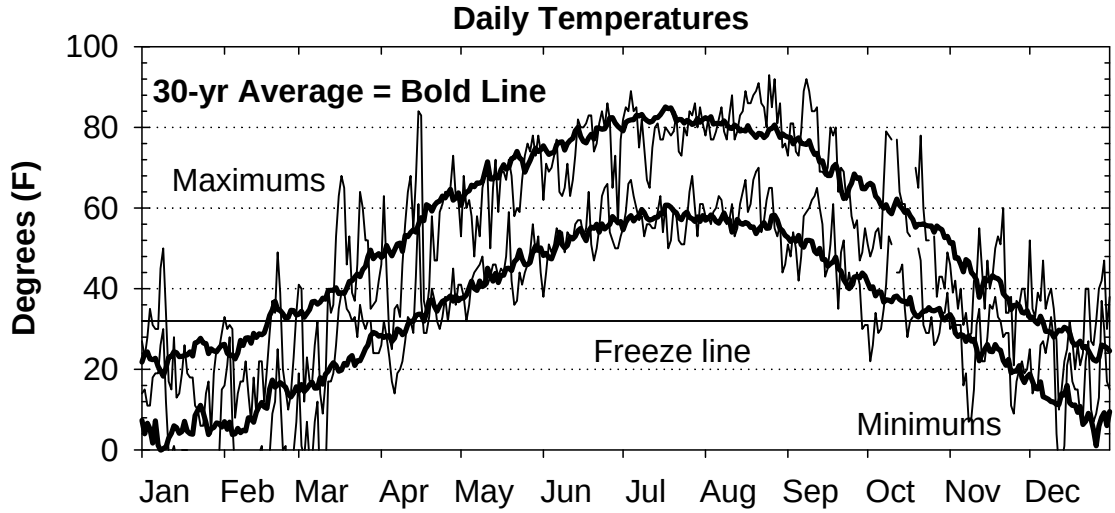
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	0.7	0.5	2.9	2.4	3.5	3.9	3.2	3.3	1.6	2.4	1.9	1.2	27.4
1975	0.8	1.0	1.5	4.2	1.9	3.9	0.8	9.0	1.2	0.4	2.3	0.8	27.8
1976	0.9	1.2	4.0	3.4	1.4	1.8	3.0	0.8	0.4	1.3	0.1	0.3	18.5
1977	0.4	1.1	3.4	3.0	2.5	2.7	6.0	2.8	4.4	2.2	3.0	2.0	33.5
1978	0.9	0.3	0.2	4.3	2.6	3.7	6.2	4.2	7.4	1.9	2.1	0.9	34.6
1979	1.4	1.1	3.8	1.4	4.3	2.8	3.8	6.5	0.6	2.8	2.7	0.7	32.0
1980	1.6	0.2	0.7	2.0	3.6	5.0	1.9	9.2	3.8	2.1	0.6	0.7	31.4
1981	0.1	2.6	0.6	5.1	0.7	2.4	2.7	2.8	2.5	3.1	0.4	0.7	23.6
1982	1.0	0.1	1.9	3.5	3.3	4.1	5.4	3.6	1.9	1.5	5.4	2.1	33.9
1983	0.7	1.4	2.2	1.0	5.5	1.4	3.2	7.5	5.5	2.5	2.4	1.0	34.3
1984	0.4	1.2	1.4	3.5	2.6	4.7	3.2	4.4	5.4	4.9	3.1	1.5	36.2
1985	0.5	1.5	2.2	1.8	2.3	3.4	4.4	0.1	4.9	1.9	3.8	0.9	27.8
1986	0.3	1.3	2.2	2.2	1.8	4.3	5.1	2.3	10.8	2.0	1.2	0.3	33.7
1987	0.6	0.3	1.5	2.8	2.9	6.7	2.3	1.4	3.1	1.8	3.4	1.2	28.1
1988	1.4	0.3	1.4	1.9	1.0	1.2	5.5	4.0	4.8	1.9	3.3	0.7	27.3
1989	0.3	0.4	1.8	0.5	7.3	2.1	3.0	1.7	1.5	4.3	1.4	0.3	24.6
1990	1.0	0.6	2.9	2.0	4.8	8.1	3.9	6.4	2.9	2.7	1.0	2.1	38.6
1991	0.7	0.4	2.8	4.6	6.5	1.3	3.9	1.8	3.3	3.6	4.4	1.5	34.6
1992	0.7	0.6	2.4	2.8	2.5	1.7	4.2	3.2	8.0	1.4	4.4	2.2	34.0
1993	1.1	0.6	0.9	5.0	5.7	6.9	9.0	5.3	2.7	2.0	2.0	0.3	41.5
1994	1.4	1.1	0.8	5.1	1.5	3.7	6.8	3.8	2.8	0.9	1.6	0.3	29.9
1995	0.7	0.3	2.7	2.8	3.1	2.0	2.3	7.8	2.5	4.7	1.9	0.5	31.2
1996	2.6	1.1	1.2	3.7	1.7	6.9	4.6	2.1	1.2	2.8	1.1	1.3	30.3
1997	1.1	0.9	2.0	0.9	4.5	3.5	8.3	3.6	3.4	1.5	0.4	0.6	30.7
1998	1.7	1.3	4.5	1.6	3.0	6.4	2.5	5.1	2.3	1.8	1.9	0.4	32.5
1999	2.1	1.7	0.3	5.9	3.3	3.7	10.7	4.5	1.3	2.4	1.4	0.6	37.8
2000	1.2	0.9	1.1	3.8	5.1	6.9	2.3	4.6	3.5	0.6	2.6	1.5	34.1
2001	1.3	1.4	0.8	3.6	7.2	4.1	2.7	4.6	4.6	2.1	2.0	0.8	35.1
2002	0.4	2.2	2.2	4.1	2.9	16.5	3.2	4.3	3.0	3.3	0.2	0.4	42.7
2003	0.7	0.6	2.0	1.5	5.3	3.4	2.3	0.7	2.9	1.1	3.6	1.5	25.5
30-yr Average	1.0	0.9	1.9	3.0	3.5	4.3	4.2	4.0	3.5	2.3	2.2	1.0	31.8

Table A-5. Average monthly and annual temperature (^{o}F) data for the Hancock Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	17	18	31	48	54	63	72	66	55	49	36	24	45
1975	17	18	25	38	62	67	72	70	55	52	39	22	45
1976	12	26	33	48	55	69	72	68	60	45	27	11	44
1977	3	21	39	52	67	65	74	66	61	48	35	16	46
1978	9	10	27	44	59	66	68	69	65	48	34	18	43
1979	6	11	30	42	55	66	70	67	63	48	33	27	43
1980	16	16	27	48	60	66	73	70	60	44	36	21	45
1981	18	24	36	49	56	67	71	69	58	47	38	20	46
1982	6	18	29	42	62	61	71	67	60	50	35	28	44
1983	22	27	33	42	52	68	75	73	62	50	37	9	46
1984	14	30	25	47	55	68	69	71	59	52	35	23	46
1985	13	18	36	51	62	64	70	66	61	49	30	10	44
1986	17	18	35	51	60	67	73	65	61	50	30	24	46
1987	21	29	37	51	62	70	74	68	61	43	38	26	48
1988	12	14	32	46	63	72	74	74	63	44	37	20	46
1989	25	14	27	44	56	66	73	69	60	51	31	11	44
1990	28	24	36	49	55	68	70	69	64	49	40	19	48
1991	13	25	34	49	63	70	70	70	58	49	29	23	46
1992	22	28	31	42	59	64	65	65	59	47	31	21	45
1993	17	18	30	41	58	64	69	70	55	48	32	23	44
1994	6	14	34	47	59	69	68	66	63	52	38	27	45
1995	19	20	34	41	57	71	72	74	59	50	26	18	45
1996	12	19	25	42	54	67	67	69	61	49	26	20	43
1997	14	23	31	43	50	67	68	65	61	49	31	26	45
1998	20	31	31	48	63	64	70	69	66	49	38	26	48
1999	12	27	33	47	59	66	73	66	59	47	41	22	46
2000	15	27	38	43	59	64	68	69	60	53	31	6	44
2001	19	16	29	50	57	66	71	70	58	46	45	28	46
2002	26	25	26	45	52	68	73	69	63	43	32	25	46
2003	14	14	30	43	55	65	70	72	62	48	34	26	45
30-yr Average	15	21	32	46	58	67	71	69	60	48	34	21	45

2003 Weather Summary for Marshfield, WI





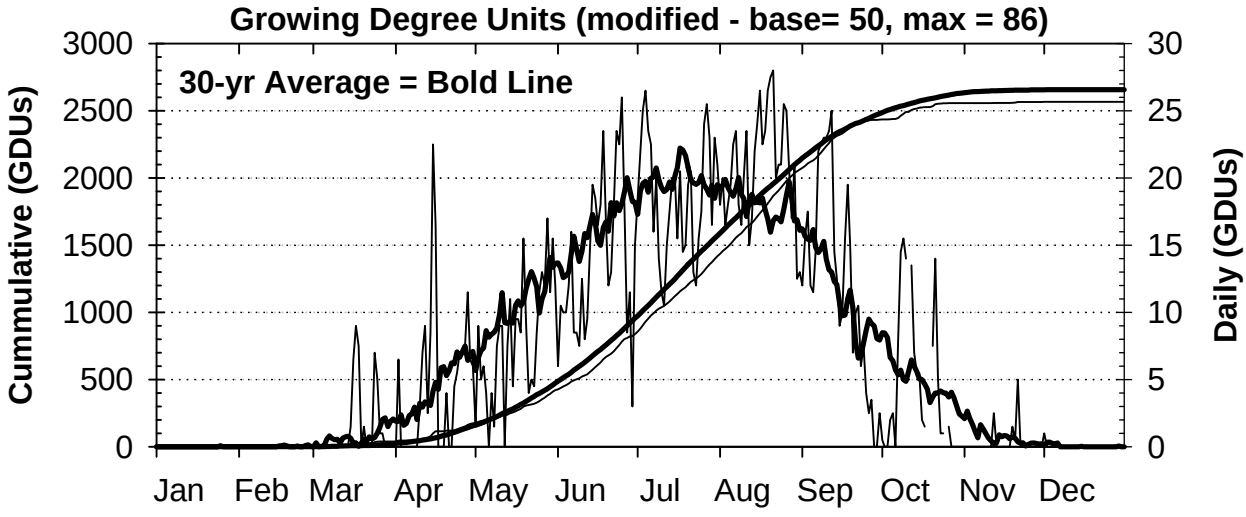


Table A-6. Monthly and total precipitation (inches) data for the Marshfield Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	0.4	1.0	2.2	2.6	3.9	4.5	1.0	6.0	2.0	1.6	1.1	1.0	27.2
1975	1.2	1.0	1.8	4.6	3.1	4.7	1.8	5.2	3.7	3.0	3.7	1.8	35.7
1976	1.1	0.9	3.1	5.3	2.4	1.1	5.5	0.7	0.7	0.7	0.0	0.5	22.1
1977	0.5	0.9	3.3	2.0	3.0	5.2	3.0	3.4	4.1	3.7	3.1	2.3	34.4
1978	0.6	0.1	0.1	4.0	5.5	4.3	6.9	5.0	5.2	1.6	2.1	1.3	36.7
1979	1.1	1.5	3.4	1.1	6.1	5.4	2.7	4.1	0.3	4.9	2.7	0.5	33.8
1980	1.4	0.4	0.6	1.7	3.7	4.7	2.1	9.6	7.6	2.5	0.2	0.7	35.2
1981	0.1	2.4	0.7	4.7	2.4	6.4	3.3	6.3	2.9	3.4	0.6	1.0	34.1
1982	1.4	0.1	1.3	3.4	3.0	3.2	7.4	3.0	6.1	1.9	3.5	2.6	36.9
1983	1.1	1.3	1.6	1.8	4.2	0.7	2.8	5.7	4.7	3.2	5.5	1.3	33.7
1984	0.4	2.0	1.0	4.3	2.1	9.6	4.3	2.5	3.1	5.6	2.5	2.7	40.2
1985	0.3	0.7	4.2	2.5	2.9	3.3	2.1	5.8	6.1	1.8	4.4	1.9	36.1
1986	0.6	1.4	1.9	2.2	1.4	5.4	10.5	3.9	9.8	3.0	0.8	0.6	41.4
1987	0.7	0.0	1.4	1.4	1.9	3.0	6.1	2.6	2.5	1.3	2.8	1.5	25.1
1988	1.1	0.2	1.5	1.9	3.2	1.2	2.4	3.7	3.2	1.4	3.5	0.6	23.8
1989	0.5	0.4	2.5	0.8	7.0	1.9	2.5	3.1	1.1	2.6	1.5	0.3	24.2
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	36.3
1991	0.4	0.7	2.5	4.4	6.5	2.2	5.7	2.2	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	1.5	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	27.9
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	34.7
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	22.3
30-yr Average	0.9	0.8	1.9	2.9	3.6	4.5	3.9	4.3	3.8	2.5	2.3	1.1	32.5

Table A-7. Average monthly and annual temperature (^{o}F) data for the Marshfield Research Station.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
1974	14	17	28	45	52	62	72	66	54	48	35	24	43
1975	16	17	23	37	59	64	70	68	54	49	38	20	43
1976	11	24	30	46	53	67	71	67	57	43	25	9	42
1977	1	20	37	51	64	64	72	63	59	46	32	16	44
1978	8	12	27	42	58	64	67	68	62	46	30	14	42
1979	3	9	28	41	52	63	68	65	60	44	31	25	41
1980	13	15	24	46	59	65	70	67	58	43	35	19	43
1981	18	22	35	46	55	65	68	67	57	45	37	18	44
1982	4	16	27	40	60	59	70	66	57	48	32	26	42
1983	20	26	32	41	51	65	73	72	60	48	35	8	44
1984	13	28	25	46	54	67	68	70	57	50	33	21	44
1985	12	17	35	49	61	63	69	66	60	49	28	8	43
1986	16	17	34	49	59	66	71	65	60	49	29	23	45
1987	21	28	36	51	60	69	72	68	61	42	38	26	48
1988	12	14	31	46	60	69	74	73	61	43	35	19	45
1989	22	12	26	43	55	65	72	69	59	50	29	9	43
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	.	59	48	32	21	43
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
30-yr Average	14	20	30	45	57	65	70	68	59	47	33	19	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.

Corn Measurements		
Grower Return	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 = $2.24 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 detector on combine or wet weight method15.5% is standard corn moisture 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 of 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%
Kernel Weight	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	plants counts on whole plot (22' x 2 rows)
Ear Density	Units	Ears per acre
	Determination	Just prior to harvest
	Observations taken	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

Table B-1.

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
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%
Extended Leaf Height	Units	inches
	Determination	height of plant with leaves extended in upright position
Residue cover	Units	%
	Determination	Point transects centered on row.
% Survival	Units	%
	Formula	Early stand / late stand count x 100%
Rind Strength	Units	Load-lb/section
	Determination	Stalk strength of broadside of internodes below the top ear attachment
	Equipment	AMETEK- Accuforce Cadet Force Gauge

Soybean Measurements

Grower Return	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 = $7.07 per bushel = (50% December Average Cash price) + (25% March CBOT Futures price) + (25% July CBOT Futures price). December Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Table B-1.

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		
Grower Return	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 = $3.49 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
Rhinelander ARS 45 ° 39 ‘ - 89 ° 22 ‘	Vilas loamy sand	Sandy, mixed, frigid	Entic Haplorthod
	Au Gres loamy sand	Sandy, mixed, frigid	Entic Haplaquod
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: **Determining Corn Hybrid Maturity**

Experiment: 01 Growth and Development **Trial ID** 2494 **Year:** 2003

Personnel: J.G. Lauer, P. J. Flannery, and K. D. Kohn

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

Supported By: HATCH

Site Information

Field: ARS412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/15/03 **pH** 6.5 **OM (%)** 5.4 **P (ppm)** 112 **K (ppm)** 281

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 6/18/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	150 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /3 /03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A

Insecticide: None

Hybrid: See Factors

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/17/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.275 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 27958 **plants per acre**

Factors/Treatments:

Hybrids:

Mycogen 2141
NK Brand N17R3
Carhart's Blue Top
CX8500A
Jung 6210
Dekalb DKC3947
Dekalb DKC4442
Pioneer 37R71
NK Brand N2555Bt
Pioneer 38T28
Dahlman 5102Bt
Cargill 4521Bt
Pioneer 35Y55
NK N58D1
Dekalb DKC5878
Jung 2710
Pioneer 33A14

Results: Table C-1 and C-2.

Table C-1. Determining Corn Hybrid Maturity - Comparison of Hybrids
Arlington, WI - 2003

								Grain Quality of Cleaned Sample					
Hybrid	Relative maturity	Grain yield	Grain moisture	Test weight	Lodging	Grower return	Silking	Moisture	Test weight	Protein	Oil	Total Starch	Adjusted starch @15.5% moisture
		bu/A	%	lb/bu	%	$/A	doy	%	lb/bu	%	%	%	%
Mycogen 2141	81	121	17.9	61	0	238	204	4.6	60	10.7	5.0	61.0	68.9
NK N17R3	82	147	16.6	60	0	292	202	5.1	58	11.0	5.2	62.4	70.1
Carharts Blue Top CX8500A	85	173	17.7	58	0	340	207	4.4	58	10.7	4.5	62.4	70.6
Jung 6210	87	165	18.2	57	6	322	209	4.3	57	10.5	4.5	62.5	70.7
Dekalb DKC3947	89	171	18.5	58	1	333	206	3.6	57	8.2	5.1	63.1	71.9
Dekalb DKC4442	94	191	19.0	55	3	370	208	3.8	55	8.7	5.3	62.9	71.7
Pioneer 37R71	97	183	19.8	55	1	352	206	4.6	55	10.0	5.1	63.6	71.8
NK Brand N2555Bt	98	175	18.7	59	0	342	204	4.6	58	9.5	5.4	61.1	68.9
Pioneer 38T28	98	164	18.4	58	13	320	206	4.5	57	10.7	5.0	61.8	69.8
Dahlman 5102Bt	102	169	18.4	57	1	330	209	3.9	56	9.9	5.2	62.8	71.4
Cargill 4521Bt	104	162	18.8	56	13	313	211	3.9	56	10.5	5.4	61.3	69.8
Pioneer 35Y55	106	188	22.8	52	33	350	210	4.2	52	9.8	5.4	62.2	70.5
NK N58D1	107	193	24.6	54	12	352	210	4.2	56	9.3	4.4	64.3	72.9
Dekalb DKC5878	108	192	24.9	51	8	349	211	4.3	53	9.5	5.3	63.3	71.7
Jung 2710	112	191	25.7	53	9	344	210	4.0	55	9.0	5.2	62.7	71.3
Pioneer 33A14	113	174	28.8	54	15	303	212	4.1	56	8.9	4.7	64.7	73.4
Mean		172	20.6	56	7	328	208	4.2	56	9.8	5.0	62.6	71.0
Probability(%)													
Hybrid (H)		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	9.3	16.6	11.2
LSD(0.10)													
Hybrid (H)		13	1.0	1	11	23	1	0.4	1	0.5	0.6	NS	NS
CV(%)		5	3	1	110	5	0	7	1	4	9	2	2

Table C-2. Determining Corn Hybrid Maturity - Comparison of Hybrids
Arlington, WI - 2003

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
		150	1.7	2.9	4.0	4.9
		164	3.8	5.9	6.7	13.9
		176	6.9	9.5	11.3	40.8
		191	11.5	14.4	15.8	55.3
		203	16.5	16.9	17.9	96.0
		219	18.9	19.1	19.1	103.5
Mycogen 2141	81		9.9	11.3	12.2	47.1
NK N17R3	82		9.9	11.4	12.3	51.8
Carharts Blue Top CX8500A	85		9.2	11.3	12.0	52.7
Jung 6210	87		9.8	11.4	12.2	51.8
Dekalb DKC3947	89		10.3	11.6	12.7	51.8
Dekalb DKC4442	94		10.1	11.6	12.6	51.5
Pioneer 37R71	97		9.4	11.0	12.2	52.9
NK Brand N2555Bt	98		10.2	11.6	12.6	51.8
Pioneer 38T28	98		10.6	12.3	13.3	56.0
Dahlman 5102Bt	102		9.8	11.3	12.3	53.1
Cargill 4521Bt	104		10.1	11.8	12.9	55.3
Pioneer 35Y55	106		9.6	11.4	12.3	51.8
NK N58D1	107		10.0	11.8	12.7	51.8
Dekalb DKC5878	108		10.1	11.5	12.6	52.4
Jung 2710	112		9.7	11.2	12.2	54.5
Pioneer 33A14	113		9.4	11.0	12.1	51.7
Mycogen 2141	81	150	1.5	2.7	3.7	3.5
Mycogen 2141	81	164	3.3	5.3	6.3	8.6
Mycogen 2141	81	176	7.0	9.7	11.5	35.9
Mycogen 2141	81	191	12.0	14.7	16.2	55.2
Mycogen 2141	81	203	17.7	17.7	17.7	90.3
Mycogen 2141	81	219	17.7	17.7	17.7	89.0
NK N17R3	82	150	2.0	3.7	4.2	4.7
NK N17R3	82	164	4.0	6.5	7.5	13.8
NK N17R3	82	176	7.0	10.0	11.8	41.9
NK N17R3	82	191	12.2	13.8	15.5	59.5
NK N17R3	82	203	17.2	17.2	17.3	95.8
NK N17R3	82	219	17.3	17.3	17.3	95.2
Carharts Blue Top CX8500A	85	150	1.8	3.2	4.0	4.5
Carharts Blue Top CX8500A	85	164	4.0	6.0	6.3	13.8
Carharts Blue Top CX8500A	85	176	6.8	9.8	11.3	41.8
Carharts Blue Top CX8500A	85	191	11.3	14.3	15.3	56.2
Carharts Blue Top CX8500A	85	203	16.0	15.8	16.8	100.8
Carharts Blue Top CX8500A	85	219	15.3	18.3	18.3	99.0

continued

Table C-2. Determining Corn Hybrid Maturity - Comparison of Hybrids
(continued) **Arlington, WI - 2003**

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
Jung 6210	87	150	2.0	3.0	4.0	5.2
Jung 6210	87	164	4.0	6.0	6.5	15.2
Jung 6210	87	176	7.0	9.7	10.8	40.2
Jung 6210	87	191	11.0	14.3	15.5	55.0
Jung 6210	87	203	16.0	16.5	17.5	96.3
Jung 6210	87	219	19.0	19.0	19.0	99.0
Dekalb DKC3947	89	150	1.7	2.7	4.0	4.6
Dekalb DKC3947	89	164	4.0	6.0	6.8	11.8
Dekalb DKC3947	89	176	7.2	9.3	11.5	39.8
Dekalb DKC3947	89	191	12.2	14.8	16.0	56.0
Dekalb DKC3947	89	203	17.5	17.7	18.5	95.7
Dekalb DKC3947	89	219	19.2	19.2	19.2	102.8
Dekalb DKC4442	94	150	1.7	3.0	4.0	4.7
Dekalb DKC4442	94	164	4.0	6.0	6.8	14.2
Dekalb DKC4442	94	176	7.0	9.7	11.7	42.9
Dekalb DKC4442	94	191	11.5	14.5	15.8	53.3
Dekalb DKC4442	94	203	16.8	16.8	17.8	94.5
Dekalb DKC4442	94	219	19.5	19.5	19.5	99.3
Pioneer 37R71	97	150	1.5	2.8	3.8	4.2
Pioneer 37R71	97	164	3.5	5.7	6.7	12.6
Pioneer 37R71	97	176	6.7	9.3	11.5	40.3
Pioneer 37R71	97	191	10.8	14.0	15.8	57.0
Pioneer 37R71	97	203	15.8	16.0	17.3	98.7
Pioneer 37R71	97	219	18.2	18.2	18.2	104.5
NK Brand N2555Bt	98	150	1.7	2.8	4.0	5.3
NK Brand N2555Bt	98	164	3.8	5.7	6.8	15.5
NK Brand N2555Bt	98	176	7.0	9.3	11.3	36.0
NK Brand N2555Bt	98	191	12.0	14.8	16.2	55.5
NK Brand N2555Bt	98	203	17.8	17.8	18.5	97.5
NK Brand N2555Bt	98	219	19.0	19.0	19.0	101.2
Pioneer 38T28	98	150	2.0	3.5	4.5	5.0
Pioneer 38T28	98	164	3.8	6.5	7.3	17.8
Pioneer 38T28	98	176	7.5	10.3	12.2	47.0
Pioneer 38T28	98	191	12.5	15.2	16.3	58.8
Pioneer 38T28	98	203	17.8	18.2	19.2	100.3
Pioneer 38T28	98	219	20.0	20.0	20.0	107.3
Dahlman 5102Bt	102	150	1.5	2.7	4.0	5.2
Dahlman 5102Bt	102	164	4.0	5.7	6.5	15.0
Dahlman 5102Bt	102	176	7.0	9.3	11.2	41.1
Dahlman 5102Bt	102	191	11.2	14.2	15.5	55.3
Dahlman 5102Bt	102	203	16.3	16.7	17.8	96.7
Dahlman 5102Bt	102	219	19.0	19.0	19.0	105.3
Cargill 4521Bt	104	150	1.5	2.7	4.0	4.9
Cargill 4521Bt	104	164	4.0	5.5	6.7	15.6
Cargill 4521Bt	104	176	7.2	9.8	11.5	41.9
Cargill 4521Bt	104	191	11.5	15.2	16.3	57.0
Cargill 4521Bt	104	203	16.5	17.5	18.7	100.5
Cargill 4521Bt	104	219	20.2	20.2	20.2	112.0

continued

Table C-2. Determining Corn Hybrid Maturity - Comparison of Hybrids
(continued) **Arlington, WI - 2003**

Hybrid	Relative maturity	Day of year	Leaf Development: Leaf collars	Leaf Development: Hail adjusters method	Leaf Development: Total leaves	Plant height
			no./plant	no./plant	no./plant	inches
Pioneer 35Y55	106	150	1.5	2.8	3.8	4.4
Pioneer 35Y55	106	164	3.7	5.7	6.3	12.6
Pioneer 35Y55	106	176	6.7	9.3	10.8	37.4
Pioneer 35Y55	106	191	10.8	14.3	15.5	53.8
Pioneer 35Y55	106	203	15.5	16.5	17.5	95.0
Pioneer 35Y55	106	219	19.5	19.5	19.5	107.7
NK N58D1	107	150	1.7	3.2	4.0	5.0
NK N58D1	107	164	3.7	5.7	6.7	11.4
NK N58D1	107	176	6.7	9.5	10.8	37.9
NK N58D1	107	191	11.5	14.8	16.2	51.3
NK N58D1	107	203	16.5	17.5	18.5	94.3
NK N58D1	107	219	20.2	20.2	20.2	111.2
Dekalb DKC5878	108	150	2.0	2.8	4.0	5.8
Dekalb DKC5878	108	164	3.8	6.2	7.0	15.1
Dekalb DKC5878	108	176	7.0	9.2	11.2	44.6
Dekalb DKC5878	108	191	11.2	13.8	15.7	53.3
Dekalb DKC5878	108	203	16.5	16.7	17.8	92.2
Dekalb DKC5878	108	219	20.2	20.2	20.2	103.2
Jung 2710	112	150	2.0	3.0	4.0	5.8
Jung 2710	112	164	4.0	6.0	6.8	16.3
Jung 2710	112	176	6.7	9.3	11.2	44.9
Jung 2710	112	191	11.0	14.2	15.3	55.5
Jung 2710	112	203	15.7	15.8	17.2	96.8
Jung 2710	112	219	18.8	18.8	18.8	107.5
Pioneer 33A14	113	150	1.5	2.7	4.0	5.1
Pioneer 33A14	113	164	3.5	5.5	6.3	12.4
Pioneer 33A14	113	176	6.7	8.8	10.7	39.7
Pioneer 33A14	113	191	10.7	13.5	14.8	51.7
Pioneer 33A14	113	203	15.0	16.3	17.7	89.8
Pioneer 33A14	113	219	19.3	19.3	19.3	111.5
Mean			9.9	11.5	12.5	52.4
Probability(%)						
Hybrid (H)			0.0	0.3	0.1	0.0
Day Of Year (D)			0.0	0.0	0.0	0.0
H x D			0.0	0.0	0.0	0.0
LSD(0.10)						
Hybrid (H)			0.4	0.4	0.4	1.7
Day Of Year (D)			0.2	0.2	0.1	1.0
H x D			0.9	0.6	0.5	3.8
CV(%)			7	4	3	5

FIELD EXPERIMENT HISTORY

Title: **Determining Corn Hybrid Maturity**

Experiment: 01 Growth and Development **Trial ID** 2495 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: HATCH

Site Information

Field: V18 **Previous Crop:** Soybean **Soil Type:** Plainfield Sand

Soil Test: **Date:** 10/15/03 **pH** 6.2 **OM (%)** 0.8 **P (ppm)** 112 **K (ppm)** 30

Plot Management

Tillage Operations: Moldboard Plow Disk

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	0-0-60	100 lbs/A	4 /3 /03
	Starter :	6-24-24	9 lbs/A	4 /24/03
	Post plant :	34-0-0	102 lbs/A (2x	6/16/03 & 6/20/03
	Manure:	N/A	N/A	N/A

Herbicide: Aatrex 4L 0.75 lbs/A
Lasso 2.0 qt/A

Insecticide: None

Hybrid: See Factors

Irrigation: 19.6 Inches

Planting Date: 4/24/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/15/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 25' **Experiment Size:** 0.1375 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 28433 **plants per acre**

Factors/Treatments:

Hybrids:

Mycogen 2141
NK Brand N17R3
Carhart's Blue Top
CX8500A
Jung 6210
Dekalb DKC3947
Dekalb DKC4442
Pioneer 37R71
NK Brand N2555Bt
Pioneer 38T28
Dahlman 5102Bt
Cargill 4521B
Pioneer 35Y55
NK N58D1
Dekalb DKC5878
Jung 2710
Pioneer 33A14

Results: Table C-3.

Table C-3. Determining Corn Hybrid Maturity - Comparison of Hybrids
Hancock, WI - 2003

							Grain Quality of Cleaned Sample					
Hybrid	Relative maturity	Grain yield	Grain moisture	Test weight	Lodging	Grower return	Sample moisture	Sample test weight	Protein	Oil	Total Starch	Adjusted starch @15.5% moisture
		bu/A	%	lb/bu	%	$/A	%	lb/bu	%	%	%	%
Mycogen 2141	81	154	20.1	60	3	296	4.0	61	9.5	4.0	65.5	74.4
NK N17R3	82	174	18.9	59	0	339	4.6	59	9.7	4.6	65.0	73.3
Carharts Blue Top CX8500A	85	199	18.9	58	2	387	4.3	59	10.1	4.5	64.5	73.0
Jung 6210	87	202	21.0	55	0	384	4.1	57	9.7	4.7	63.7	72.3
Dekalb DKC3947	89	212	19.9	57	0	407	4.2	57	8.4	4.4	66.5	75.4
Dekalb DKC4442	94	208	19.1	53	0	403	3.9	55	8.2	4.5	65.9	74.9
Pioneer 37R71	97	205	22.7	51	0	382	4.8	54	9.6	5.1	64.0	72.0
NK Brand N2555Bt	98	193	20.3	56	0	370	4.1	58	9.1	4.9	63.8	72.4
Pioneer 38T28	98	213	21.7	55	2	401	4.6	56	9.4	4.9	65.0	73.3
Dahlman 5102Bt	102	225	21.2	53	1	427	3.9	55	8.4	5.1	65.2	74.1
Cargill 4521Bt	104	228	22.6	53	1	427	4.4	55	9.3	5.4	64.2	72.7
Pioneer 35Y55	106	247	25.4	50	2	448	5.0	51	8.7	5.2	65.9	74.1
NK N58D1	107	237	26.6	51	4	425	4.4	54	8.4	4.4	65.7	74.3
Dekalb DKC5878	108	232	25.6	50	0	419	4.6	53	9.2	5.1	65.9	74.5
Jung 2710	112	235	27.4	51	2	417	4.9	53	7.9	4.9	66.7	75.0
Pioneer 33A14	113	230	29.2	52	3	400	4.3	55	8.3	4.8	65.7	74.4
Mean		212	22.6	54	1	395	4.4	56	9.0	4.8	65.2	73.7
Probability(%)												
Hybrid (H)		0.0	0.0	0.0	79.0	0.0	0.1	0.0	0.0	4.1	20.3	16.2
LSD(0.10)												
Hybrid (H)		17	0.7	1	NS	32	0.4	1	0.4	0.6	NS	NS
CV(%)		6	2	1	201	6	7	1	3	9	2	2

FIELD EXPERIMENT HISTORY

Title: **Determining Corn Hybrid Maturity**

Experiment: 01 Growth and Development **Trial ID** 2496 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: HATCH

Site Information

Field: 008-03C50 **Previous Crop:** Alfalfa **Soil Type:** Withee Silt Loam

Soil Test: **Date:** 10/6 /03 **pH** 6.5 **OM (%)** 3.4 **P (ppm)** 66 **K (ppm)** 109

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 6/19/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /1 /03
	Post plant :	28-0-0	45 lbs/A	6 /19/03
	Manure:	Dairy	12872 gallons	Fall

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
Atrazine 4L 1.1 qt/A

Insecticide: Force 4.4 lbs/A

Hybrid: See Factors

Irrigation:

Planting Date: 5/1/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/8/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 25' **Experiment Size:** 0.1375 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 17861 **plants per acre**

Factors/Treatments:

Hybrids:

Mycogen 2141
NK Brand N17R3
Carhart's Blue Top
CX8500A
Jung 6210
Dekalb DKC3947
Dekalb DKC4442
Pioneer 37R71
NK Brand N2555Bt
Pioneer 38T28
Dahlman 5102Bt
Cargill 4521B
Pioneer 35Y55
NK N58D1
Dekalb DKC5878
Jung 2710
Pioneer 33A14

Results: Table C-4.

Table C-4. Determining Corn Hybrid Maturity - Comparison of Hybrids
Marshfield, WI - 2003

								Grain Quality of Cleaned Sample					
Hybrid	Relative maturity	Grain yield	Grain moisture	Test weight	Lodging	Grower return	Plant population	Sample moisture	Sample test weight	Protein	Oil	Total Starch	Adjusted starch @15.5% moisture
		bu/A	%	lb/bu	%	$/A	no./A	%	lb/bu	%	%	%	%
Mycogen 2141	81	53	29.7	52	0	92	7656	5.2	53	9.9	4.8	64.4	72.2
NK N17R3	82	125	28.5	53	0	219	17424	5.0	54	9.5	4.9	64.2	72.2
Carharts Blue Top CX8500A	85	157	27.2	52	0	278	24948	4.4	54	8.5	4.4	65.1	73.7
Jung 6210	87	137	33.6	51	0	226	24288	5.1	51	8.2	4.6	67.2	75.5
Dekalb DKC3947	89	117	31.0	50	0	200	15048	5.1	52	8.0	4.4	68.5	76.9
Dekalb DKC4442	94	146	33.0	50	0	242	19404	5.0	50	7.3	5.0	67.3	75.6
Pioneer 37R71	97	144	35.4	49	0	233	22176	5.3	50	8.1	4.7	67.8	76.0
NK Brand N2555Bt	98	120	32.3	51	0	201	10824	4.7	53	7.7	4.9	65.0	73.3
Pioneer 38T28	98	137	33.5	48	0	226	19404	5.8	50	8.4	4.8	67.3	75.0
Dahlman 5102Bt	102	114	39.0	49	0	176	18480	5.9	48	7.9	4.8	69.4	77.3
Cargill 4521Bt	104	114	39.0	48	0	175	15708	6.7	48	8.6	5.6	66.4	73.3
Pioneer 35Y55	106	143	42.7	47	0	210	21648	7.3	46	7.9	5.3	68.7	75.3
NK N58D1	107	103	43.1	48	0	150	16104	6.5	47	9.0	4.6	67.6	74.8
Dekalb DKC5878	108	129	42.8	47	0	189	24684	6.7	47	7.7	5.3	69.0	76.2
Jung 2710	112	113	42.6	46	0	165	15708	6.5	46	8.7	5.4	67.3	74.5
Pioneer 33A14	113	82	43.7	46	0	119	12276	6.6	46	8.1	4.7	68.4	75.6
Mean		121	36.1	49	0	194	17861	5.7	50	8.3	4.9	67.1	74.8
Probability(%)													
Hybrid (H)		0.0	0.0	0.0	66.9	0.0	0.0	16.2	0.0	0.0	0.9	0.0	0.1
LSD(0.10)													
Hybrid (H)		19	2.5	2	NS	33	3805	1.3	1	0.8	0.5	1.8	1.9
CV(%)		12	5	4	346	12	15	1	2	7	8	2	2

Field Experiment History

Comparison of Monsanto Bt and Non Bt Hybrids.

Location	Cooperators	Soil Type	Previous Crop	Row Width (in)	Planting Date	Harvest Dates	Ave. Final Stand (plants/A)	Tillage Operations	--Soil Test-- pH	P	K	--Nitrogen Fertilizer-- actual (lb/a)	form	time	Weed Control	Insect-icides
									--(ppm)--							
Arlington	S.Kraak J. Quimby	Plano Silt Loam	Soybean	30	3-May	16-Oct	27126	Chisel Field Cultivator Soil Finisher	6.7	70	164	150 9	46-0-0 6-24-24	preplant planting	Harness 2.5 pt/A Hornet 3.0 oz/A Callisto 3.0 oz/A cultivate	None
Chippewa Falls	J. Clark	Sattre Silt Loam	Soybean	30	29-Apr	24-Sept	30294	Field Cultivator	6.8	26	88	150 9	28-0-0 6-24-24	preplant planting	Harness 1.6 pt/A Hornet 3.0 oz/A cultivate	None
Fond du Lac	E. Montsma M. Rankin	Virgil Silt Loam	Soybean	30	3-May	22-Oct	28908	Field Cultivator	6.7	31	77	9 120	6-24-24 28-0-0	planting preemerge	Basis 0.33 oz/A Lumax 5.0 pt/A cultivate	
Galesville	K. Congdon J. Zander	Downs Silt Loam	Soybean	30	28-Apr	20-Oct	28710	V-ripper Field Cultivator	6.2	36	136	160 9	46-0-0 6-24-24	preplant planting	Dual II 2.25 pt/A Hornet 3.0 oz/A Clarity 4.0 oz/A cultivate	None
Hancock Irrigated	J. Breuer C. Kostichka	Plainfield Sand	Soybean	30	24-Apr	15-Oct	27461	Moldboard Plow Disk	7.1	109	93	9 204	6-24-24 34-0-0	planting post	Aatrex 4L 0.75 lb/A Lasso 2.0 qt/A Callisto 3.0 oz/A	None
Janesville	B. Jaynes J. Stute	Plano Silt Loam	Soybean	30	25-Apr	21-Oct	28314	Chisel Plow Field Cultivator	6.9	59	174	100 9	28-0-0 6-24-24	preplant planting	Dual II 1.8 pt/A Hornet 4.5 oz/A Callisto 3.0 oz/A Steadfast 0.75 oz/A cultivate	None
Lancaster	T. Wood	Fayette Silt Loam	Soybean	30	28-Apr	7-Oct	27522	Soil Finisher	7.1	48	138	140 9	46-0-0 6-24-24	preplant planting	Aatrex 4L 1.0 qt/A Harness 1.0 qt/A Accent 0.33 oz/A Northstar 4.0 oz/A cultivate	None
Marshfield	M. Bertram T. Drendel	Withee Silt Loam	Alfalfa	30	1-May	8-Oct	26690	Chisel Plow Disk Field Cultivator	6.2	70	190	9 45 13000 gal/A	6-24-24 28-0-0 Manure	planting post preplant	Harness 1.8 pt/A Hornet 2.4 oz/A Atrazine 4L 1.1 qt/A Permit 1.07 oz/A cultivate	Force 4.4 lbs/A
Seymour	R. Vanden Heuvel Z. Miller	Clay Loam	Corn	30	2-May	24-Oct	29700	Chisel Plow Soil Finisher	7.1	22	119	9 9000 gal/A	6-24-24 Manure	planting post	Accent 0.67 oz/A Atrazine 0.5 lb/A Callisto 3.0 oz/A cultivate	Force 4.4 lbs/A
Spooner Dryland	P. Holman Y. Berger	Cress Sandy Loam	Alfalfa	30	8-May	23-Sept	29304	Moldboard Plow Disk	6.5	100	121	22 161	13-16-18-8s 46-0-0	planting post	Dual II Mag 1.0 pt/A Hornet 4.0 oz/A	None
Spooner Irrigated	P. Holman Y. Berger	Cress Sandy Loam	Alfalfa	30	8-May	21-Oct	29106	Moldboard Plow Disk	6.5	100	121	22 161	13-16-18-8s 46-0-0	planting post	Dual II Mag 1.0 pt/A Hornet 4.0 oz/A	None
Spooner Silt Loam	P. Holman Y. Berger	Miami Silt Loam	Soybean	30	16-May	14-Oct	29502	Moldboard Plow Disk	7.0	23	56	22 120	13-16-18-8s 46-0-0	planting post	Dual II Mag 1.0 pt/A Hornet 4.0 oz/A Accent 0.67 oz/A	None
Valders	T. & B. Maney	Kewaunee Clay Loam	Corn	30	2-May	24-Oct	27284	Chisel Plow Field Cultivator	6.9	91	186	9 7500 gal/A 20 Ton	6-24-24 Manure Manure	planting preplant	Dual II Mag 1.0 pt/A Accent Gold 2.0 oz/A Banvel 2.0 oz/A cultivate	Force 4.4 lbs/A

Results: Tables C-5, C-6, C-7, and C-8.

Table C-5. Comparison of Monsanto Bt and Non Bt Hybrids. Southern Zone 2003.

Zone	Location	Hybrid	Yield	Moisture	Test Weight	Lodging	Grower return
			bu/A	%	lbs/bu	%	$/A
S		DKC5333RR	207	21.0	56	0	392
S		DKC5332YGCB	224	22.3	56	0	419
S		DKC5701	214	22.9	54	0	399
S		DKC5878YGCB	223	24.7	53	1	407
S		DKC6017RR	204	25.9	55	2	367
S		DKC6019YGRR	209	25.1	55	1	380
S	Arlington		223	27.3	52	1	396
S	Janesville		219	20.1	58	1	419
S	Lancaster		198	23.5	54	0	367
S	Arlington	DKC5333RR	222	25.0	53	1	405
S	Arlington	DKC5332YGCB	244	25.8	53	0	441
S	Arlington	DKC5701	224	26.8	51	0	399
S	Arlington	DKC5878YGCB	221	27.4	51	0	392
S	Arlington	DKC6017RR	212	30.1	53	3	365
S	Arlington	DKC6019YGRR	214	28.6	53	2	375
S	Janesville	DKC5333RR	206	17.8	60	0	405
S	Janesville	DKC5332YGCB	222	18.9	59	1	430
S	Janesville	DKC5701	215	20.0	57	0	412
S	Janesville	DKC5878YGCB	228	21.1	57	2	432
S	Janesville	DKC6017RR	213	21.9	58	1	401
S	Janesville	DKC6019YGRR	228	21.2	59	0	433
S	Lancaster	DKC5333RR	191	20.2	56	0	366
S	Lancaster	DKC5332YGCB	206	22.1	55	0	387
S	Lancaster	DKC5701	205	21.7	52	0	386
S	Lancaster	DKC5878YGCB	219	25.7	52	0	396
S	Lancaster	DKC6017RR	185	25.7	54	2	335
S	Lancaster	DKC6019YGRR	185	25.7	55	0	334
S	Mean		213	23.6	55	1	394
Probability(%)							
Location (L)			1.3	0.0	0.0	75.1	0.6
Hybrid (H)			0.0	0.0	0.0	19.1	0.0
H x L			1.8	7.9	1.0	75.2	1.1
LSD (0.10)							
Location (L)			10	0.7	0	NS	16
Hybrid (H)			8	0.8	0	NS	14
H x L			14	1.3	1	NS	25
CV(%)			5	4	1	NS	4

Table C-6. Comparison of Monsanto Bt and Non Bt Hybrids. South Central Zone 2003.

Zone	Location	Hybrid	Yield	Moisture	Test Weight	Lodging	Grower return
			bu/A	%	lbs/bu	%	$/A
SC		DK440	194	19.0	55	0	377
SC		DKC4446RRYGCB	209	19.9	55	0	402
SC		DKC4628RR	209	19.8	57	0	402
SC		DKC4710RRYGCB	205	20.3	57	0	393
SC		DKC5143	208	21.7	55	1	393
SC		DKC5018YGCB	210	21.8	55	0	395
SC	Fond du lac		183	19.8	56	0	352
SC	Galesville		189	20.9	56	1	360
SC	Hancock		247	20.7	55	0	471
SC	Fond du lac	DK440	178	18.0	55	0	348
SC	Fond du lac	DKC4446RRYGCB	189	19.1	55	0	367
SC	Fond du lac	DKC4628RR	186	19.0	57	0	361
SC	Fond du lac	DKC4710RRYGCB	185	19.9	57	0	355
SC	Fond du lac	DKC5143	183	21.2	55	1	347
SC	Fond du lac	DKC5018YGCB	176	21.5	55	0	334
SC	Galesville	DK440	174	20.2	55	1	333
SC	Galesville	DKC4446RRYGCB	200	20.5	55	0	382
SC	Galesville	DKC4628RR	195	20.1	57	0	374
SC	Galesville	DKC4710RRYGCB	182	20.8	56	1	347
SC	Galesville	DKC5143	193	22.2	56	2	362
SC	Galesville	DKC5018YGCB	189	21.5	55	0	357
SC	Hancock	DK440	232	18.9	56	0	451
SC	Hancock	DKC4446RRYGCB	253	20.1	55	0	486
SC	Hancock	DKC4628RR	245	20.3	56	0	470
SC	Hancock	DKC4710RRYGCB	242	20.4	57	0	462
SC	Hancock	DKC5143	249	21.7	55	0	469
SC	Hancock	DKC5018YGCB	265	22.5	54	0	496
SC	Mean		206	20.4	56	0	394
Probability(%)							
Location (L)			0.1	0.1	50.5	30.3	0.1
Hybrid (H)			0.0	0.0	0.0	2.6	0.1
H x L			2.0	3.2	2.5	73.8	1.9
LSD (0.10)							
Location (L)			12	0.2	NS	NS	26
Hybrid (H)			6	0.4	0	1	10
H x L			10	0.7	1	NS	18
CV(%)			4	2	1	179	3

Table C-7. Comparison of Monsanto Bt and Non Bt Hybrids. North Central Zone 2003.

Zone	Location	Hybrid	Yield	Moisture	Test Weight	Lodging	Grower return
			bu/A	%	lbs/bu	%	$/A
NC		DK440	161	22.5	51	1	300
NC		DKC4446RRYGCB	168	23.4	51	0	311
NC		DKC4628RR	170	24.1	52	4	313
NC		DKC4710RRYGCB	173	23.8	53	2	318
NC		DKC5143	177	25.4	52	1	321
NC		DKC5018YGCB	173	25.5	52	0	313
NC	Chippewa Falls		120	17.0	51	2	238
NC	Marshfield		143	33.5	51	0	236
NC	Seymour		225	23.1	52	0	418
NC	Valders		193	22.8	54	3	359
NC	Chippewa Falls	DK440	113	15.4	50	3	228
NC	Chippewa Falls	DKC4446RRYGCB	118	16.5	50	0	235
NC	Chippewa Falls	DKC4628RR	123	16.5	52	3	244
NC	Chippewa Falls	DKC4710RRYGCB	121	16.1	53	1	241
NC	Chippewa Falls	DKC5143	126	18.6	52	1	245
NC	Chippewa Falls	DKC5018YGCB	120	18.6	52	0	234
NC	Marshfield	DK440	142	30.8	50	0	241
NC	Marshfield	DKC4446RRYGCB	140	32.5	50	0	235
NC	Marshfield	DKC4628RR	138	33.9	51	0	227
NC	Marshfield	DKC4710RRYGCB	151	32.9	52	0	250
NC	Marshfield	DKC5143	149	35.1	51	0	240
NC	Marshfield	DKC5018YGCB	140	36.0	51	0	224
NC	Seymour	DK440	212	22.4	51	0	397
NC	Seymour	DKC4446RRYGCB	230	23.0	52	0	429
NC	Seymour	DKC4628RR	219	22.9	52	0	409
NC	Seymour	DKC4710RRYGCB	228	22.7	54	0	425
NC	Seymour	DKC5143	226	23.9	52	1	417
NC	Seymour	DKC5018YGCB	233	23.9	52	1	430
NC	Valders	DK440	176	21.3	54	0	333
NC	Valders	DKC4446RRYGCB	183	21.6	54	0	346
NC	Valders	DKC4628RR	200	22.9	54	12	373
NC	Valders	DKC4710RRYGCB	191	23.4	55	5	354
NC	Valders	DKC5143	207	23.8	54	1	382
NC	Valders	DKC5018YGCB	198	23.6	54	1	366
NC	Mean		170	24.1	52	1	313
Probability(%)							
Location (L)			0.0	0.0	0.0	0.1	0.0
Hybrid (H)			0.1	0.0	0.0	0.0	5.7
H x L			10.6	2.9	0.4	0.0	14.1
LSD (0.10)							
Location (L)			10	1.0	0	1	18
Hybrid (H)			6	0.5	0	1	11
H x L			NS	1.1	1	2	NS
CV(%)			5	3	1	118	5

Table C-8. Comparison of Monsanto Bt and Non Bt Hybrids. Northern Zone 2003.

Zone	Location	Hybrid	Yield	Moisture	Test Weight	Lodging	Grower return
			bu/A	%	lbs/bu	%	$/A
N		DKC3259RR	100	19.6	56	21	194
N		DK334BtY	101	19.1	56	25	196
N		DKC3550RR	116	19.1	56	24	227
N		DKC3551RRYGCB	107	19.2	56	27	209
N	Spooner-Dryland		58	23.2	54	35	109
N	Spooner-Irrigated		167	17.4	57	33	329
N	Spooner-Silt Loam		92	17.1	56	4	183
N	Spooner-Dryland	DKC3259RR	61	24.5	53	27	112
N	Spooner-Dryland	DK334BtY	58	22.6	54	43	108
N	Spooner-Dryland	DKC3550RR	63	22.1	54	32	118
N	Spooner-Dryland	DKC3551RRYGCB	52	23.5	54	40	96
N	Spooner-Irrigated	DKC3259RR	153	17.6	57	32	301
N	Spooner-Irrigated	DK334BtY	150	17.6	58	28	296
N	Spooner-Irrigated	DKC3550RR	192	17.9	57	31	377
N	Spooner-Irrigated	DKC3551RRYGCB	172	16.6	57	39	341
N	Spooner-Silt Loam	DKC3259RR	85	16.7	56	4	168
N	Spooner-Silt Loam	DK334BtY	94	16.9	57	4	185
N	Spooner-Silt Loam	DKC3550RR	95	17.4	56	8	187
N	Spooner-Silt Loam	DKC3551RRYGCB	97	17.5	56	2	191
N	Mean		106	19.2	56	24	207
Probability(%)							
Location (L)			0.0	0.0	0.0	1.1	0.0
Hybrid (H)			16.7	78.5	87.6	88.3	17.1
H x L			32.2	25.9	93.4	89.9	34.0
LSD (0.10)							
Location (L)			13	0.5	0	12	23
Hybrid (H)			NS	NS	NS	NS	NS
H x L			NS	NS	NS	NS	NS
CV(%)			16	6	2	66	16

FIELD EXPERIMENT HISTORY

Title: **Progress of Whole Plant Drydown on Corn Silage.**

Experiment: 15Harvest **Trial ID** 2503 **Year:** 2003

Personnel: J. G. Lauer, K.D. Kohn, P.J. Flannery

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

Supported By: HATCH

Site Information

Field: 398 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/1 /99 **pH** **OM (%)** **P (ppm)** 29 **K (ppm)** 130

Plot Management

Tillage Operations: No-Till

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	4 /23/03
	Starter :	5-14-42	100	4 /28/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	

Herbicide: Buctril 1.0 pt/A
Duall II 1.5 pt/A
Roundup WeatherMax 13.0 oz/A

Insecticide: None

Hybrid: Renk RK772

Irrigation: None

Planting Date: 4/28/04 **Planting Depth:** 2.0" **Row Width:** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** John Deere 1750

Harvest Date: See Factors **Harvest Method:** Hand Harvest

Experimental Design

Design: Random **Replications:** 3

Plot Size Seeded: 3.7 Acre **Experiment Size:** 3.7 Acre

Harvest Plot Size: 2.5' x 2'

Factors/Treatments:

Harvest Dates:

Aug. 29, Sept. 2,
Sept. 5, Sept. 9,
Sept. 12, Sept. 15,
Sept. 19, Sept. 23.

Description of Harvest Area:

Normal
Stressed

Results: Table C-9.

Table C-9. Silage Dry-Down
Arlington, WI - 2003.

Harvest Date	Harvest Date	Area	Whole Plant Moisture	Kernel milk
	DOY		%	%
		Normal	62.0	53.1
		Stressed	48.5	15.4
29-Aug	241		67.4	67.5
02-Sept	245		66.5	65.0
05-Sept	248		55.2	35.0
09-Sept	252		55.0	28.3
12-Sept	255		48.5	29.2
15-Sept	258		59.2	22.5
19-Sept	262		41.9	17.5
23-Sept	266		48.3	9.2
29-Aug	241	Normal	71.2	80.0
29-Aug	241	Stressed	63.6	55.0
02-Sept	245	Normal	70.0	73.3
02-Sept	245	Stressed	63.0	56.7
05-Sept	248	Normal	62.9	65.0
05-Sept	248	Stressed	47.4	5.0
09-Sept	252	Normal	60.7	53.3
09-Sept	252	Stressed	49.3	3.3
12-Sept	255	Normal	60.3	55.0
12-Sept	255	Stressed	36.7	3.3
15-Sept	258	Normal	62.8	45.0
15-Sept	258	Stressed	55.6	0.0
19-Sept	262	Normal	52.6	35.0
19-Sept	262	Stressed	31.2	0.0
23-Sept	266	Normal	55.3	18.3
23-Sept	266	Stressed	41.3	0.0
Mean			55.2	34.3
Probability(%)				
Harvest Date (D)			0.0	0.0
Area (A)			0.0	0.0
D x A			1.0	0.0
LSD (0.10)				
Harvest Date (D)			4.1	4.5
Area (A)			2.0	2.3
D x A			5.6	6.4
CV(%)			7	13

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2412 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 4.1 **P (ppm)** 70 **K (ppm)** 164

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	4 /22/03
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/11/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31574 **plants per acre**

Factors/Treatments:

Hybrid	
S61	S85
S65	S86
S66	S87
S70	S88
S84	S89

Results: Table C-10.

Table C-10. AgReliant Hybrid Corn Silage Evaluation Study - Late. Arlington, WI 2003.

	Dry Matter		Kernel							Milk Per	
Genotype	Yield	Moisture	Milk	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S61	9.2	60.7	58	7.3	25	47	83	64	33	3579	32952
S65	9.0	64.2	63	8.0	25	47	83	63	33	3591	32382
S66	8.0	63.1	65	8.3	26	51	82	65	29	3512	28211
S70	9.2	64.4	60	7.7	27	51	81	62	29	3425	31474
S84	8.3	63.7	60	8.2	26	50	82	64	30	3515	29357
S85	9.5	62.4	60	7.7	25	47	83	64	33	3550	33731
S86	9.4	64.5	70	7.9	26	50	83	65	30	3591	33756
S87	8.8	66.2	77	8.6	27	51	81	64	25	3491	30904
S88	7.9	68.6	70	8.3	27	51	81	63	25	3449	27439
S89	8.5	62.5	68	7.8	27	52	81	63	29	3388	28786
Mean	8.7	64.0	65	8.0	26	50	82	64	30	3509	30542
Probability (%)											
Genotype	53.3	24.5	7.0	7.0	86.9	69.6	72.3	57.0	8.1	62.6	63.6
LSD (0.10)											
Genotype	NS	NS	10	0.6	NS	NS	NS	NS	4.8	NS	NS
CV (%)	11	5	11	6	10	7	2	3	11	4	14

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2413 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 7.1 **OM (%)** 2.1 **P (ppm)** 35 **K (ppm)** 62

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	300	4 /27/03
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Aatrex 4L 1.0 qt/A
Harness 1.0 qt/A
Accent 0.33 oz/A
Northstar 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/9/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 29990 **plants per acre**

Factors/Treatments:

Hybrid	
S61	S85
S65	S86
S66	S87
S70	S88
S84	S89

Results: Table C-11.

Table C-11. AgReliant Hybrid Corn Silage Evaluation Study - Late. Lancaster, WI 2003.

	Dry Matter		Kernel							Milk Per	
Genotype	Yield	Moisture	Milk	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S61	8.3	60.7	50	7.2	24	46	83	64	35	3592	29723
S65	8.7	57.9	57	6.6	25	47	83	64	34	3507	30661
S66	8.2	58.7	60	6.9	26	49	81	62	33	3402	27993
S70	8.0	63.3	63	7.2	28	52	80	61	30	3368	26902
S84	8.2	56.9	40	7.6	24	47	83	64	36	3501	28890
S85	8.4	60.1	58	6.9	26	49	82	63	31	3494	29188
S86	7.9	59.6	62	7.3	27	49	81	61	31	3354	26362
S87	9.0	60.7	72	7.5	25	48	83	65	30	3582	32188
S88	9.1	63.2	72	7.7	23	44	83	63	35	3641	33039
S89	8.3	62.5	70	7.3	27	50	80	60	30	3360	28004
Mean	8.4	60.4	60	7.2	25	48	82	63	33	3480	29295
Probability (%)											
Genotype	87.4	6.2	3.6	4.5	28.3	32.7	12.6	1.8	18.6	6.1	61.5
LSD (0.10)											
Genotype	NS	3.5	15	0.5	NS	NS	NS	2.1	NS	169	NS
CV (%)	12	4	18	5	9	7	2	2	9	3	14

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2414 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 2.8 **P (ppm)** 31 **K (ppm)** 77

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	430	N/A
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Basis 0.33 oz/A
Lumax 5.0 pt/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/16/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.07 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28842 **plants per acre**

Factors/Treatments:

Hybrid	
S56	S82
S61	S83
S65	S84
S81	S85

Results: Table C-12.

Table C-12. AgReliant Hybrid Corn Silage Evaluation Study - Mid. Fond du Lac, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S56	7.8	58.0	23	6.2	30	54	77	58	33	3068	23855
S61	8.4	63.3	47	6.3	25	46	83	64	39	3642	30493
S65	8.0	62.7	55	6.3	28	51	81	62	35	3463	27986
S81	8.0	58.3	45	7.3	27	48	82	62	37	3411	27383
S82	7.0	60.9	47	7.2	26	48	83	64	37	3554	24710
S83	6.9	61.2	48	7.1	29	52	80	61	33	3336	23102
S84	7.1	61.6	35	7.0	28	52	80	62	34	3368	23905
S85	7.8	63.6	57	6.4	27	49	82	65	33	3586	28016
Mean	7.6	61.2	45	6.7	27	50	81	62	35	3429	26181
Probability (%)											
Genotype	37.7	28.5	0.7	13.8	61.3	56.2	28.6	7.0	75.6	7.2	24.1
LSD (0.10)											
Genotype	NS	NS	13	NS	NS	NS	NS	3.2	NS	288	NS
CV (%)	12	5	20	8	12	10	3	4	15	6	14

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2415 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.2 **OM (%)** 3.4 **P (ppm)** 36 **K (ppm)** 136

Plot Management

Tillage Operations: Zone Builder Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	350	N/A
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Dual II 2.25 pt/A
Hornet 3.0 oz/A
Clarity 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/10/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.07 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31802 **plants per acre**

Factors/Treatments:

Hybrid	
S56	S82
S61	S83
S65	S84
S81	S85

Results: Table C-13.

Table C-13. AgReliant Hybrid Corn Silage Evaluation Study - Mid. Galesville, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S56	8.5	64.6	52	7.3	29	53	79	61	29	3341	28362
S61	8.1	66.1	68	7.8	26	48	83	65	32	3611	29361
S65	9.1	67.5	57	8.8	26	49	82	64	32	3568	32614
S81	8.2	65.5	55	8.5	26	49	83	65	31	3589	29628
S82	7.7	66.9	58	8.7	26	49	82	63	32	3543	27279
S83	8.0	64.7	65	8.2	25	47	83	64	34	3608	28875
S84	9.6	65.1	58	7.9	24	46	84	64	37	3666	35231
S85	9.0	65.1	62	7.8	24	46	84	66	35	3723	33499
Mean	8.5	65.7	59	8.1	26	48	83	64	33	3581	30606
Probability (%)											
Genotype	27.9	85.0	2.0	1.3	28.4	30.2	21.5	16.0	37.9	18.8	30.6
LSD (0.10)											
Genotype	NS	NS	7	0.7	NS	NS	NS	NS	NS	NS	NS
CV (%)	11	4	8	6	9	8	2	3	12	4	14

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2416 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 10/1 /03 **pH** 6.8 **OM (%)** 2.1 **P (ppm)** 26 **K (ppm)** 88

Plot Management

Tillage Operations: Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	535	N/A
Starter	6-24-24	150	4 /29/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Harness 1.6 pt/A
Hornet 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/29/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/3/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.07 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31906 **plants per acre**

Factors/Treatments:

Hybrid	
S56	S80
S77	S81
S78	S82
S79	S83

Results: Table C-14.

Table C-14. AgReliant Hybrid Corn Silage Evaluation Study - Early. Chippewa Falls, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S56	6.8	52.9	47	7.1	29	56	79	62	27	3157	21430
S77	7.2	53.1	45	7.0	25	50	83	65	33	3387	24335
S78	7.5	54.8	58	7.3	27	52	80	62	31	3257	24452
S79	7.2	53.2	53	7.5	27	53	80	63	29	3234	23382
S80	7.9	59.0	68	7.2	27	51	82	65	30	3481	27681
S81	6.8	58.2	72	7.4	29	54	79	61	28	3236	22159
S82	7.0	57.4	62	7.5	26	51	81	63	30	3392	23902
S83	6.1	60.5	63	7.9	28	51	80	62	29	3368	20545
Mean	7.1	56.1	59	7.4	27	52	81	63	30	3314	23486
Probability (%)											
Genotype	0.8	0.2	1.8	15.5	43.8	40.3	11.0	1.5	31.0	3.8	1.8
LSD (0.10)											
Genotype	0.6	3.1	13	NS	NS	NS	NS	1.8	NS	156	2861
CV (%)	6	4	15	5	8	6	2	2	10	3	8

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2417 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 1 /22/03 **pH** 6.2 **OM (%)** 3.4 **P (ppm)** 70 **K (ppm)** 190

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	160	6 /19/03
Starter	6-24-24	150	5 /1 /03
Post plant	N/A	N/A	N/A
Manure:	Manure	12872 gal/A	N/A

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
Atrazine 4L 1.1 qt/A
Permit 1.07 oz/A

Insecticide: Force 4.4 lb/A

Irrigation: None

Planting Date: 5/1/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/8/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.07 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28476 **plants per acre**

Factors/Treatments:

Hybrid	
S56	S80
S77	S81
S78	S82
S79	S83

Results: Table C-15.

Table C-15. AgReliant Hybrid Corn Silage Evaluation Study - Early. Marshfield, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S56	5.9	65.0	85	8.1	28	54	82	66	26	3542	20933
S77	5.5	56.1	48	7.7	29	56	81	67	23	3389	18716
S78	5.7	61.1	73	8.1	27	54	82	66	26	3483	19692
S79	6.1	59.1	75	7.8	27	54	82	67	26	3473	21347
S80	6.3	63.2	77	7.7	31	59	80	66	20	3397	21448
S81	5.5	65.9	88	8.0	28	54	82	67	24	3545	19393
S82	4.8	65.7	80	8.0	28	54	81	66	25	3502	16962
S83	5.2	68.9	85	8.4	27	52	83	67	25	3599	18544
Mean	5.6	63.1	76	8.0	28	55	82	66	24	3491	19629
Probability (%)											
Genotype	20.4	0.0	0.7	44.8	32.8	21.7	59.6	83.7	48.0	22.0	58.7
LSD (0.10)											
Genotype	NS	2.8	14	NS	NS	NS	NS	NS	NS	NS	NS
CV (%)	8	3	13	6	8	5	2	2	15	3	10

FIELD EXPERIMENT HISTORY

Title: **AgReliant Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2418 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: AgReliant Genetics, LLC

Site Information

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

Soil Test: **Date:** 10/1 /03 **pH** 6.9 **OM (%)** 4.1 **P (ppm)** 91 **K (ppm)** 186

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	6-24-24	150	5 /2 /03
Post plant	N/A	N/A	N/A
Manure:	Manure	7200 gal/A	Fall
	Manure	20 Ton/A	Spring

Herbicide: Dual II 1pt/A
Accent Gold 2.0 oz/A
Banvel 2.0 oz/A

Insecticide: Force 4.4 lb/A

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/23/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.07 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28556 **plants per acre**

Factors/Treatments:

Hybrid	
S56	S80
S77	S81
S78	S82
S79	S83

Results: Table C-16.

Table C-16. AgReliant Hybrid Corn Silage Evaluation Study - Early. Valders, WI 2003.

	Dry Matter		Kernel							Milk Per	
Genotype	Yield	Moisture	Milk	CP	ADF	NDF	IVD	NDFD	Starch	Ton	Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
S56	8.2	62.8	48	8	22	43	86	68	37	3804	31380
S77	6.1	59.1	30	7	19	38	88	69	43	3873	23505
S78	6.6	54.8	32	8	21	43	86	67	39	3618	23957
S79	7.2	54.7	37	9	19	41	87	68	40	3677	26569
S80	9.3	59.8	50	7	19	39	89	72	42	3991	36967
S81	7.1	64.6	48	7	22	43	86	68	36	3833	27237
S82	8.0	64.5	67	8	21	42	86	68	37	3864	30974
S83	7.5	64.1	65	8	22	43	87	69	38	3904	29193
Mean	7.5	60.5	47	8	21	42	87	69	39	3821	28723
Probability (%)											
Genotype	0.2	0.2	1.0	0.2	1.5	6.6	0.9	2.1	2.2	0.1	0.0
LSD (0.10)											
Genotype	0.9	4.0	16	0.5	2.0	3.3	1.4	2.0	3.7	117	3522
CV (%)	9	5	24	5	7	5	1	2	7	2	8

FIELD EXPERIMENT HISTORY

Title: **BASF Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2419 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: BASF Plant Science

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 4.1 **P (ppm)** 70 **K (ppm)** 164

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	4 /22/03
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/11/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.11 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31574 **plants per acre**

Factors/Treatments:

Hybrid		
1707051	1709930	Pioneer 35R58
1707130	1709939	
1708785	1710197	
1708983	1710251	
1709395	EXMY108 CL	
1709899	NK N48V8	

Results: Table C-17.

Table C-17. BASF Hybrid Corn Silage Evaluation Study - Late. Arlington, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
1707051	9.1	61.5	63	7.5	32	58	77	61	21	3146	28477
1707130	9.8	69.0	75	7.4	29	54	79	62	23	3346	32844
1708785	8.4	64.2	67	7.9	26	50	82	63	28	3470	29024
1708983	8.6	68.3	70	7.3	27	51	80	62	26	3417	29483
1709395	9.1	64.6	67	8.2	25	50	83	66	28	3604	32673
1709899	9.5	64.1	68	7.6	26	50	83	66	30	3555	33905
1709930	8.9	62.8	77	7.4	29	55	81	66	25	3450	30569
1709939	9.2	65.8	80	7.8	29	54	79	62	24	3331	30741
1710197	9.0	68.0	73	8.3	28	53	81	65	23	3492	31289
1710251	9.3	63.4	77	7.6	27	52	83	67	28	3570	33463
EXMY108 CL	9.2	67.9	70	8.0	28	53	80	62	24	3386	31296
NK N48V8	9.3	65.0	58	7.6	29	55	79	62	24	3298	30630
Mean	9.1	66.0	71	7.8	28	53	81	64	25	3425	31200
Probability (%)											
Genotype	87.2	0.1	0.6	0.5	8.3	5.1	4.8	1.0	7.7	7.6	70.9
LSD (0.10)											
Genotype	NS	3.8	8	0.6	2.9	3.9	2.7	2.9	5.5	216	NS
CV (%)	10	4	8	6	7	5	2	3	16	5	11

FIELD EXPERIMENT HISTORY

Title: **BASF Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2420 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: BASF Plant Science

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 7.1 **OM (%)** 2.1 **P (ppm)** 35 **K (ppm)** 62

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	300	4 /27/03
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Aatrex 4L 1.0 qt/A
Harness 1.0 qt/A
Accent 0.33 oz/A
Northstar 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/9/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.11 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 29990 **plants per acre**

Factors/Treatments:

Hybrid		
1707051	1709930	Pioneer 35R58
1707130	1709939	
1708785	1710197	
1708983	1710251	
1709395	EXMY108 CL	
1709899	NK N48V8	

Results: Table C-18.

Table C-18. BASF Hybrid Corn Silage Evaluation Study - Late. Lancaster, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
1707051	8.4	52.8	47	6.1	30	57	79	64	25	3193	26840
1707130	8.3	62.8	72	6.8	26	50	80	59	30	3333	27794
1708785	7.6	61.5	63	7.1	26	49	82	63	30	3504	26755
1708983	9.0	62.6	58	7.1	26	49	80	60	30	3391	30632
1709395	8.3	61.4	67	7.4	26	49	81	62	31	3444	28580
1709899	9.3	60.8	55	7.0	29	53	80	63	29	3387	31635
1709930	8.0	63.2	62	7.3	27	51	82	64	29	3544	28396
1709939	8.6	61.8	63	7.0	27	51	80	61	30	3384	29191
1710197	8.0	62.6	72	7.6	26	50	80	61	30	3396	27017
1710251	8.7	59.7	67	6.3	31	59	78	63	23	3248	28331
EXMY108 CL	8.1	59.6	53	7.6	26	50	81	62	31	3353	27128
NK N48V8	8.8	63.9	55	6.8	27	51	80	61	28	3398	29967
Pioneer 35R58	5.9	68.7	73	8.1	26	50	82	64	25	3572	21032
Mean	8.3	61.6	62	7.1	27	51	80	62	29	3396	28078
Probability (%)											
Genotype	10.3	0.0	24.9	0.1	5.0	0.9	25.8	1.6	15.6	2.5	30.5
LSD (0.10)											
Genotype	NS	3.6	NS	0.6	2.9	4.1	NS	2.3	NS	161	NS
CV (%)	11	4	19	6	8	6	2	3	12	3	12

FIELD EXPERIMENT HISTORY

Title: **BASF Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2421 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: BASF Plant Science

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 2.8 **P (ppm)** 31 **K (ppm)** 77

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	430	N/A
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Basis 0.33 oz/A
Lumax 5.0 pt/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/16/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.11 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28842 **plants per acre**

Factors/Treatments:

Hybrid	
1707130	1709982
1707565	1710250
1708983	1710252
1709410	EXMY108
1709905	NK N48V8
1709907	Pioneer 34M95
1709979	

Results: Table C-19.

Table C-19. BASF Hybrid Corn Silage Evaluation Study - Early. Fond du Lac, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
1707130	7.7	67.1	33	7.1	29	53	79	61	31	3325	25548
1707565	9.5	55.6	40	7.0	24	45	83	63	41	3453	32762
1708983	6.8	65.7	53	6.8	32	57	78	61	26	3249	21914
1709410	9.2	68.1	53	6.9	28	52	81	63	31	3501	32180
1709905	6.7	66.4	60	6.5	27	50	81	63	33	3522	23753
1709907	8.1	65.2	50	6.9	32	56	77	58	28	3126	25552
1709979	7.8	59.7	48	8.0	27	51	80	62	35	3355	26034
1709982	8.6	62.5	53	6.8	27	51	81	63	34	3503	30303
1710250	8.2	67.4	67	6.6	29	52	81	63	29	3463	28241
1710252	8.9	64.4	60	6.8	29	52	80	63	33	3450	30847
EXMY108	8.3	67.7	47	6.9	29	52	80	61	32	3410	28314
NK N48V8	6.8	62.0	40	7.2	25	47	83	64	38	3538	23950
Pioneer 34M95	8.0	56.0	27	6.6	29	53	80	62	33	3234	25828
Mean	8.0	63.7	49	6.9	28	52	80	62	33	3395	27325
Probability (%)											
Genotype	0.0	0.0	5.8	28.1	2.7	2.9	10.4	37.9	1.4	35.4	0.0
LSD (0.10)											
Genotype	0.8	4.4	19	NS	3.6	4.9	NS	NS	5.6	NS	3703
CV (%)	7	5	28	8	9	7	3	4	12	6	10

FIELD EXPERIMENT HISTORY

Title: **BASF Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2422 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: BASF Plant Science

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.2 **OM (%)** 3.4 **P (ppm)** 36 **K (ppm)** 136

Plot Management

Tillage Operations: Zone Builder Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	350	N/A
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Dual II 2.25 pt/A
Hornet 3.0 oz/A
Clarity 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/10/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.11 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31802 **plants per acre**

Factors/Treatments:

Hybrid

1707130	1709982
1707565	1710250
1708983	1710252
1709410	EXMY108
1709905	NK N48V8
1709907	Pioneer 34M95
1709979	

Results: Table C-20.

Table C-20. BASF Hybrid Corn Silage Evaluation Study - Early. Galesville, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
1707130	8.1	72.9	65	8.6	28	53	80	63	24	3384	27485
1707565	9.2	63.7	63	7.8	25	49	83	65	31	3602	33145
1708983	8.8	67.0	57	7.1	29	54	79	62	25	3332	29535
1709410	9.7	70.2	67	8.9	24	48	84	67	29	3711	36125
1709905	9.0	69.2	75	7.6	27	50	81	62	30	3450	31165
1709907	9.1	64.8	52	7.7	26	49	82	63	33	3533	32129
1709979	8.4	65.0	50	8.6	26	51	82	64	29	3533	29950
1709982	11.1	61.6	72	7.0	25	49	83	66	31	3632	40176
1710250	8.4	71.0	70	7.9	26	50	83	65	27	3589	30155
1710252	9.5	69.7	70	8.0	30	55	80	64	24	3404	32465
EXMY108	9.6	69.3	65	7.9	26	50	82	63	31	3506	33806
NK N48V8	7.9	66.9	65	8.0	26	49	83	64	32	3591	28277
Pioneer 34M95	8.5	60.7	48	7.5	28	51	82	65	30	3525	30056
Mean	9.0	67.1	63	7.9	27	51	82	64	29	3523	31882
Probability (%)											
Genotype	0.1	0.0	0.4	0.1	23.2	20.0	9.8	1.4	9.6	11.3	1.0
LSD (0.10)											
Genotype	1.0	2.5	11	0.6	NS	NS	2.5	2.2	5.3	NS	4751
CV (%)	8	3	13	6	9	6	2	2	13	4	11

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2423 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 4.1 **P (ppm)** 70 **K (ppm)** 164

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	4 /22/03
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/11/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.15 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31574 **plants per acre**

Factors/Treatments:

Hybrid

24X	8523IT	ND38
7850	8530Bt	ND408
8443	8545	ND411
8454YG1	8552YG1	ND428YG1
8461	8566YG1	ND524
8484BtIT	8578IT	

Results: Table C-21.

Table C-21. Garst Hybrid Corn Silage Evaluation Study - Late. Arlington, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
24X	8.3	68.3	68	7.9	28	53	80	63	24	3429	28454
7850	8.8	67.6	72	8.0	27	52	81	63	29	3456	30424
8443	9.6	59.5	70	7.2	26	49	82	64	30	3475	33505
8454YG1	10.8	64.3	68	7.4	27	52	81	64	27	3487	37692
8461	10.1	64.0	72	7.6	26	50	82	64	30	3512	35658
8484BtIT	9.2	67.2	72	7.9	28	53	81	64	26	3465	31739
8523IT	9.7	63.0	58	7.7	25	48	84	66	30	3645	35511
8530Bt	10.2	64.9	67	7.5	26	49	82	63	30	3513	35808
8545	8.8	63.9	68	7.8	25	48	83	65	31	3645	32003
8552YG1	9.9	65.9	58	7.7	28	53	81	64	28	3483	34465
8566YG1	8.9	67.2	62	7.8	27	51	82	65	29	3577	31927
8578IT	8.0	65.2	57	7.9	28	53	81	63	27	3419	27514
ND387	8.7	70.2	73	8.0	30	56	80	64	24	3392	29458
ND408	8.8	61.3	62	7.6	25	49	83	65	32	3545	31279
ND411	9.5	65.5	70	8.0	27	51	81	64	29	3470	32988
ND428YG1	8.1	65.9	67	7.5	28	52	81	64	28	3482	28353
ND524	8.7	62.4	67	8.2	26	51	82	64	30	3452	30040
Mean	9.2	65.1	66	7.7	27	51	82	64	29	3497	32166
Probability (%)											
Genotype	0.5	1.9	5.7	21.7	35.5	35.3	41.0	26.8	26.8	70.1	2.1
LSD (0.10)											
Genotype	1.1	4.1	9	NS	NS	NS	NS	NS	NS	NS	4673
CV (%)	9	5	10	5	9	6	2	2	12	4	11

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2424 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 7.1 **OM (%)** 2.1 **P (ppm)** 35 **K (ppm)** 62

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	300	4 /27/03
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Aatrex 4L 1.0 qt/A
Harness 1.0 qt/A
Accent 0.33 oz/A
Northstar 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/9/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.15 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 29990 **plants per acre**

Factors/Treatments:

Hybrid

24X	8523IT	ND38
7850	8530Bt	ND408
8443	8545	ND411
8454YG1	8552YG1	ND428YG1
8461	8566YG1	ND524
8484BtIT	8578IT	

Results: Table C-22.

Table C-22. Garst Hybrid Corn Silage Evaluation Study - Late. Lancaster, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
24X	7.9	63.8	65	7.3	25	49	81	61	32	3434	27108
7850	7.8	62.0	58	6.9	28	52	80	61	28	3322	25916
8443	8.7	60.6	62	6.8	25	48	82	62	34	3454	30173
8454YG1	8.3	63.2	60	6.7	27	51	82	64	29	3510	29086
8461	8.5	60.3	55	7.1	25	48	81	62	33	3439	29348
8484BtIT	9.6	62.1	58	6.8	25	47	83	64	32	3578	34219
8523IT	9.5	57.7	62	6.7	22	43	85	64	36	3596	34325
8530Bt	8.8	60.3	63	6.6	24	46	82	62	35	3493	30749
8545	8.0	57.4	68	6.7	24	46	83	63	36	3477	27741
8552YG1	8.1	60.9	53	6.8	25	48	82	64	34	3539	28827
8566YG1	8.8	61.1	57	7.1	26	49	81	62	33	3442	30331
8578IT	8.6	58.1	27	6.2	29	52	80	61	30	3283	28333
ND387	7.4	67.1	77	7.3	30	55	80	63	24	3372	24807
ND408	8.7	56.6	43	6.8	23	44	84	63	37	3509	30470
ND411	7.9	56.4	40	6.4	26	49	82	64	32	3433	27288
ND428YG1	7.8	59.7	68	6.7	24	46	84	64	31	3603	28193
ND524	8.5	57.3	43	6.8	25	48	83	63	33	3460	29298
Mean	8.4	60.3	56	6.8	25	48	82	63	32	3467	29189
Probability (%)											
Genotype	9.3	0.7	0.0	73.4	2.8	3.2	4.8	4.7	1.3	12.4	6.8
LSD (0.10)											
Genotype	1.1	4.2	14	NS	3.3	4.8	2.4	2.0	4.9	NS	4402
CV (%)	9	5	18	8	9	7	2	2	11	3	11

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2425 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 2.8 **P (ppm)** 31 **K (ppm)** 77

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	430	N/A
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Basis 0.33 oz/A
Lumax 5.0 pt/A **Insecticide:** None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/16/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28842 **plants per acre**

Factors/Treatments:

Hybrid

8590IT	8791
8640IT	ND625
8715	ND629YG1
8716	ND710
8782RR	ND795YG1
8787YG1	

Results: Table C-23.

Table C-23. Garst Hybrid Corn Silage Evaluation Study - Mid. Fond du Lac, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
8590IT	6.8	64.3	53	6.3	30	54	80	63	32	3385	23422
8640IT	6.8	67.2	48	6.7	27	50	82	63	32	3551	24203
8715	7.6	55.7	32	6.7	29	53	80	62	32	3236	24725
8716	7.7	60.2	27	6.6	26	48	82	62	37	3474	26520
8782RR	7.6	62.6	40	7.0	29	52	79	60	33	3289	24938
8787YG1	8.1	57.4	35	7.4	27	50	81	62	33	3323	26880
8791	7.4	62.3	48	6.4	35	60	74	58	26	2966	22162
ND625	7.9	62.1	33	7.0	27	49	81	62	37	3464	27486
ND629YG1	8.5	58.4	35	6.7	26	47	82	62	38	3439	29143
ND710	7.8	57.9	27	6.8	27	50	81	62	38	3356	26485
ND795YG1	6.6	65.7	50	7.7	28	50	81	62	33	3500	23034
Mean	7.5	61.3	39	6.9	28	51	80	62	34	3362	25364
Probability (%)											
Genotype	22.8	0.7	36.1	5.2	33.8	50.6	36.2	28.0	50.4	47.5	66.3
LSD (0.10)											
Genotype	NS	4.7	NS	0.6	NS	NS	NS	NS	NS	NS	NS
CV (%)	11	5	39	7	15	12	4	4	18	8	17

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2426 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.2 **OM (%)** 3.4 **P (ppm)** 36 **K (ppm)** 136

Plot Management

Tillage Operations: Zone Builder Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	350	N/A
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Dual II 2.25 pt/A
Hornet 3.0 oz/A
Clarity 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/10/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31802 **plants per acre**

Factors/Treatments:

Hybrid

8590IT
8640IT
8715
8716
8782RR
8787YG1
8791
ND625
ND629YG1
ND710
ND795YG1

Results: Table C-24.

Table C-24. Garst Hybrid Corn Silage Evaluation Study - Mid. Galesville, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
8590IT	9.8	66.2	63	7.3	25	48	84	66	34	3706	36536
8640IT	8.5	67.7	65	7.7	26	49	83	65	30	3603	30898
8715	8.6	63.0	52	7.4	26	49	82	63	33	3546	30450
8716	8.6	62.7	38	8.3	26	50	81	62	31	3461	29900
8782RR	8.6	65.7	53	7.7	28	51	79	59	30	3284	30127
8787YG1	9.2	64.6	60	7.5	27	50	82	63	31	3517	32567
8791	8.0	65.3	55	7.8	29	53	81	64	28	3459	27785
ND625	9.1	65.5	52	7.8	25	47	83	63	35	3594	32705
ND629YG1	9.3	65.6	58	7.6	26	48	82	62	35	3504	32537
ND710	9.3	61.5	55	7.6	23	44	84	65	39	3697	34339
ND795YG1	9.0	65.7	75	8.3	26	49	82	63	33	3541	31833
Mean	8.9	64.9	57	7.7	26	49	82	63	32	3537	31841
Probability (%)											
Genotype	48.7	14.9	1.1	69.8	74.5	72.5	61.6	9.1	52.9	58.0	49.0
LSD (0.10)											
Genotype	NS	NS	12	NS	NS	NS	NS	3.1	NS	NS	NS
CV (%)	10	4	15	8	14	10	4	4	17	6	13

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2427 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 10/1 /03 **pH** 6.8 **OM (%)** 2.1 **P (ppm)** 26 **K (ppm)** 88

Plot Management

Tillage Operations: Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	535	N/A
Starter	6-24-24	150	4 /29/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Harness 1.6 pt/A
Hornet 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/29/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/3/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.10 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31906 **plants per acre**

Factors/Treatments:

Hybrid	
8865	ND895YG1
8880YG1	ND912RR
8905RR	ND913YG1RR
8946	ND922YG1
8959YG1	ND954YG1RR
8961RR	ND967

Results: Table C-25.

Table C-25. Garst Hybrid Corn Silage Evaluation Study - Early. Chippewa Falls, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
8865	7.9	53.9	53	6.9	32	59	76	60	24	2973	23405
8880YG1	7.5	59.5	65	7.0	29	55	80	63	26	3317	24766
8905RR	6.8	51.8	33	7.0	26	50	81	62	34	3253	22069
8946	7.1	54.5	48	7.1	26	50	82	64	32	3357	23949
8959YG1	7.5	51.7	45	7.3	25	49	82	62	33	3270	24375
8961RR	6.5	54.3	48	7.0	26	51	82	64	31	3360	21850
ND895YG1	6.4	54.9	48	6.9	29	54	79	61	30	3165	20364
ND912RR	6.6	56.3	52	7.3	26	50	82	64	31	3405	22300
ND913YG1RR	6.8	57.1	53	6.9	27	51	81	64	31	3381	23062
ND922YG1	7.2	56.4	62	7.0	27	53	81	64	30	3355	24123
ND954YG1RR	7.2	49.6	33	7.0	25	50	81	63	34	3261	23520
ND967	6.7	51.7	42	7.3	25	49	82	64	34	3335	22481
Mean	7.0	54.3	49	7.1	27	52	81	63	31	3286	23022
Probability (%)											
Genotype	27.4	0.4	1.3	73.2	5.9	15.5	10.6	6.7	14.2	8.8	66.8
LSD (0.10)											
Genotype	NS	3.5	13	NS	3.7	NS	NS	2.3	NS	208	NS
CV (%)	10	5	20	5	10	8	3	3	14	5	11

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2428 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 1 /22/03 **pH** 6.2 **OM (%)** 3.4 **P (ppm)** 70 **K (ppm)** 190

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	160	6 /19/03
Starter	6-24-24	150	5 /1 /03
Post plant	N/A	N/A	N/A
Manure:	Manure	12872 gal/A	N/A

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
Atrazine 4L 1.1 qt/A
Permit 1.07 oz/A

Insecticide: Force 4.4 lb/A

Irrigation: None

Planting Date: 5/1/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/8/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.10 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28476 **plants per acre**

Factors/Treatments:

Hybrid	
8865	ND895YG1
8880YG1	ND912RR
8905RR	ND913YG1RR
8946	ND922YG1
8959YG1	ND954YG1RR
8961RR	ND967

Results: Table C-26.

Table C-26. Garst Hybrid Corn Silage Evaluation Study - Early. Marshfield, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
8865	6.1	63.4	57	7.5	31	57	79	64	22	3330	20213
8880YG1	5.9	62.6	72	7.6	28	54	82	66	28	3530	20673
8905RR	6.2	54.4	70	6.8	28	56	80	65	27	3265	20122
8946	5.8	60.4	63	7.8	28	55	83	69	25	3570	20536
8959YG1	5.8	59.7	75	7.9	27	54	81	65	26	3425	19722
8961RR	5.7	57.2	70	7.6	27	54	82	67	28	3441	19731
ND895YG1	5.2	61.1	75	7.3	29	54	82	66	25	3444	17938
ND912RR	5.0	61.9	67	7.2	30	58	81	67	23	3451	17415
ND913YG1RR	5.2	59.5	68	7.2	26	52	83	68	28	3595	18602
ND922YG1	6.2	62.9	82	7.4	26	53	84	70	27	3685	22889
ND954YG1RR	5.7	58.8	50	7.7	26	52	82	67	28	3493	20042
ND967	5.4	50.2	52	7.2	25	52	84	69	32	3455	18641
Mean	5.7	59.3	67	7.4	28	54	82	67	27	3474	19710
Probability (%)											
Genotype	3.2	0.0	27.2	4.3	17.4	35.1	18.9	3.3	12.3	2.8	2.2
LSD (0.10)											
Genotype	0.6	3.6	NS	0.5	NS	NS	NS	2.6	NS	171	2074
CV (%)	7	4	21	5	9	6	2	3	13	4	7

FIELD EXPERIMENT HISTORY

Title: **Garst Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2429 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Garst Seed Company

Site Information

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

Soil Test: **Date:** 10/1 /03 **pH** 6.9 **OM (%)** 4.1 **P (ppm)** 91 **K (ppm)** 186

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	6-24-24	150	5 /2 /03
Post plant	N/A	N/A	N/A
Manure:	Manure	7200 gal/A	Fall
	Manure	20 Ton/A	Spring

Herbicide: Dual II 1pt/A
Accent Gold 2.0 oz/A
Banvel 2.0 oz/A

Insecticide: Force 4.4 lb/A

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/23/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.10 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 28556 **plants per acre**

Factors/Treatments:

Hybrid	
8865	ND895YG1
8880YG1	ND912RR
8905RR	ND913YG1RR
8946	ND922YG1
8959YG1	ND954YG1RR
8961RR	ND967

Results: Table C-27.

Table C-27. Garst Hybrid Corn Silage Evaluation Study - Early. Valders, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
8865	9.3	59.5	40	7.4	21	42	87	69	39	3802	35373
8880YG1	7.5	64.4	57	7.2	21	42	87	70	38	3933	29540
8905RR	7.1	53.3	13	7.4	21	43	85	66	41	3529	25060
8946	6.8	55.3	37	7.7	18	38	88	69	45	3755	25558
8959YG1	7.0	56.7	32	7.8	20	42	86	66	40	3671	25796
8961RR	6.3	57.1	35	7.8	20	41	87	68	41	3726	23415
ND895YG1	6.9	60.5	32	7.0	20	40	88	69	42	3896	26800
ND912RR	7.8	57.2	37	7.4	20	42	87	69	41	3737	29148
ND913YG1RR	4.9	60.6	40	7.2	19	39	89	71	42	3991	19678
ND922YG1	7.3	62.3	57	7.1	19	40	89	71	40	4028	29552
ND954YG1RR	7.2	58.1	30	7.6	19	39	87	66	43	3728	26870
ND967	6.7	56.3	30	7.3	20	40	87	68	43	3714	25030
Mean	7.1	58.4	37	7.4	20	40	87	68	41	3792	26818
Probability (%)											
Genotype	0.0	0.2	1.0	19.2	31.1	41.0	45.3	4.9	4.5	1.0	0.0
LSD (0.10)											
Genotype	0.7	3.6	15	NS	NS	NS	NS	2.6	2.7	181	3154
CV (%)	7	4	30	5	6	5	1	3	5	3	8

FIELD EXPERIMENT HISTORY

Title: **IFSI Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2430 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Illinois Foundation Seed, Inc

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/01/03 **pH** 6.7 **OM (%)** 4.1 **P (ppm)** 70 **K (ppm)** 164

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	4 /22/03
Starter	6-24-24	150	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/11/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 31574 **plants per acre**

Factors/Treatments:

Hybrid	
IFSI-01	IFSI-06
IFSI-02	IFSI-07
IFSI-03	IFSI-08
IFSI-04	IFSI-09
IFSI-05	IFSI-10

Results: Table C-28.

Table C-28. IFSI Hybrid Corn Silage Evaluation Study. Arlington, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
IFSI-01	9.2	54.6	43	7.8	26	50	82	64	32	31554	3420
IFSI-02	7.7	54.6	52	8.0	24	48	84	66	33	27365	3539
IFSI-03	8.4	62.9	60	7.5	28	52	81	63	29	28398	3409
IFSI-04	8.8	61.2	60	7.8	24	46	83	63	34	31108	3552
IFSI-05	9.0	66.4	73	7.8	29	53	81	64	25	31262	3472
IFSI-06	8.8	60.2	45	7.8	27	52	81	63	30	30079	3406
IFSI-07	10.0	64.6	72	7.5	24	47	83	64	32	36008	3616
IFSI-08	9.0	64.5	73	7.7	28	53	79	61	23	30013	3331
IFSI-09	9.2	64.9	72	7.0	29	54	80	62	24	30824	3340
IFSI-10	9.1	68.6	92	8.0	29	54	81	64	22	31501	3449
Mean	8.9	62.3	64	7.7	27	51	81	64	28	30811	3453
Probability (%)											
Genotype	40.6	0.2	0.0	41.5	26.9	22.3	28.0	12.9	4.7	50.0	55.2
LSD (0.10)											
Genotype	NS	5.1	10.5	NS	NS	NS	NS	NS	7.0	NS	NS
CV (%)	11	6	12	6	11	9	3	3	17	5	14

FIELD EXPERIMENT HISTORY

Title: **IFSI Hybrid Corn Silage Trial**

Experiment: Private Silage Evaluation **Trial ID** 2431 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Illinois Foundation Seed, Inc

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 7.1 **OM (%)** 2.1 **P (ppm)** 35 **K (ppm)** 62

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	300	4 /27/03
Starter	6-24-24	150	4 /28/03
Post plant	N/A	N/A	N/A
Manure:	None	N/A	N/A

Herbicide: Aatrex 4L 1.0 qt/A
Harness 1.0 qt/A
Accent 0.33 oz/A
Northstar 4.0 oz/A

Insecticide: None

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width** 30"

Target Plant Density: 32000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/9/03 **Harvest Method:** New Holland 707 Plot Chopper

Notes: Planted adjacent to public silage trial

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 5' **Experiment Size:** 0.09 A

Harvest Plot Size: 22' x 2.5' **Harvest Plant Density:** 29990 **plants per acre**

Factors/Treatments:

Hybrid	
IFSI-01	IFSI-06
IFSI-02	IFSI-07
IFSI-03	IFSI-08
IFSI-04	IFSI-09
IFSI-05	IFSI-10

Results: Table C-29.

Table C-29. IFSI Hybrid Corn Silage Evaluation Study. Lancaster, WI 2003.

Genotype	Dry Matter Yield	Moisture	Kernel Milk	CP	ADF	NDF	IVD	NDFD	Starch	Milk Per Ton	Milk Per Acre
	T/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
IFSI-01	8.1	48.2	7	6.7	27	52	81	64	33	26399	3262
IFSI-02	6.9	51.4	25	6.9	24	46	83	64	35	23321	3387
IFSI-03	7.2	60.9	33	7.4	24	46	84	65	37	26131	3633
IFSI-04	8.9	54.2	58	6.7	22	43	84	64	39	31129	3488
IFSI-05	8.8	58.8	65	6.9	24	47	84	65	33	31638	3592
IFSI-06	7.7	58.2	48	7.3	25	48	82	63	32	26416	3441
IFSI-07	8.9	60.0	65	6.8	23	45	85	65	35	32667	3669
IFSI-08	9.2	58.1	63	6.7	26	49	80	60	32	30467	3285
IFSI-09	8.9	60.0	52	6.1	26	50	81	62	31	30390	3405
IFSI-10	9.1	67.0	92	7.1	29	54	80	63	22	30822	3385
Mean	8.4	57.7	51	6.9	25	48	82	63	33	28938	3455
Probability (%)											
Genotype	1.9	0.0	0.0	10.7	9.7	6.9	2.9	6.4	1.3	0.2	4.9
LSD (0.10)											
Genotype	1.2	3.8	17.0	NS	3.5	5.2	2.5	2.7	6.2	156	4836
CV (%)	10	5	24	6	10	8	2	3	13	3	12

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2464 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/15/03 **pH** 6.5 **OM (%)** 5.4 **P (ppm)** 112 **K (ppm)** 281

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 6/18/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	150 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /3 /03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/16/03 **Harvest Method:** G: Kincaid Plot Combine
S: NH707 Plot Chopper

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: G: 5' x 22'
S: 2.5' x 22'

Harvest Plant Density: N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Pioneer 34M94
32000	Pioneer 34M95
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-30, C-31, C-32, C-33, C-34, and C-35.

Table C-30. Plant Density and Hybrid Influence on Corn Grain. Arlington, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Grain Moisture	Grain Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Pioneer 34M94		196	23.7	53	306	70	70	0	2	0	36986	36300	42266	49896
	Pioneer 34M95	Bt	195	25.2	54	290	77	77	0	2	0	36722	36194	40220	49896
	Pioneer 37R71	Bt	189	20.7	55	301	30	30	0	1	0	38465	37963	42702	49896
	Renk RK622		167	19.7	57	276	82	82	0	1	0	37937	37409	45012	49896
26000			185	22.7	54	307	37	37	0	1	0	26862	27093	29865	34056
32000			196	22.4	55	318	55	55	0	1	0	32604	32142	35888	41976
38000			190	21.7	55	300	72	72	0	1	0	37455	37224	42801	49896
44000			184	22.5	55	280	78	78	0	2	0	42438	41613	49038	57816
50000			178	22.2	56	262	83	83	0	3	0	48279	46761	55160	65736
26000	Pioneer 34M94		197	24.4	50	324	39	39	0	0	0	26268	26268	29898	34056
26000	Pioneer 34M95	Bt	186	25.7	52	292	44	44	0	1	0	26400	26664	27984	34056
26000	Pioneer 37R71	Bt	188	20.7	55	317	4	4	0	0	0	27720	27720	29964	34056
26000	Renk RK622		171	20.1	57	296	61	61	0	1	0	27060	27720	31614	34056
32000	Pioneer 34M94		206	24.6	54	333	64	64	0	1	0	32340	32208	35640	41976
32000	Pioneer 34M95	Bt	199	25.1	54	307	72	72	0	1	0	31548	31152	33264	41976
32000	Pioneer 37R71	Bt	203	19.1	55	337	6	6	0	2	0	33792	33132	36960	41976
32000	Renk RK622		180	20.9	57	303	76	76	0	1	1	32736	32076	37686	41976
38000	Pioneer 34M94		223	21.8	54	354	70	70	0	2	0	36168	35640	41184	49896
38000	Pioneer 34M95	Bt	196	25.3	55	290	90	90	0	0	0	36564	36432	41844	49896
38000	Pioneer 37R71	Bt	192	20.9	54	306	36	36	0	1	0	39204	38940	42702	49896
38000	Renk RK622		160	18.7	58	266	91	91	0	0	0	37884	37884	45474	49896
44000	Pioneer 34M94		185	23.8	55	281	88	88	0	2	0	42504	41844	49962	57816
44000	Pioneer 34M95	Bt	203	24.8	54	296	86	86	0	3	0	41184	39996	45276	57816
44000	Pioneer 37R71	Bt	186	22.1	55	282	50	50	0	2	0	43164	42372	48180	57816
44000	Renk RK622		162	19.4	58	260	88	88	0	1	0	42900	42240	52734	57816
50000	Pioneer 34M94		175	24.0	55	253	89	89	0	4	0	47652	45540	54648	65736
50000	Pioneer 34M95	Bt	192	24.9	56	265	94	94	0	2	0	47916	46728	52734	65736
50000	Pioneer 37R71	Bt	184	20.6	54	274	56	56	0	2	0	48444	47652	55704	65736
50000	Renk RK622		163	19.3	58	255	94	94	0	3	1	49104	47124	57552	65736
Mean			187	22.3	55	293	65	65	0	1	0	37528	36967	42550	49896
Probability(%)															
Plant Density (D)			8.0	53.8	1.0	0.0	0.0	0.0	-	0.2	30.6	0.0	0.0	0.0	-
Hybrid (H)			0.0	0.0	0.0	2.9	0.0	0.0	-	51.9	6.7	0.1	0.0	0.0	-
D x H			48.3	41.3	2.4	65.8	24.7	24.7	-	70.9	46.8	82.6	56.9	7.9	-
LSD (0.10)															
Plant Density (D)			11	NS	1	21	8	8	-	1	NS	801	822	892	-
Hybrid (H)			10	1.0	1	19	7	7	-	NS	0	716	735	797	-
D x H			NS	NS	2	NS	NS	NS	-	NS	NS	NS	NS	1783	-
Contrasts-D (%)															
Linear			8.3	50.2	0.1	0.0	0.0	0.0	-	0.0	97.6	0.0	0.0	0.0	-
Quadratic			3.5	36.4	40.7	4.5	0.6	0.6	-	22.7	58.3	79.4	70.3	73.4	-
Cubic			23.7	61.0	42.9	23.3	99.9	99.9	-	48.6	8.6	10.8	50.9	40.0	-
Quartic			91.7	21.4	81.2	94.8	47.1	47.1	-	10.8	21.5	91.6	45.5	50.0	-
CV(%)			9	7	2	10	18	18	-	99	288	3	3	3	-

Table C-31. Plant Density and Hybrid Influence on Silage Preformance.
Arlington, WI - 2003.

			Whole Plant												
Target			Dry Matter		Kernel	Crude			*In Vitro*			Milk per		Forage Harvest	
Density	Hybrid	Trait	Yield	Moisture	Milk	Protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre	plants	ears
			tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/T	plants/A	ears/A
	Pioneer 34M94		9.1	65.6	52	7.6	29.6	54.3	81.4	66.1	27.9	3511	32172	39283	35851
	Pioneer 34M95	Bt	9.1	65.8	49	7.6	29.9	55.3	81.1	66.0	26.5	3506	31905	38491	35798
	Pioneer 37R71	Bt	7.9	61.1	16	7.3	29.0	52.4	79.6	61.3	32.2	3288	26231	38808	37277
	Renk RK622		7.8	59.4	21	7.5	29.0	52.3	79.8	61.5	31.4	3282	25613	39811	38122
26000			8.3	65.0	44	7.8	28.5	52.5	81.3	64.4	28.8	3482	28761	28380	27390
32000			7.8	63.9	34	7.3	30.4	55.2	79.9	63.8	27.7	3351	26397	32538	31152
38000			8.9	62.1	33	7.4	28.4	52.3	81.2	64.1	31.4	3451	30786	39006	37290
44000			9.1	60.9	29	7.6	27.8	51.4	81.7	64.6	32.3	3461	31959	44946	42042
50000			8.5	62.9	31	7.4	31.7	56.6	78.3	61.7	27.4	3239	27790	50622	45936
26000	Pioneer 34M94		9.1	68.1	60	7.8	29.8	54.6	81.0	65.3	25.9	3494	31617	28512	27192
26000	Pioneer 34M95	Bt	8.6	67.9	62	7.9	29.7	55.2	81.4	66.4	24.0	3527	30438	27720	26136
26000	Pioneer 37R71	Bt	7.6	63.0	25	7.8	26.4	48.7	81.9	63.2	33.5	3526	26935	27720	26928
26000	Renk RK622		7.6	61.2	30	7.7	28.3	51.4	80.7	62.8	31.8	3383	24700	29568	29304
32000	Pioneer 34M94		8.0	69.7	57	7.7	31.8	57.5	80.2	65.7	23.5	3436	27428	31680	30096
32000	Pioneer 34M95	Bt	8.4	68.7	52	7.3	31.7	57.6	80.0	65.5	23.8	3426	28705	31416	29568
32000	Pioneer 37R71	Bt	6.7	63.3	15	7.0	31.1	55.5	78.0	60.7	29.0	3200	21679	33528	32208
32000	Renk RK622		8.3	53.8	13	7.2	27.2	50.2	81.5	63.3	34.5	3342	27777	33528	32736
38000	Pioneer 34M94		9.2	61.9	42	7.2	30.2	55.8	80.8	65.7	27.9	3449	31874	39600	36432
38000	Pioneer 34M95	Bt	9.9	63.9	52	7.7	27.0	51.2	83.4	67.9	30.9	3686	36668	38544	36696
38000	Pioneer 37R71	Bt	8.5	59.8	18	7.1	27.8	50.8	80.5	61.9	35.0	3314	28350	39072	38016
38000	Renk RK622		7.8	62.6	22	7.7	28.5	51.3	79.9	60.9	31.8	3353	26252	38808	38016
44000	Pioneer 34M94		9.9	62.4	48	7.9	24.1	46.6	85.5	69.1	35.8	3781	37644	45144	40392
44000	Pioneer 34M95	Bt	9.6	63.3	38	7.5	29.3	54.5	81.7	66.6	28.4	3552	34269	44352	41448
44000	Pioneer 37R71	Bt	8.1	61.5	13	7.2	30.6	54.5	78.4	60.6	30.1	3208	26243	44088	42240
44000	Renk RK622		8.4	56.5	15	7.7	27.3	49.8	81.0	62.1	34.8	3304	28541	46200	44088
50000	Pioneer 34M94		9.5	65.7	52	7.5	31.9	57.0	79.7	64.5	26.3	3396	32298	51480	45144
50000	Pioneer 34M95	Bt	8.8	65.0	40	7.4	32.0	57.8	79.0	63.7	25.5	3338	29446	50424	45144
50000	Pioneer 37R71	Bt	8.7	58.1	8	7.2	29.3	52.5	79.0	60.1	33.5	3190	27947	49632	46992
50000	Renk RK622		7.1	62.8	23	7.5	33.7	58.9	75.6	58.6	24.1	3030	21468	50952	46464
Mean			8.5	63.0	34	7.5	29.4	53.6	80.5	63.7	29.5	3397	29096	39098.4	36762
Probability(%)															
Plant Density (D)			0.9	5.6	0.6	4.2	10.4	12.6	9.1	5.6	12.7	6.1	3.3	0.0	0.0
Hybrid (H)			0.0	0.0	0.0	8.4	89.9	39.4	29.8	0.0	2.1	0.5	0.0	12.1	0.1
D x H			17.4	2.2	59.3	53.5	51.7	49.3	57.8	63.5	32.2	63.9	35.6	76.8	91.0
LSD (0.10)															
Plant Density (D)			0.6	2.4	7	0.3	NS	NS	2.2	1.7	NS	154	2948	1067	1153
Hybrid (H)			0.5	2.1	6	0.2	NS	NS	NS	1.6	3.4	138	2636	NS	1032
D x H			NS	4.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Contrasts-D (%)															
Linear			2.6	2.9	0.1	15.6	30.3	39.3	16.1	5.8	74.0	7.3	34.4	0.0	0.0
Quadratic			23.5	6.9	6.7	11.4	20.6	24.6	17.9	11.7	8.8	26.9	14.3	14.3	53.9
Cubic			1.1	24.2	78.6	1.7	2.5	2.4	3.5	6.8	4.3	2.9	0.8	7.7	4.1
Quartic			23.1	89.6	34.1	76.7	79.8	78.7	98.0	65.2	72.4	75.0	41.3	41.3	29.6
CV(%)			10	5	29	5	13	10	4	4	19	7	15	4	5

Table C-32. Plant Density and Hybrid Influence on Yield Components. Arlington, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	523	35	15	254.9
	Renk RK622		526	34	16	240.9
26000			591	37	16	281.1
32000			571	37	16	265.9
38000			500	33	15	244.3
44000			480	33	15	226.2
50000			482	32	15	221.9
26000	Pioneer 37R71	Bt	586	36	16	289.6
26000	Renk RK622		595	38	16	272.6
32000	Pioneer 37R71	Bt	574	38	15	264.8
32000	Renk RK622		569	36	16	267.0
38000	Pioneer 37R71	Bt	509	34	15	254.0
38000	Renk RK622		490	31	16	234.6
44000	Pioneer 37R71	Bt	482	34	14	237.9
44000	Renk RK622		478	31	15	214.4
50000	Pioneer 37R71	Bt	465	31	15	228.0
50000	Renk RK622		499	33	15	215.9
Mean			525	34	15	247.9
Probability(%)						
Plant Density (D)			0.0	0.0	12.0	0.0
Hybrid (H)			79.5	25.0	8.5	0.1
D x H			72.9	11.2	30.7	24.8
LSD (0.10)						
Plant Density (D)			24	1	NS	7.1
Hybrid (H)			NS	NS	0	6.3
D x H			NS	NS	NS	NS
Contrasts-D (%)						
Linear			0.0	0.0	2.1	0.0
Quadratic			8.4	47.6	25.1	11.3
Cubic			10.8	15.9	78.2	13.1
Quartic			25.2	7.1	44.3	98.8
CV(%)			6	6	5	4

Table C-33. Plant Density and Hybrid Influence on Rind Strength, and % Stalk K. Arlington, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength 7-Aug	Rind Strength 4-Sep	Rind Strength 1-Oct	Stalk K
				load-lbs/section		%
	Pioneer 34M94		8.87	9.85	9.94	
	Pioneer 34M95	Bt	9.17	9.91	9.56	
	Pioneer 37R71	Bt	7.57	7.47	7.48	3.0
	Renk RK622		8.27	8.27	8.21	3.4
26000			8.70	9.70	9.49	3.0
32000			8.84	9.20	9.15	2.9
38000			8.71	8.80	8.55	3.3
44000			8.06	8.46	8.26	3.4
50000			8.03	8.22	8.54	3.3
26000	Pioneer 34M94		8.67	10.29	10.64	
26000	Pioneer 34M95	Bt	9.20	10.29	10.68	
26000	Pioneer 37R71	Bt	8.24	8.64	8.35	3.0
26000	Renk RK622		8.72	9.56	8.30	3.0
32000	Pioneer 34M94		9.45	10.58	10.01	
32000	Pioneer 34M95	Bt	9.59	11.05	9.58	
32000	Pioneer 37R71	Bt	7.69	7.17	7.73	2.7
32000	Renk RK622		8.61	7.99	9.28	3.2
38000	Pioneer 34M94		9.47	9.61	9.72	
38000	Pioneer 34M95	Bt	9.80	9.36	8.71	
38000	Pioneer 37R71	Bt	7.42	7.93	7.81	3.0
38000	Renk RK622		8.15	8.29	7.95	3.6
44000	Pioneer 34M94		8.40	9.80	9.34	
44000	Pioneer 34M95	Bt	8.52	9.65	9.36	
44000	Pioneer 37R71	Bt	7.33	6.94	7.01	3.2
44000	Renk RK622		8.01	7.45	7.33	3.6
50000	Pioneer 34M94		8.35	8.96	10.01	
50000	Pioneer 34M95	Bt	8.76	9.18	9.46	
50000	Pioneer 37R71	Bt	7.16	6.66	6.51	3.0
50000	Renk RK622		7.86	8.07	8.18	3.6
Mean			8.47	8.87	8.80	3.2
Probability(%)						
Plant Density (D)			1.1	0.0	0.0	16.7
Hybrid (H)			0.0	0.0	0.0	0.3
D x H			77.6	14.2	11.8	57.3
LSD (0.10)						
Plant Density (D)			0.48	0.51	0.46	NS
Hybrid (H)			0.43	0.46	0.41	0.2
D x H			NS	NS	NS	NS
Contrasts-D (%)						
Linear			0.2	0.0	0.0	4.3
Quadratic			26.8	47.1	3.7	54.8
Cubic			17.6	100.0	18.1	21.6
Quartic			41.3	96.7	84.5	45.9
CV(%)			8	8	8	11

Table C-34. Plant Density, Hybrid, and Date Influence on Rind Strength. Arlington, WI - 2003.

Target Density	Hybrid	Trait	Day of Year	Rind Strength
				load-lbs/section
			219	8.47
			247	8.87
			274	8.80
	Pioneer 34M94			9.55
	Pioneer 34M95	Bt		9.55
	Pioneer 37R71	Bt		7.50
	Renk RK622			8.25
	Pioneer 34M94		219	8.87
	Pioneer 34M94		247	9.85
	Pioneer 34M94		274	9.94
	Pioneer 34M95	Bt	219	9.17
	Pioneer 34M95	Bt	247	9.91
	Pioneer 34M95	Bt	274	9.56
	Pioneer 37R71	Bt	219	7.57
	Pioneer 37R71	Bt	247	7.47
	Pioneer 37R71	Bt	274	7.48
	Renk RK622		219	8.27
	Renk RK622		247	8.27
	Renk RK622		274	8.21
26000				9.30
32000				9.06
38000				8.68
44000				8.26
50000				8.26
26000			219	8.70
26000			247	9.70
26000			274	9.49
32000			219	8.84
32000			247	9.20
32000			274	9.15
38000			219	8.71
38000			247	8.80
38000			274	8.55

(continued)

Table C-34. Plant Density, Hybrid, and Date Influence on Rind Strength. Arlington, WI - 2003.

(continued)

Target Density	Hybrid	Trait	Day of Year	Rind Strength
				load-lbs/section
44000			219	8.06
44000			247	8.46
44000			274	8.26
50000			219	8.03
50000			247	8.22
50000			274	8.54
26000	Pioneer 34M94			9.87
26000	Pioneer 34M95	Bt		10.06
26000	Pioneer 37R71	Bt		8.41
26000	Renk RK622			8.86
32000	Pioneer 34M94			10.01
32000	Pioneer 34M95	Bt		10.07
32000	Pioneer 37R71	Bt		7.53
32000	Renk RK622			8.63
38000	Pioneer 34M94			9.60
38000	Pioneer 34M95	Bt		9.29
38000	Pioneer 37R71	Bt		7.72
38000	Renk RK622			8.13
44000	Pioneer 34M94			9.18
44000	Pioneer 34M95	Bt		9.17
44000	Pioneer 37R71	Bt		7.09
44000	Renk RK622			7.59
50000	Pioneer 34M94			9.11
50000	Pioneer 34M95	Bt		9.13
50000	Pioneer 37R71	Bt		6.77
50000	Renk RK622			8.03
26000	Pioneer 34M94		219	8.67
26000	Pioneer 34M94		247	10.29
26000	Pioneer 34M94		274	10.64
26000	Pioneer 34M95	Bt	219	9.20
26000	Pioneer 34M95	Bt	247	10.29
26000	Pioneer 34M95	Bt	274	10.68
26000	Pioneer 37R71	Bt	219	8.24
26000	Pioneer 37R71	Bt	247	8.64
26000	Pioneer 37R71	Bt	274	8.35

(continued)

Table C-34. Plant Density, Hybrid, and Date Influence on Rind Strength. Arlington, WI - 2003.

(continued)

Target Density	Hybrid	Trait	Day of Year	Rind Strength
				load-lbs/section
26000	Renk RK622		219	8.72
26000	Renk RK622		247	9.56
26000	Renk RK622		274	8.30
32000	Pioneer 34M94		219	9.45
32000	Pioneer 34M94		247	10.58
32000	Pioneer 34M94		274	10.01
32000	Pioneer 34M95	Bt	219	9.59
32000	Pioneer 34M95	Bt	247	11.05
32000	Pioneer 34M95	Bt	274	9.58
32000	Pioneer 37R71	Bt	219	7.69
32000	Pioneer 37R71	Bt	247	7.17
32000	Pioneer 37R71	Bt	274	7.73
32000	Renk RK622		219	8.61
32000	Renk RK622		247	7.99
32000	Renk RK622		274	9.28
38000	Pioneer 34M94		219	9.47
38000	Pioneer 34M94		247	9.61
38000	Pioneer 34M94		274	9.72
38000	Pioneer 34M95	Bt	219	9.80
38000	Pioneer 34M95	Bt	247	9.36
38000	Pioneer 34M95	Bt	274	8.71
38000	Pioneer 37R71	Bt	219	7.42
38000	Pioneer 37R71	Bt	247	7.93
38000	Pioneer 37R71	Bt	274	7.81
38000	Renk RK622		219	8.15
38000	Renk RK622		247	8.29
38000	Renk RK622		274	7.95
44000	Pioneer 34M94		219	8.40
44000	Pioneer 34M94		247	9.80
44000	Pioneer 34M94		274	9.34
44000	Pioneer 34M95	Bt	219	8.52
44000	Pioneer 34M95	Bt	247	9.65
44000	Pioneer 34M95	Bt	274	9.36
44000	Pioneer 37R71	Bt	219	7.33
44000	Pioneer 37R71	Bt	247	6.94
44000	Pioneer 37R71	Bt	274	7.01

(continued)

Table C-34. Plant Density, Hybrid, and Date Influence on Rind Strength. (continued) Arlington, WI - 2003.

Target Density	Hybrid	Trait	Day of Year	Rind Strength
				load-lbs/section
44000	Renk RK622		219	8.01
44000	Renk RK622		247	7.45
44000	Renk RK622		274	7.33
50000	Pioneer 34M94		219	8.35
50000	Pioneer 34M94		247	8.96
50000	Pioneer 34M94		274	10.01
50000	Pioneer 34M95	Bt	219	8.76
50000	Pioneer 34M95	Bt	247	9.18
50000	Pioneer 34M95	Bt	274	9.46
50000	Pioneer 37R71	Bt	219	7.16
50000	Pioneer 37R71	Bt	247	6.66
50000	Pioneer 37R71	Bt	274	6.51
50000	Renk RK622		219	7.86
50000	Renk RK622		247	8.07
50000	Renk RK622		274	8.18
Mean				8.71
Probability(%)				
Hybrid (H)				0.0
Plant Density (D)				0.0
H x D				34.9
DOY (T)				0.7
T x D				33.9
T x H				1.2
T x H x D				16.0
LSD (0.10)				
Hybrid (H)				0.23
Plant Density (D)				0.26
H x D				NS
DOY (T)				0.22
T x D				NS
T x H				0.44
T x H x D				NS
CV(%)				8

Table C-35. Plant Density and Hybrid Influence on Corn Growth and Development. Arlington, WI - 2003.

Target Density	Hybrid	Trait	Observation Day of Year	Leaf Development: Leaf Collars	Leaf Development: Hail Adjusters Method	Leaf Development: Total Leaves	Plant Height
				#/plant	#/plant	#/plant	inches
			150	1.7	2.9	3.8	2.9
			164	3.9	5.6	6.7	8.8
			176	6.7	9.3	11.0	24.9
			191	10.9	14.0	16.0	64.7
			204	15.6	16.7	18.0	98.3
			219	19.4	19.4	19.4	113.3
	Pioneer 34M94			9.9	11.6	12.7	52.0
	Pioneer 34M95	Bt		9.6	11.2	12.4	51.4
	Pioneer 37R71	Bt		9.5	11.1	12.2	51.7
	Renk RK622			9.6	11.2	12.3	52.4
	Pioneer 34M94		150	1.9	3.0	4.0	3.0
	Pioneer 34M94		164	4.0	5.9	6.9	8.3
	Pioneer 34M94		176	6.7	9.4	10.8	24.1
	Pioneer 34M94		191	10.7	13.9	15.8	63.7
	Pioneer 34M94		204	15.5	16.9	18.3	94.9
	Pioneer 34M94		219	20.4	20.4	20.4	118.1
	Pioneer 34M95	Bt	150	1.7	2.9	3.9	3.1
	Pioneer 34M95	Bt	164	3.9	5.7	6.7	9.1
	Pioneer 34M95	Bt	176	6.8	9.0	10.8	24.7
	Pioneer 34M95	Bt	191	10.8	13.7	15.8	63.4
	Pioneer 34M95	Bt	204	15.5	16.8	18.0	96.1
	Pioneer 34M95	Bt	219	20.3	20.3	20.3	119.4
	Pioneer 37R71	Bt	150	1.4	2.7	3.6	2.8
	Pioneer 37R71	Bt	164	3.9	5.7	6.9	8.8
	Pioneer 37R71	Bt	176	6.5	9.4	11.3	24.9
	Pioneer 37R71	Bt	191	11.1	14.2	16.2	65.3
	Pioneer 37R71	Bt	204	15.9	16.3	17.5	102.0
	Pioneer 37R71	Bt	219	17.9	17.9	17.9	106.7
	Renk RK622		150	1.7	2.9	3.7	2.8
	Renk RK622		164	3.9	5.2	6.3	9.1
	Renk RK622		176	6.8	9.3	11.0	26.1
	Renk RK622		191	10.9	13.9	16.0	66.5
	Renk RK622		204	15.5	16.6	18.0	100.2
	Renk RK622		219	18.9	18.9	18.9	109.5
26000				9.7	11.4	12.5	51.1
32000				9.8	11.5	12.6	52.5
38000				9.4	11.1	12.3	50.9
44000				9.7	11.2	12.4	52.7
50000				9.6	11.2	12.3	52.1

(continued)

Table C-35. Plant Density and Hybrid Influence on Corn Growth and Development.
(continued) **Arlington, WI - 2003.**

Target Density	Hybrid	Trait	Observation Day of Year	Leaf Development: Leaf Collars	Leaf Development: Hail Adjusters Method	Leaf Development: Total Leaves	Plant Height
				#/plant	#/plant	#/plant	inches
26000			150	1.6	2.8	3.8	2.9
26000			164	3.8	5.6	6.6	8.3
26000			176	6.7	9.1	11.0	23.5
26000			191	11.0	14.3	16.2	62.3
26000			204	15.8	17.0	18.1	97.0
26000			219	19.3	19.3	19.3	112.8
32000			150	1.6	3.0	3.8	2.9
32000			164	4.0	5.7	6.8	9.4
32000			176	6.8	9.4	11.1	24.9
32000			191	11.0	14.3	16.2	65.1
32000			204	15.9	16.9	18.0	98.6
32000			219	19.5	19.5	19.5	113.8
38000			150	1.6	2.8	3.8	2.9
38000			164	3.9	5.6	6.7	8.6
38000			176	6.7	9.4	10.9	25.3
38000			191	10.7	13.9	16.0	64.9
38000			204	15.6	16.7	18.0	100.0
38000			219	19.4	19.4	19.4	113.1
44000			150	1.9	3.0	3.9	3.0
44000			164	3.9	5.7	6.8	9.4
44000			176	6.7	9.4	11.0	26.1
44000			191	10.8	13.6	15.8	65.8
44000			204	15.4	16.3	17.8	98.8
44000			219	19.3	19.3	19.3	113.3
50000			150	1.6	2.8	3.7	2.9
50000			164	4.0	5.5	6.6	8.5
50000			176	6.6	9.1	10.8	25.0
50000			191	10.7	13.7	15.6	65.4
50000			204	15.2	16.5	17.9	97.4
50000			219	19.4	19.4	19.4	113.6
26000	Pioneer 34M94			9.9	11.8	12.8	50.9
26000	Pioneer 34M95	Bt		9.9	11.3	12.5	52.3
26000	Pioneer 37R71	Bt		9.6	11.2	12.3	49.3
26000	Renk RK622			9.5	11.2	12.4	51.9
32000	Pioneer 34M94			9.9	11.7	12.8	53.1
32000	Pioneer 34M95	Bt		9.9	11.6	12.6	52.4
32000	Pioneer 37R71	Bt		9.6	11.2	12.3	51.4
32000	Renk RK622			9.8	11.4	12.6	52.9
38000	Pioneer 34M94			10.0	11.8	12.9	52.9
38000	Pioneer 34M95	Bt		8.8	10.5	11.8	46.4
38000	Pioneer 37R71	Bt		9.3	10.9	12.2	51.7
38000	Renk RK622			9.6	11.1	12.3	52.2
44000	Pioneer 34M94			9.8	11.4	12.6	52.2
44000	Pioneer 34M95	Bt		9.8	11.4	12.6	53.1
44000	Pioneer 37R71	Bt		9.4	11.0	12.2	52.9
44000	Renk RK622			9.6	11.0	12.3	52.7
50000	Pioneer 34M94			9.6	11.3	12.5	50.9
50000	Pioneer 34M95	Bt		9.8	11.4	12.6	52.1
50000	Pioneer 37R71	Bt		9.4	10.9	12.1	53.4
50000	Renk RK622			9.5	11.1	12.2	52.1

(continued)

Table C-35. Plant Density and Hybrid Influence on Corn Growth and Development.
(continued) **Arlington, WI - 2003.**

Target Density	Hybrid	Trait	Observation Day of Year	Leaf Development			
				Leaf Collars	Hail Adjusters Method	Total Leaves	Plant Height
				#/plant	#/plant	#/plant	inches
26000	Pioneer 34M94		150	2.0	3.0	4.0	2.8
26000	Pioneer 34M94		164	4.0	6.0	7.0	8.4
26000	Pioneer 34M94		176	6.7	9.7	10.8	23.6
26000	Pioneer 34M94		191	10.8	14.3	16.2	61.2
26000	Pioneer 34M94		204	15.5	17.3	18.3	93.3
26000	Pioneer 34M94		219	20.3	20.3	20.3	116.2
26000	Pioneer 34M95	Bt	150	1.7	2.8	3.8	3.2
26000	Pioneer 34M95	Bt	164	3.8	5.5	6.5	8.1
26000	Pioneer 34M95	Bt	176	6.8	8.3	10.8	23.8
26000	Pioneer 34M95	Bt	191	11.0	14.0	15.7	62.3
26000	Pioneer 34M95	Bt	204	15.8	17.0	18.0	94.8
26000	Pioneer 34M95	Bt	219	20.2	20.2	20.2	121.5
26000	Pioneer 37R71	Bt	150	1.3	2.7	3.8	2.8
26000	Pioneer 37R71	Bt	164	3.8	5.8	6.8	8.4
26000	Pioneer 37R71	Bt	176	6.7	9.3	11.3	22.0
26000	Pioneer 37R71	Bt	191	11.3	14.7	16.3	60.7
26000	Pioneer 37R71	Bt	204	16.3	16.8	17.8	99.0
26000	Pioneer 37R71	Bt	219	17.8	17.8	17.8	103.0
26000	Renk RK622		150	1.5	2.8	3.5	2.6
26000	Renk RK622		164	3.7	5.0	6.0	8.2
26000	Renk RK622		176	6.5	9.2	11.0	24.5
26000	Renk RK622		191	11.0	14.3	16.7	65.0
26000	Renk RK622		204	15.7	16.8	18.3	100.8
26000	Renk RK622		219	18.8	18.8	18.8	110.3
32000	Pioneer 34M94		150	2.0	3.0	4.0	3.0
32000	Pioneer 34M94		164	4.0	5.8	7.0	9.4
32000	Pioneer 34M94		176	6.8	9.5	10.8	24.9
32000	Pioneer 34M94		191	10.8	14.0	15.8	65.5
32000	Pioneer 34M94		204	15.5	17.2	18.3	96.3
32000	Pioneer 34M94		219	20.5	20.5	20.5	119.7
32000	Pioneer 34M95	Bt	150	1.7	3.0	3.8	3.2
32000	Pioneer 34M95	Bt	164	4.0	5.8	6.8	9.4
32000	Pioneer 34M95	Bt	176	6.8	9.2	10.8	23.2
32000	Pioneer 34M95	Bt	191	11.0	14.2	16.0	62.0
32000	Pioneer 34M95	Bt	204	15.7	16.8	18.0	96.3
32000	Pioneer 34M95	Bt	219	20.3	20.3	20.3	120.0
32000	Pioneer 37R71	Bt	150	1.3	3.0	3.7	2.8
32000	Pioneer 37R71	Bt	164	4.0	5.7	6.8	9.3
32000	Pioneer 37R71	Bt	176	6.7	9.7	11.3	25.2
32000	Pioneer 37R71	Bt	191	11.2	14.5	16.5	65.7
32000	Pioneer 37R71	Bt	204	16.5	16.5	17.5	100.5
32000	Pioneer 37R71	Bt	219	18.0	18.0	18.0	105.2
32000	Renk RK622		150	1.5	3.0	3.7	2.7
32000	Renk RK622		164	4.0	5.3	6.5	9.6
32000	Renk RK622		176	7.0	9.3	11.3	26.2
32000	Renk RK622		191	11.2	14.3	16.3	67.3
32000	Renk RK622		204	15.8	17.0	18.2	101.3
32000	Renk RK622		219	19.3	19.3	19.3	110.5

(continued)

Table C-35. Plant Density and Hybrid Influence on Corn Growth and Development.
(continued) **Arlington, WI - 2003.**

Target Density	Hybrid	Trait	Observation Day of Year	Leaf Development: Leaf Collars	Leaf Development: Hail Adjusters Method	Leaf Development: Total Leaves	Plant Height
				#/plant	#/plant	#/plant	inches
38000	Pioneer 34M94		150	1.7	3.0	4.0	3.2
38000	Pioneer 34M94		164	4.0	5.8	6.8	7.7
38000	Pioneer 34M94		176	6.8	9.7	11.0	24.3
38000	Pioneer 34M94		191	10.8	14.2	16.2	65.7
38000	Pioneer 34M94		204	15.8	17.3	18.7	97.3
38000	Pioneer 34M94		219	20.7	20.7	20.7	119.2
38000	Pioneer 34M95	Bt	150	1.7	2.8	4.0	3.0
38000	Pioneer 34M95	Bt	164	3.8	5.7	6.5	9.1
38000	Pioneer 34M95	Bt	176	6.7	9.2	10.7	26.0
38000	Pioneer 34M95	Bt	191	10.7	13.5	15.8	63.5
38000	Pioneer 34M95	Bt	204	15.8	17.0	18.3	100.3
38000	Pioneer 34M95	Bt	219	20.3	20.3	20.3	118.3
38000	Pioneer 37R71	Bt	150	1.3	2.7	3.7	2.5
38000	Pioneer 37R71	Bt	164	3.8	5.7	7.0	8.9
38000	Pioneer 37R71	Bt	176	6.3	9.3	11.2	25.5
38000	Pioneer 37R71	Bt	191	10.8	13.8	16.0	64.5
38000	Pioneer 37R71	Bt	204	15.7	16.3	17.3	101.5
38000	Pioneer 37R71	Bt	219	17.8	17.8	17.8	107.5
38000	Renk RK622		150	1.7	2.7	3.7	2.9
38000	Renk RK622		164	4.0	5.3	6.3	8.7
38000	Renk RK622		176	6.8	9.3	10.8	25.3
38000	Renk RK622		191	10.5	14.0	15.8	66.0
38000	Renk RK622		204	15.3	16.3	17.8	101.0
38000	Renk RK622		219	19.0	19.0	19.0	109.2
44000	Pioneer 34M94		150	2.0	3.2	4.0	3.0
44000	Pioneer 34M94		164	3.8	5.7	6.8	8.3
44000	Pioneer 34M94		176	6.7	9.3	10.7	25.5
44000	Pioneer 34M94		191	10.5	13.7	15.5	63.5
44000	Pioneer 34M94		204	15.5	16.3	18.2	95.7
44000	Pioneer 34M94		219	20.5	20.5	20.5	117.5
44000	Pioneer 34M95	Bt	150	2.0	3.0	4.0	3.0
44000	Pioneer 34M95	Bt	164	4.0	5.8	6.8	9.1
44000	Pioneer 34M95	Bt	176	6.8	9.3	10.8	25.1
44000	Pioneer 34M95	Bt	191	10.7	13.5	15.8	64.8
44000	Pioneer 34M95	Bt	204	15.2	16.5	17.8	96.7
44000	Pioneer 34M95	Bt	219	20.0	20.0	20.0	120.0
44000	Pioneer 37R71	Bt	150	1.7	2.7	3.5	3.0
44000	Pioneer 37R71	Bt	164	3.8	5.8	6.8	9.1
44000	Pioneer 37R71	Bt	176	6.5	9.5	11.3	25.8
44000	Pioneer 37R71	Bt	191	11.0	14.2	16.2	66.8
44000	Pioneer 37R71	Bt	204	15.5	16.0	17.3	104.0
44000	Pioneer 37R71	Bt	219	18.0	18.0	18.0	108.5
44000	Renk RK622		150	2.0	3.0	4.0	3.1
44000	Renk RK622		164	4.0	5.5	6.5	10.9
44000	Renk RK622		176	6.8	9.5	11.2	28.0
44000	Renk RK622		191	11.0	13.2	15.8	68.2
44000	Renk RK622		204	15.3	16.2	17.8	98.8
44000	Renk RK622		219	18.7	18.7	18.7	107.3

(continued)

Table C-35. Plant Density and Hybrid Influence on Corn Growth and Development.
(continued) **Arlington, WI - 2003.**

Target Density	Hybrid	Trait	Observation Day of Year	Leaf Development: Leaf Collars	Leaf Development: Hail Adjusters Method	Leaf Development: Total Leaves	Plant Height
				#/plant	#/plant	#/plant	inches
50000	Pioneer 34M94		150	1.7	2.7	3.8	2.9
50000	Pioneer 34M94		164	4.0	6.0	6.8	7.9
50000	Pioneer 34M94		176	6.5	9.0	10.5	22.2
50000	Pioneer 34M94		191	10.3	13.3	15.3	62.8
50000	Pioneer 34M94		204	15.0	16.5	18.2	91.7
50000	Pioneer 34M94		219	20.2	20.2	20.2	118.0
50000	Pioneer 34M95	Bt	150	1.5	3.0	3.8	3.0
50000	Pioneer 34M95	Bt	164	4.0	5.5	6.7	9.6
50000	Pioneer 34M95	Bt	176	6.7	9.0	10.8	25.3
50000	Pioneer 34M95	Bt	191	10.8	13.5	15.7	64.3
50000	Pioneer 34M95	Bt	204	15.0	16.8	18.0	93.7
50000	Pioneer 34M95	Bt	219	20.5	20.5	20.5	116.7
50000	Pioneer 37R71	Bt	150	1.5	2.5	3.3	2.7
50000	Pioneer 37R71	Bt	164	4.0	5.7	6.8	8.3
50000	Pioneer 37R71	Bt	176	6.5	9.3	11.2	25.9
50000	Pioneer 37R71	Bt	191	11.0	14.0	16.0	68.7
50000	Pioneer 37R71	Bt	204	15.5	15.8	17.3	105.0
50000	Pioneer 37R71	Bt	219	18.0	18.0	18.0	109.5
50000	Renk RK622		150	1.8	3.0	3.8	2.8
50000	Renk RK622		164	3.8	5.0	6.2	8.2
50000	Renk RK622		176	6.7	9.0	10.8	26.4
50000	Renk RK622		191	10.7	13.8	15.5	65.8
50000	Renk RK622		204	15.2	16.8	18.0	99.2
50000	Renk RK622		219	18.8	18.8	18.8	110.2
Mean				9.6	11.3	12.4	51.9
Probability(%)							
Hybrid (H)				0.2	0.0	0.4	52.4
Plant Density (D)				28.9	19.9	63.0	10.0
H x D				98.7	94.4	99.4	43.1
DOY (T)				0.0	0.0	0.0	0.0
T x D				0.1	1.0	10.3	66.7
T x H				0.0	0.0	0.0	0.0
T x H x D				97.5	99.4	89.4	74.5
LSD (0.10)							
Hybrid (H)				0.0	0.0	0.0	NS
Plant Density (D)				NS	NS	NS	1.0
H x D				NS	NS	NS	NS
DOY (T)				0.1	0.1	0.1	0.7
T x D				0.2	0.3	NS	NS
T x H				0.2	0.3	0.2	1.4
T x H x D				NS	NS	NS	NS
CV(%)				3	4	3	5

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2468 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 9 /19/03 **pH** 6.5 **OM (%)** 2.4 **P (ppm)** 26 **K (ppm)** 61

Plot Management

Tillage Operations: Field Cultivator Cultivated 6/17/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	28-0-0	150 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	4 /29/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 1.6 pt/A 5/14/03
Hornet 3.0 oz/A

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 4/29/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 9/24/03 **Harvest Method:** Kincaid Plot Combine

Heavy Drought, Small Kernels

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	NK Brand 3030
32000	NK Brand 3030Bt
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-36, C-37, and C-38.

Table C-36. Plant Density and Hybrid Influence on Corn Grain. Chippewa Falls, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Moisture	Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	NK Brand N3030		115	18.5	54	173	7	7	0	7	0	39336	37250	44537	49896
	NK Brand N3030Bt	Bt	126	17.2	54	181	1	1	0	2	0	39442	39098	45857	49896
	Pioneer 37R71	Bt	126	20.2	50	181	2	2	0	2	0	39600	40313	45566	49896
	Renk RK622		84	15.8	51	123	8	8	0	4	0	39336	38254	47837	49896
26000			116	18.2	53	189	2	2	0	2	0	27819	30294	31614	34056
32000			115	17.8	53	179	3	3	0	3	0	33396	34848	38808	41976
38000			116	18.1	52	170	6	6	0	4	0	39369	37884	46629	49896
44000			106	17.2	52	144	5	5	0	5	0	45474	43065	53262	57816
50000			110	18.4	52	140	7	7	0	7	0	51084	47553	59433	65736
26000	NK Brand N3030		114	17.6	55	190	2	2	0	4	0	27984	28512	30492	34056
26000	NK Brand N3030Bt	Bt	143	19.8	54	229	0	0	0	3	0	28512	31548	31416	34056
26000	Pioneer 37R71	Bt	119	19.6	52	190	2	2	0	2	0	27324	32340	31812	34056
26000	Renk RK622		89	15.5	51	147	3	3	0	1	0	27456	28776	32736	34056
32000	NK Brand N3030		129	19.7	54	205	5	5	0	3	0	33396	37092	38016	41976
32000	NK Brand N3030Bt	Bt	130	16.5	54	203	0	0	0	2	0	33132	33396	38940	41976
32000	Pioneer 37R71	Bt	116	18.5	51	176	1	1	0	2	0	33660	35112	38280	41976
32000	Renk RK622		87	16.6	52	134	5	5	0	3	0	33396	33792	39996	41976
38000	NK Brand N3030		118	19.3	54	176	8	8	0	4	0	39468	37884	45012	49896
38000	NK Brand N3030Bt	Bt	114	16.1	54	162	2	2	0	2	0	38544	36036	47652	49896
38000	Pioneer 37R71	Bt	142	21.4	50	208	1	1	0	3	0	39996	39732	46068	49896
38000	Renk RK622		89	15.7	51	133	12	12	0	4	1	39468	37884	47784	49896
44000	NK Brand N3030		107	17.1	54	153	9	9	0	11	0	44880	39336	51612	57816
44000	NK Brand N3030Bt	Bt	109	15.8	54	141	1	1	0	2	0	46200	45672	53328	57816
44000	Pioneer 37R71	Bt	127	20.3	50	175	1	1	0	2	0	44880	43296	52008	57816
44000	Renk RK622		80	15.5	51	108	10	10	0	4	0	45936	43956	56100	57816
50000	NK Brand N3030		107	18.8	53	140	12	12	0	15	0	50952	43428	57552	65736
50000	NK Brand N3030Bt	Bt	132	17.8	53	172	1	1	0	3	0	50820	48840	57948	65736
50000	Pioneer 37R71	Bt	124	21.2	49	156	4	4	0	3	0	52140	51084	59664	65736
50000	Renk RK622		76	15.7	52	92	11	11	0	7	1	50424	46860	62568	65736
Mean			113	17.9	52	165	5	5	0	4	0	39428	38729	45949	49896
Probability(%)															
Plant Density (D)			58.2	68.9	0.2	0.2	0.1	0.1	-	0.1	99.5	0.0	0.0	0.0	-
Hybrid (H)			0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	5.0	84.1	1.1	0.0	-
D x H			57.3	45.9	2.3	59.8	21.0	21.0	-	0.5	76.0	17.4	2.8	33.4	-
LSD (0.10)															
Plant Density (D)			NS	NS	1	23	2	2	-	2	NS	630	1685	986	-
Hybrid (H)			12	1.3	0	20	2	2	-	2	0	NS	1507	882	-
D x H			NS	NS	1	NS	NS	NS	-	4	NS	NS	3371	NS	-
Contrasts-D (%)													.		
Linear			20.3	94.7	0.0	0.0	0.0	0.0	-	0.0	86.2	0.0	0.0	0.0	-
Quadratic			97.4	44.1	83.3	88.8	70.7	70.7	-	12.9	85.5	84.2	45.1	4.3	-
Cubic			46.4	45.9	88.3	47.2	85.8	85.8	-	94.3	82.8	29.3	71.4	41.0	-
Quartic			42.0	30.2	72.9	50.4	16.6	16.6	-	75.9	75.7	87.1	27.9	46.7	-
CV(%)			17	12	2	20	70	70	-	63	307	2	6	3	-

Table C-37. Plant Density and Hybrid Influence on Yield Components. Chippewa Falls, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	427	28	15	169.8
	Renk RK622		367	24	16	147.1
26000			421	27	15	167.8
32000			431	27	16	163.0
38000			399	26	16	163.2
44000			359	23	15	145.0
50000			374	25	15	153.1
26000	Pioneer 37R71	Bt	433	29	15	183.6
26000	Renk RK622		409	26	16	152.1
32000	Pioneer 37R71	Bt	477	29	16	164.7
32000	Renk RK622		385	25	15	161.3
38000	Pioneer 37R71	Bt	438	29	15	178.0
38000	Renk RK622		360	23	16	148.3
44000	Pioneer 37R71	Bt	408	27	15	158.2
44000	Renk RK622		311	20	16	131.8
50000	Pioneer 37R71	Bt	378	25	15	164.4
50000	Renk RK622		371	25	15	141.8
Mean			397	26	15	158.4
Probability(%)						
Plant Density (D)			3.9	16.8	84.1	11.1
Hybrid (H)			0.1	0.1	28.6	0.1
D x H			25.6	39.1	36.1	52.7
LSD (0.10)						
Plant Density (D)			29	NS	NS	NS
Hybrid (H)			26	2	NS	9.7
D x H			NS	NS	NS	NS
Contrasts-D (%)						
Linear			0.7	3.6	44.7	2.7
Quadratic			95.9	68.2	52.0	74.9
Cubic			9.0	18.8	56.7	29.6
Quartic			84.1	74.1	88.5	20.8
CV(%)			10	12	6	10

Table C-38. Plant Density and Hybrid Influence on Rind Strength. Chippewa Falls, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	NK Brand N3030		8.09
	NK Brand N3030Bt	Bt	6.81
	Pioneer 37R71	Bt	7.64
	Renk RK622		8.65
26000			7.95
38000			7.80
50000			7.65
26000	NK Brand N3030		8.08
26000	NK Brand N3030Bt	Bt	7.31
26000	Pioneer 37R71	Bt	7.71
26000	Renk RK622		8.68
38000	NK Brand N3030		8.08
38000	NK Brand N3030Bt	Bt	6.44
38000	Pioneer 37R71	Bt	7.57
38000	Renk RK622		9.12
50000	NK Brand N3030		8.12
50000	NK Brand N3030Bt	Bt	6.69
50000	Pioneer 37R71	Bt	7.65
50000	Renk RK622		8.15
Mean			7.80
Probability(%)			
Plant Density (D)			73.1
Hybrid (H)			0.3
D x H			85.0
LSD (0.10)			
Plant Density (D)			NS
Hybrid (H)			0.57
D x H			NS
Contrasts-D (%)			
Linear			43.4
Quadratic			99.0
CV(%)			12

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2469 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/22/03 **pH** 6.7 **OM (%)** 2.9 **P (ppm)** 47 **K (ppm)** 57

Plot Management

Tillage Operations: Soil Finisher Cultivated 6/19/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	28-0-0	120 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /3 /03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Basis 0.33 oz/A
Lumax 5.0 pt/A

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/22/03 **Harvest Method:** Kincaid Plot Combine

Run over prior to emergence by fertilizer spreader when ground was wet.

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Dekalb DK5018
32000	Dekalb DK5143
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-39 and C-40.

Table C-39. Plant Density and Hybrid Influence on Corn Grain. Fond du Lac, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Grain Moisture	Grain Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Dekalb DK5018	Bt	193	24.1	54	280	0	0	0	1	0	37118	37092	38518	49896
	Dekalb DK5143		198	23.2	54	307	2	2	0	1	0	38729	39178	41448	49896
	Pioneer 37R71	Bt	181	23.4	53	277	1	1	0	2	0	34320	35350	34716	49896
	Renk RK622		167	20.4	56	273	6	6	0	2	1	35165	34373	35587	49896
26000			180	23.1	54	293	1	1	0	0	0	24981	27390	25212	34056
32000			182	22.8	54	289	3	2	0	1	0	30954	31614	31515	41976
38000			187	22.5	54	290	3	3	0	1	0	36102	35970	37224	49896
44000			186	22.8	54	277	3	3	0	2	0	40953	40392	42867	57816
50000			189	22.7	54	274	3	3	0	3	0	48675	47124	51018	65736
26000	Dekalb DK5018	Bt	176	24.4	54	272	1	1	0	1	0	24816	26268	25212	34056
26000	Dekalb DK5143		193	23.6	54	316	1	1	0	0	0	25740	28512	26796	34056
26000	Pioneer 37R71	Bt	183	23.1	54	300	0	0	0	0	0	25476	30360	25872	34056
26000	Renk RK622		167	21.3	56	285	1	1	0	1	0	23892	24420	22968	34056
32000	Dekalb DK5018	Bt	197	24.1	54	299	0	0	0	1	0	32736	32604	33924	41976
32000	Dekalb DK5143		185	22.6	55	296	3	3	0	1	0	33264	33924	35508	41976
32000	Pioneer 37R71	Bt	178	23.1	54	282	1	1	0	2	0	29304	31152	29436	41976
32000	Renk RK622		166	21.2	55	277	6	6	0	1	1	28512	28776	27192	41976
38000	Dekalb DK5018	Bt	201	23.8	54	295	1	1	0	1	0	37884	37356	39864	49896
38000	Dekalb DK5143		202	22.7	54	317	2	2	0	1	0	38280	38280	39600	49896
38000	Pioneer 37R71	Bt	179	23.4	53	273	0	0	0	1	0	33000	33528	33660	49896
38000	Renk RK622		167	20.1	55	275	8	8	0	1	0	35244	34716	35772	49896
44000	Dekalb DK5018	Bt	187	24.4	53	255	0	0	0	2	0	39072	38808	40392	57816
44000	Dekalb DK5143		208	23.0	54	317	3	3	0	1	0	44748	44484	49764	57816
44000	Pioneer 37R71	Bt	182	23.4	53	271	2	2	0	3	0	40392	39996	40656	57816
44000	Renk RK622		166	20.6	55	263	8	8	0	3	1	39600	38280	40656	57816
50000	Dekalb DK5018	Bt	205	23.9	54	279	1	1	0	2	0	51084	50424	53196	65736
50000	Dekalb DK5143		200	24.0	53	291	2	2	0	2	0	51612	50688	55572	65736
50000	Pioneer 37R71	Bt	182	23.8	53	259	2	2	0	4	0	43428	41712	43956	65736
50000	Renk RK622		168	18.9	56	266	8	8	0	6	0	48576	45672	51348	65736
Mean			185	22.8	54	284	2	2	0	2	0	36333	36498	37567	49896
Probability(%)															
Plant Density (D)			5.2	17.2	21.1	1.9	0.5	0.4	42.0	0.0	34.3	0.0	0.0	0.0	-
Hybrid (H)			0.0	0.0	0.0	0.0	0.0	0.0	40.3	0.2	5.2	0.0	0.0	0.0	-
D x H			2.1	0.3	20.5	7.4	4.8	3.9	46.7	13.1	55.7	5.6	0.2	5.6	-
LSD (0.10)															
Plant Density (D)			6	NS	NS	11	1	1	NS	1	NS	1563	1476	2181	-
Hybrid (H)			5	0.4	0	10	1	1	NS	1	0	1398	1320	1951	-
D x H			11	0.8	NS	23	3	2	NS	NS	NS	3126	2952	4362	-
Contrasts-D (%)															
Linear			0.5	13.6	5.1	0.2	0.1	0.1	48.4	0.0	67.5	0.0	0.0	0.0	-
Quadratic			60.7	14.5	63.8	50.2	4.9	5.1	55.4	34.2	28.1	20.0	3.4	29.6	-
Cubic			86.0	28.1	23.3	76.1	53.3	61.3	16.5	30.4	17.2	8.3	27.3	29.0	-
Quartic			26.6	31.6	52.8	25.1	47.1	52.4	29.2	42.6	25.6	63.3	65.8	79.1	-
CV(%)			4	3	1	6	75	74	775	67	242	6	6	8	-

Table C-40. Plant Density and Hybrid Influence on Rind Strength. Fond du Lac, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	Dekalb DK5018	Bt	8.35
	Dekalb DK5143		8.13
	Pioneer 37R71	Bt	8.23
	Renk RK622		9.13
26000			8.71
32000			8.38
38000			8.59
44000			8.23
50000			8.39
26000	Dekalb DK5018	Bt	8.32
26000	Dekalb DK5143		8.03
26000	Pioneer 37R71	Bt	9.02
26000	Renk RK622		9.49
32000	Dekalb DK5018	Bt	7.31
32000	Dekalb DK5143		8.36
32000	Pioneer 37R71	Bt	8.73
32000	Renk RK622		9.12
38000	Dekalb DK5018	Bt	9.45
38000	Dekalb DK5143		8.14
38000	Pioneer 37R71	Bt	7.83
38000	Renk RK622		8.94
44000	Dekalb DK5018	Bt	8.27
44000	Dekalb DK5143		8.08
44000	Pioneer 37R71	Bt	7.62
44000	Renk RK622		8.96
50000	Dekalb DK5018	Bt	8.42
50000	Dekalb DK5143		8.04
50000	Pioneer 37R71	Bt	7.94
50000	Renk RK622		9.16
Mean			8.46
Probability(%)			
Plant Density (D)			50.5
Hybrid (H)			0.2
D x H			10.6
LSD (0.10)			
Plant Density (D)			NS
Hybrid (H)			0.44
D x H			NS
Contrasts-D (%)			
Linear			23.2
Quadratic			29.2
Cubic			97.1
Quartic			21.2
CV(%)			8

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2467 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/20/03 **pH** 6.5 **OM (%)** 3.1 **P (ppm)** 47 **K (ppm)** 85

Plot Management

Tillage Operations: Fall Zone Field Cultivator Cultivated 6/17/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	160 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	4 /28/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Dual II 2.25 pt/A
Hornet 3.0 oz/A
Clarity 4.0 oz/A

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/20/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Dekalb DK5018
32000	Dekalb DK5143
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-41, C-42, and C-43.

Table C-41. Plant Density and Hybrid Influence on Corn Grain. Galesville, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Moisture	Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Dekalb DK5018	Bt	212	19.8	57	334	10	10	0	0	0	38993	38993	47969	49896
	Dekalb DK5143		207	19.8	58	339	17	17	0	1	0	39019	38676	47150	49896
	Pioneer 37R71	Bt	194	19.0	56	318	15	15	0	1	0	39125	38623	45751	49896
	Renk RK622		173	18.2	58	292	38	38	0	1	0	38570	38069	46332	49896
26000			192	19.0	57	331	3	3	0	0	0	27027	27027	32010	34056
32000			198	19.0	57	333	10	10	0	0	0	33198	33165	39501	41976
38000			201	19.3	57	329	16	16	0	1	0	38940	38610	47388	49896
44000			198	19.3	57	313	34	34	0	1	0	44913	44319	53427	57816
50000			194	19.4	57	296	36	36	0	1	0	50556	49830	61677	65736
26000	Dekalb DK5018	Bt	200	18.8	58	336	2	2	0	0	0	26796	26928	32472	34056
26000	Dekalb DK5143		201	19.7	58	346	3	3	0	0	0	26928	26928	32340	34056
26000	Pioneer 37R71	Bt	181	18.8	56	311	1	1	0	0	0	26928	26796	30888	34056
26000	Renk RK622		186	18.5	58	332	7	7	0	1	0	27456	27456	32340	34056
32000	Dekalb DK5018	Bt	217	19.8	57	354	0	0	0	0	0	33000	33264	40656	41976
32000	Dekalb DK5143		206	19.2	58	349	13	13	0	0	0	33132	33132	39864	41976
32000	Pioneer 37R71	Bt	186	18.9	57	311	3	3	0	1	0	33528	33264	39336	41976
32000	Renk RK622		182	17.9	58	319	24	24	0	1	0	33132	33000	38148	41976
38000	Dekalb DK5018	Bt	223	20.4	57	351	0	0	0	0	0	39072	39072	48180	49896
38000	Dekalb DK5143		201	19.6	58	328	24	24	0	1	0	38940	38412	47256	49896
38000	Pioneer 37R71	Bt	207	18.9	56	343	11	11	0	0	0	39072	39072	45672	49896
38000	Renk RK622		174	18.2	58	294	27	27	0	3	0	38676	37884	48444	49896
44000	Dekalb DK5018	Bt	213	20.2	57	321	21	21	0	0	0	45012	45012	55044	57816
44000	Dekalb DK5143		216	19.7	58	346	26	26	0	1	0	45276	44880	53856	57816
44000	Pioneer 37R71	Bt	193	19.4	56	306	32	32	0	3	0	44880	43560	52008	57816
44000	Renk RK622		170	18.2	58	279	58	58	0	1	1	44484	43824	52800	57816
50000	Dekalb DK5018	Bt	210	19.8	57	305	25	25	0	1	0	51084	50688	63492	65736
50000	Dekalb DK5143		213	20.6	57	328	20	20	0	2	0	50820	50028	62436	65736
50000	Pioneer 37R71	Bt	203	19.0	56	317	27	27	0	2	0	51216	50424	60852	65736
50000	Renk RK622		151	18.1	58	235	71	71	0	2	0	49104	48180	59928	65736
Mean			197	19.2	57	321	20	20	0	1	0	38927	38590	46801	49896
Probability(%)															
Plant Density (D)			53.9	53.3	16.2	0.4	0.1	0.1	-	6.3	65.2	0.0	0.0	0.0	-
Hybrid (H)			0.0	0.0	0.0	0.0	0.3	0.3	-	0.5	38.2	17.3	4.6	0.1	-
D x H			4.9	61.9	17.2	7.9	76.4	76.4	-	2.2	51.7	21.3	16.6	42.9	-
LSD (0.10)															
Plant Density (D)			NS	NS	NS	17	14	14	-	1	NS	492	599	980	-
Hybrid (H)			8	0.5	0	16	12	12	-	1	NS	NS	536	877	-
D x H			19	NS	NS	35	NS	NS	-	1	NS	NS	NS	NS	-
Contrasts-D (%)															
Linear			69.1	10.8	1.7	0.0	0.0	0.0	-	0.4	76.3	0.0	0.0	0.0	-
Quadratic			9.7	82.9	53.5	8.7	91.7	91.7	-	86.4	74.6	29.2	29.9	83.1	-
Cubic			85.8	62.5	93.2	81.4	37.7	37.7	-	81.8	19.1	88.0	53.7	17.1	-
Quartic			78.8	66.2	57.5	81.3	35.6	35.6	-	51.6	48.1	48.4	50.4	7.5	-
CV(%)			7	4	1	8	102	102	-	109	506	2	2	3	-

Table C-42. Plant Density and Hybrid Influence on Yield Components. Galesville, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	504	35	15	272.4
	Renk RK622		511	34	15	274.8
26000			576	39	15	297.6
32000			520	36	14	271.5
38000			519	33	16	277.0
44000			492	34	15	259.4
50000			429	30	14	262.7
26000	Pioneer 37R71	Bt	572	40	14	296.8
26000	Renk RK622		579	38	15	298.3
32000	Pioneer 37R71	Bt	510	35	14	269.2
32000	Renk RK622		531	37	14	273.8
38000	Pioneer 37R71	Bt	522	34	16	279.5
38000	Renk RK622		515	33	16	274.4
44000	Pioneer 37R71	Bt	466	33	14	253.7
44000	Renk RK622		519	35	15	265.1
50000	Pioneer 37R71	Bt	450	32	14	263.0
50000	Renk RK622		408	29	14	262.5
Mean			507	34	15	273.6
Probability(%)						
Plant Density (D)			0.0	0.0	15.9	0.0
Hybrid (H)			48.8	49.4	27.9	61.3
D x H			6.5	20.4	80.2	83.5
LSD (0.10)						
Plant Density (D)			19	2	NS	8.9
Hybrid (H)			NS	NS	NS	NS
D x H			37	NS	NS	NS
Contrasts-D (%)						
Linear			0.0	0.0	52.4	0.0
Quadratic			31.8	57.7	19.8	7.9
Cubic			1.5	18.3	44.0	51.9
Quartic			47.9	15.2	4.4	3.3
CV(%)			5	6	6	5

Table C-43. Plant Density and Hybrid Influence on Rind Strength. Galesville, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	Dekalb DK5018	Bt	8.17
	Dekalb DK5143		8.45
	Pioneer 37R71	Bt	7.26
	Renk RK622		7.91
26000			8.07
32000			7.43
38000			8.33
44000			8.11
50000			7.80
26000	Dekalb DK5018	Bt	8.61
26000	Dekalb DK5143		8.49
26000	Pioneer 37R71	Bt	7.10
26000	Renk RK622		8.08
32000	Dekalb DK5018	Bt	7.99
32000	Dekalb DK5143		7.57
32000	Pioneer 37R71	Bt	6.90
32000	Renk RK622		7.25
38000	Dekalb DK5018	Bt	8.33
38000	Dekalb DK5143		9.04
38000	Pioneer 37R71	Bt	7.51
38000	Renk RK622		8.42
44000	Dekalb DK5018	Bt	8.20
44000	Dekalb DK5143		9.24
44000	Pioneer 37R71	Bt	7.17
44000	Renk RK622		7.83
50000	Dekalb DK5018	Bt	7.72
50000	Dekalb DK5143		7.92
50000	Pioneer 37R71	Bt	7.60
50000	Renk RK622		7.96
Mean			7.95
Probability(%)			
Plant Density (D)			14.7
Hybrid (H)			0.5
D x H			88.9
LSD (0.10)			
Plant Density (D)			NS
Hybrid (H)			0.55
D x H			NS
Contrasts-D (%)			
Linear			86.9
Quadratic			63.8
Cubic			5.1
Quartic			9.4
CV(%)			11

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2466 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

Field: V18 & V19 **Previous Crop:** Soybean **Soil Type:** Plainfield Sand

Soil Test: **Date:** 10/15/03 **pH** 6.2 **OM (%)** 0.8 **P (ppm)** 112 **K (ppm)** 30

Plot Management

Tillage Operations: Plow & Disk

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	0-0-60	100 lbs/A	4 /3 /03
	Starter :	6-24-24	9 lbs/A	4 /24/03
	Post plant :	34-0-0	102 lbs/A (2x)	6/16/03 & 6/20/03
	Manure:	N/A	N/A	N/A

Herbicide: Aatrex 4L 0.75 lbs/A
5/1/03
Lasso 2.0 qt/A

Callisto 3.0 oz/A
6/12/03

Insecticide:

Hybrid:

Irrigation: 19.6 Inches

Planting Date: 4/24/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/15/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Dekalb DK5018
32000	Dekalb DK5143
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-44, C-45, and C-46.

Table C-44. Plant Density and Hybrid Influence on Corn Grain. Hancock, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Moisture	Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Dekalb DK5018	Bt	266	21.5	55	427	0	0	0	1	0	39204	39283	48629	49896
	Dekalb DK5143		271	21.2	55	454	2	2	0	1	0	39574	39468	48259	49896
	Pioneer 37R71	Bt	256	21.9	54	424	3	3	0	1	0	39838	40709	46886	49896
	Renk RK622		231	19.9	56	397	16	16	0	2	1	39864	39389	48154	49896
26000			243	21.7	55	417	2	2	0	0	0	28578	30393	32901	34056
32000			256	21.7	55	433	4	4	0	1	0	33858	34122	40524	41976
38000			256	20.8	56	428	7	7	0	1	0	39831	39666	47949	49896
44000			263	21.4	56	427	6	6	0	1	0	44946	44385	55308	57816
50000			261	20.1	56	422	7	7	0	2	0	50886	49995	63228	65736
26000	Dekalb DK5018	Bt	261	22.1	55	439	0	0	0	0	0	28512	29304	32868	34056
26000	Dekalb DK5143		255	22.4	54	436	2	2	0	0	0	27192	28908	33132	34056
26000	Pioneer 37R71	Bt	232	21.6	54	399	0	0	0	0	0	29304	32604	32340	34056
26000	Renk RK622		224	20.8	55	395	6	6	0	0	0	29304	30756	33264	34056
32000	Dekalb DK5018	Bt	256	21.8	55	420	0	0	0	0	0	33132	33264	40392	41976
32000	Dekalb DK5143		270	21.2	56	461	1	1	0	0	0	33528	33792	41052	41976
32000	Pioneer 37R71	Bt	257	22.5	54	432	2	2	0	1	0	34056	35244	39600	41976
32000	Renk RK622		242	21.1	56	421	13	13	0	2	1	34716	34188	41052	41976
38000	Dekalb DK5018	Bt	269	21.2	55	434	0	0	0	0	0	39204	39468	48840	49896
38000	Dekalb DK5143		269	20.3	56	456	1	1	0	1	0	40260	38808	47916	49896
38000	Pioneer 37R71	Bt	258	21.6	55	429	2	2	0	0	0	39732	40524	46596	49896
38000	Renk RK622		229	20.2	57	393	24	24	0	1	0	40128	39864	48444	49896
44000	Dekalb DK5018	Bt	274	21.6	56	430	0	0	0	1	0	44220	43956	56760	57816
44000	Dekalb DK5143		276	21.5	55	453	4	4	0	1	0	45012	44352	55572	57816
44000	Pioneer 37R71	Bt	270	22.9	54	435	3	3	0	1	0	45276	44748	53592	57816
44000	Renk RK622		230	19.4	57	392	18	18	0	2	0	45276	44484	55308	57816
50000	Dekalb DK5018	Bt	269	20.9	56	413	0	0	0	1	0	50952	50424	64284	65736
50000	Dekalb DK5143		284	20.7	56	463	2	2	0	1	0	51876	51480	63624	65736
50000	Pioneer 37R71	Bt	265	20.8	55	428	8	8	1	2	0	50820	50424	62304	65736
50000	Renk RK622		227	17.9	57	384	17	17	0	3	1	49896	47652	62700	65736
Mean			256	21.1	55	426	5	5	0	1	0	39620	39712	47982	49896
Probability(%)															
Plant Density (D)			0.0	0.0	0.0	21.1	3.3	3.1	53.2	1.0	36.0	0.0	0.0	0.0	-
Hybrid (H)			0.0	0.0	0.0	0.0	0.0	0.0	54.7	4.3	4.6	27.3	1.3	0.2	-
D x H			3.4	15.0	1.9	12.5	2.9	2.7	36.1	52.8	75.6	15.9	4.0	80.5	-
LSD (0.10)															
Plant Density (D)			6	0.6	0	NS	3	3	NS	1	NS	704	879	836	-
Hybrid (H)			6	0.6	0	11	3	3	NS	1	0	NS	786	748	-
D x H			13	NS	1	NS	6	6	NS	NS	NS	NS	1757	NS	-
Contrasts-D (%)															
Linear			0.0	0.0	0.0	82.7	0.4	0.4	46.3	0.1	48.1	0.0	0.0	0.0	-
Quadratic			2.7	28.9	29.7	4.8	21.7	19.7	53.5	59.9	92.1	67.8	4.0	69.0	-
Cubic			50.3	22.5	29.1	29.6	90.9	97.4	15.7	42.5	7.0	88.8	43.3	49.8	-
Quartic			13.3	2.2	27.1	38.0	40.5	38.5	67.2	56.5	48.4	19.8	16.6	86.7	-
CV(%)			4	4	1	4	78	77	540	110	324	3	3	3	-

Table C-45. Plant Density and Hybrid Influence on Yield Components. Hancock, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	533	36	15	282.2
	Renk RK622		544	36	15	281.0
26000			576	38	15	309.7
32000			561	37	15	302.8
38000			549	36	15	279.9
44000			500	34	15	263.7
50000			507	34	15	251.9
26000	Pioneer 37R71	Bt	559	37	15	308.5
26000	Renk RK622		593	38	16	310.8
32000	Pioneer 37R71	Bt	533	36	15	302.4
32000	Renk RK622		588	38	15	303.3
38000	Pioneer 37R71	Bt	568	36	16	281.5
38000	Renk RK622		531	35	15	278.3
44000	Pioneer 37R71	Bt	502	35	15	270.5
44000	Renk RK622		498	34	15	256.9
50000	Pioneer 37R71	Bt	504	35	15	248.2
50000	Renk RK622		510	33	15	255.6
Mean			539	36	15	281.6
Probability(%)						
Plant Density (D)			1.2	0.3	67.6	0.0
Hybrid (H)			44.1	80.8	33.6	63.7
D x H			33.6	44.9	67.0	17.5
LSD (0.10)						
Plant Density (D)			28	1	NS	5.1
Hybrid (H)			NS	NS	NS	NS
D x H			NS	NS	NS	NS
Contrasts-D (%)						
Linear			0.1	0.0	44.2	0.0
Quadratic			91.1	88.4	94.2	77.5
Cubic			30.9	23.7	79.6	4.1
Quartic			31.9	74.5	21.4	31.9
CV(%)			7	5	7	3

Table C-46. Plant Density and Hybrid Influence on Rind Strength. Hancock, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	Dekalb DK5018	Bt	7.60
	Dekalb DK5143		7.42
	Pioneer 37R71	Bt	6.58
	Renk RK622		7.41
26000			7.34
38000			7.42
50000			6.99
26000	Dekalb DK5018	Bt	7.40
26000	Dekalb DK5143		7.25
26000	Pioneer 37R71	Bt	7.36
26000	Renk RK622		7.37
38000	Dekalb DK5018	Bt	8.14
38000	Dekalb DK5143		7.43
38000	Pioneer 37R71	Bt	6.58
38000	Renk RK622		7.55
50000	Dekalb DK5018	Bt	7.27
50000	Dekalb DK5143		7.58
50000	Pioneer 37R71	Bt	5.80
50000	Renk RK622		7.31
Mean			7.25
Probability(%)			
Plant Density (D)			18.9
Hybrid (H)			0.7
D x H			13.4
LSD (0.10)			
Plant Density (D)			NS
Hybrid (H)			0.37
D x H			NS
Contrasts-D (%)			
Linear			16.0
Quadratic			23.6
CV(%)			8

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2472 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

Field: R5-E **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/9 /03 **pH** 6.6 **OM (%)** 3.9 **P (ppm)** 98 **K (ppm)** 229

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 6/18/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	28-0-0	100 lbs/A	4 /24/03
	Starter :	6-24-24	9 lbs/A	4 /25/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Dual II Magnum 1.8 pt/A
Hornet 4.5 oz/A
Callisto 0.25 lbs/A
Steadfast 0.75 lbs/A
Atrazine

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 4/25/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/21/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Pioneer 34M94
32000	Pioneer 34M95
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-47 and C-48.

Table C-47. Plant Density and Hybrid Influence on Corn Grain. Janesville, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Grain Moisture	Grain Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Pioneer 34M94		208	19.1	59	351	4	1	3	2	0	39468	38465	46649	49896
	Pioneer 34M95	Bt	210	19.9	58	339	3	2	1	3	0	39468	38201	43375	49896
	Pioneer 37R71	Bt	190	16.0	59	321	1	1	0	1	0	39758	39574	46147	49896
	Renk RK622		193	16.0	60	339	2	2	0	1	0	39679	39389	48048	49896
26000			182	17.9	59	317	0	0	0	1	0	27159	27357	31152	34056
32000			204	17.9	59	354	1	1	1	0	0	33297	33231	39105	41976
38000			210	17.9	59	355	1	1	1	1	0	39963	39600	46299	49896
44000			206	17.7	59	341	3	2	2	3	0	45639	44484	53658	57816
50000			199	17.2	59	320	5	3	2	4	0	51909	49863	60060	65736
26000	Pioneer 34M94		169	18.1	59	295	0	0	0	0	0	27192	27060	31020	34056
26000	Pioneer 34M95	Bt	216	21.3	57	365	0	0	0	1	0	27192	26928	30756	34056
26000	Pioneer 37R71	Bt	167	15.7	59	295	0	0	0	0	0	27192	27588	31020	34056
26000	Renk RK622		174	16.6	60	314	0	0	0	0	0	27060	27852	31812	34056
32000	Pioneer 34M94		221	19.8	58	381	3	1	2	0	0	33132	33000	39204	41976
32000	Pioneer 34M95	Bt	205	19.3	58	343	2	0	1	2	0	33264	32868	36828	41976
32000	Pioneer 37R71	Bt	186	15.9	59	324	0	0	0	0	0	33264	33264	39864	41976
32000	Renk RK622		204	16.5	61	367	1	1	0	0	0	33528	33792	40524	41976
38000	Pioneer 34M94		225	19.8	59	380	0	0	0	1	0	39600	39204	47520	49896
38000	Pioneer 34M95	Bt	227	20.3	58	371	3	1	2	2	0	39864	39204	43164	49896
38000	Pioneer 37R71	Bt	206	16.1	59	354	1	0	1	1	0	41052	40920	46068	49896
38000	Renk RK622		180	15.5	60	315	1	1	0	0	0	39336	39072	48444	49896
44000	Pioneer 34M94		221	19.4	59	366	6	1	5	3	0	45804	44220	54516	57816
44000	Pioneer 34M95	Bt	201	19.6	58	311	3	1	2	6	0	45144	42768	50424	57816
44000	Pioneer 37R71	Bt	201	16.3	59	333	1	1	1	1	0	45408	45012	53592	57816
44000	Renk RK622		203	15.6	60	353	4	3	1	1	0	46200	45936	56100	57816
50000	Pioneer 34M94		205	18.4	59	331	9	1	8	5	0	51612	48840	60984	65736
50000	Pioneer 34M95	Bt	202	18.9	59	306	7	7	0	5	0	51876	49236	55704	65736
50000	Pioneer 37R71	Bt	187	15.9	59	297	2	2	0	2	0	51876	51084	60192	65736
50000	Renk RK622		203	15.6	60	347	4	4	0	3	1	52272	50292	63360	65736
Mean			200	17.7	59	337	2	1	1	2	0	39593	38907	46055	49896
Probability(%)															
Plant Density (D)			0.4	28.1	71.9	1.3	0.1	2.0	0.6	0.0	39.9	0.0	0.0	0.0	-
Hybrid (H)			0.4	0.0	0.0	10.9	9.3	37.8	0.0	0.0	10.0	79.3	0.3	0.0	-
D x H			5.8	8.5	17.7	4.8	64.3	67.7	0.0	3.2	49.9	81.7	44.0	18.1	-
LSD (0.10)															
Plant Density (D)			12	NS	NS	22	2	2	1	1	NS	673	762	1091	-
Hybrid (H)			11	0.6	0	NS	2	NS	1	1	0	NS	682	976	-
D x H			25	1.3	NS	45	NS	NS	2	1	NS	NS	NS	NS	-
Contrasts-D (%)															
Linear			2.9	6.4	42.3	82.2	0.0	0.2	0.0	0.0	11.4	0.0	0.0	0.0	-
Quadratic			0.1	25.8	70.9	0.1	30.1	23.0	96.4	0.1	97.2	49.6	4.5	9.4	-
Cubic			41.7	59.4	32.1	34.3	68.1	50.5	76.6	20.2	32.0	94.2	100.0	89.2	-
Quartic			93.4	88.6	59.6	89.9	47.8	85.8	27.2	30.7	47.1	19.7	14.7	59.6	-
CV(%)			9	5	1	10	127	202	137	58	280	2	3	3	-

Table C-48. Plant Density and Hybrid Influence on Rind Strength. Janesville, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	Pioneer 34M94		8.22
	Pioneer 34M95	Bt	8.50
	Pioneer 37R71	Bt	7.36
	Renk RK622		8.46
26000			8.05
38000			8.56
50000			7.80
26000	Pioneer 34M94		7.55
26000	Pioneer 34M95	Bt	8.45
26000	Pioneer 37R71	Bt	7.34
26000	Renk RK622		8.85
38000	Pioneer 34M94		8.93
38000	Pioneer 34M95	Bt	8.92
38000	Pioneer 37R71	Bt	7.80
38000	Renk RK622		8.59
50000	Pioneer 34M94		8.18
50000	Pioneer 34M95	Bt	8.15
50000	Pioneer 37R71	Bt	6.93
50000	Renk RK622		7.95
Mean			8.14
Probability(%)			
Plant Density (D)			2.2
Hybrid (H)			0.3
D x H			39.3
LSD (0.10)			
Plant Density (D)			0.44
Hybrid (H)			0.39
D x H			NS
Contrasts-D (%)			
Linear			34.7
Quadratic			0.9
CV(%)			8

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2470 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/3 /03 **pH** 6.9 **OM (%)** 2.3 **P (ppm)** 53 **K (ppm)** 80

Plot Management

Tillage Operations: Soil Finisher Cultivated 6/27/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	140 lbs/A	4 /27/03
	Starter :	6-24-24	9 lbs/A	4 /28/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Aatrex 4L 1.0 qt/A
Harness 1.0 qt/A
Northstar 4.0 oz/A
Accent 0.33 oz/A

Insecticide:

Hybrid:

Irrigation: None

Planting Date: 4/28/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/7/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	Pioneer 34M94
32000	Pioneer 34M95
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-49, C-50, and C-51.

Table C-49. Plant Density and Hybrid Influence on Corn Grain. Lancaster, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Moisture	Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	Pioneer 34M94		158	20.8	56	247	15	15	0	2	0	37673	36881	43454	49896
	Pioneer 34M95	Bt	156	21.6	55	229	24	24	0	2	0	37910	37198	41369	49896
	Pioneer 37R71	Bt	167	17.8	56	270	13	13	0	3	0	38359	37831	44378	49896
	Renk RK622		154	16.1	57	262	11	11	0	3	0	37884	36749	43798	49896
26000			167	20.9	56	279	4	4	0	4	0	27588	27357	29502	34056
32000			164	19.1	56	272	10	10	0	2	0	32142	31713	36366	41976
38000			163	19.3	56	260	18	18	0	2	0	38511	37752	43395	49896
44000			157	18.3	56	242	16	16	0	2	0	43395	42603	50688	57816
50000			143	17.8	55	208	30	30	0	3	0	48147	46398	56298	65736
26000	Pioneer 34M94		177	23.5	56	291	4	4	0	2	0	26532	26268	29832	34056
26000	Pioneer 34M95	Bt	176	24.2	55	279	3	3	0	2	0	27852	27720	27852	34056
26000	Pioneer 37R71	Bt	162	18.9	57	274	0	0	0	8	0	27852	27852	31416	34056
26000	Renk RK622		154	17.0	57	273	8	8	0	5	0	28116	27588	28908	34056
32000	Pioneer 34M94		158	20.6	56	258	10	10	0	1	0	32472	32076	36168	41976
32000	Pioneer 34M95	Bt	166	21.7	55	258	17	17	0	2	0	32340	31812	33660	41976
32000	Pioneer 37R71	Bt	172	18.2	56	288	6	6	0	3	0	31152	30624	37620	41976
32000	Renk RK622		161	16.1	57	283	6	6	0	2	0	32604	32340	38016	41976
38000	Pioneer 34M94		157	20.8	56	245	24	24	0	1	0	38412	38280	45276	49896
38000	Pioneer 34M95	Bt	156	21.8	55	229	19	19	0	0	0	38412	38412	41448	49896
38000	Pioneer 37R71	Bt	171	17.8	55	277	21	21	0	1	0	38280	37356	43824	49896
38000	Renk RK622		169	16.5	58	289	7	7	0	5	1	38940	36960	43032	49896
44000	Pioneer 34M94		151	19.2	55	231	13	13	0	2	1	44352	43032	51216	57816
44000	Pioneer 34M95	Bt	150	20.8	55	210	30	30	0	2	0	42504	41712	48708	57816
44000	Pioneer 37R71	Bt	174	17.8	56	273	10	10	0	2	0	44748	44352	50292	57816
44000	Renk RK622		153	15.6	56	254	11	11	0	1	1	41976	41316	52536	57816
50000	Pioneer 34M94		147	19.8	56	213	22	22	0	2	0	46596	44748	54780	65736
50000	Pioneer 34M95	Bt	132	19.4	55	171	51	51	0	4	0	48444	46332	55176	65736
50000	Pioneer 37R71	Bt	157	16.4	55	237	28	28	0	1	0	49764	48972	58740	65736
50000	Renk RK622		135	15.5	55	211	20	20	0	4	1	47784	45540	56496	65736
Mean			159	19.1	56	252	16	16	0	2	0	37957	37165	43250	49896
Probability(%)															
Plant Density (D)			0.2	0.0	3.2	0.0	0.0	0.0	42.0	6.0	2.7	0.0	0.0	0.0	-
Hybrid (H)			7.7	0.0	0.0	0.1	3.0	3.0	40.3	14.8	0.2	67.3	30.5	0.0	-
D x H			34.7	50.6	9.0	34.7	48.5	48.2	46.7	7.3	6.4	25.3	15.5	20.1	-
LSD (0.10)															
Plant Density (D)			10	0.8	1	18	9	9	NS	2	0	1070	1150	1217	-
Hybrid (H)			9	0.8	0	16	8	8	NS	NS	0	NS	NS	1088	-
D x H			NS	NS	1	NS	NS	NS	NS	3	0	NS	NS	NS	-
Contrasts-D (%)															
Linear			0.0	0.0	0.2	0.0	0.0	0.0	48.4	19.0	0.2	0.0	0.0	0.0	-
Quadratic			8.5	32.3	58.7	3.8	66.0	65.6	55.4	0.8	96.2	52.1	20.8	24.7	-
Cubic			51.3	18.4	73.4	61.9	24.2	23.8	16.5	53.4	22.3	17.8	8.1	25.9	-
Quartic			91.9	15.3	52.7	91.4	23.8	23.4	29.2	92.7	87.0	22.3	46.2	63.5	-
CV(%)			9	6	1	10	81	81	775	92	200	4	4	4	-

Table C-50. Plant Density and Hybrid Influence on Yield Components. Lancaster, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	415	27	15	235.7
	Renk RK622		389	26	15	233.3
26000			470	30	16	273.3
32000			431	29	15	241.5
38000			411	27	15	230.6
44000			357	24	15	219.8
50000			345	23	15	207.4
26000	Pioneer 37R71	Bt	491	30	16	273.4
26000	Renk RK622		448	29	15	273.3
32000	Pioneer 37R71	Bt	442	29	15	244.0
32000	Renk RK622		420	28	15	239.0
38000	Pioneer 37R71	Bt	416	27	16	233.3
38000	Renk RK622		404	27	15	228.0
44000	Pioneer 37R71	Bt	379	25	15	224.5
44000	Renk RK622		335	24	14	215.0
50000	Pioneer 37R71	Bt	348	23	15	203.3
50000	Renk RK622		342	23	14	211.4
Mean			403	26	15	234.5
Probability(%)						
Plant Density (D)			0.2	0.1	28.0	0.0
Hybrid (H)			15.8	40.9	11.2	54.6
D x H			94.8	93.3	91.2	65.5
LSD (0.10)						
Plant Density (D)			34	2	NS	7.5
Hybrid (H)			NS	NS	NS	NS
D x H			NS	NS	NS	NS
Contrasts-D (%)						
Linear			0.0	0.0	5.6	0.0
Quadratic			74.8	98.2	64.9	2.7
Cubic			70.8	53.7	92.7	11.7
Quartic			55.0	87.2	32.6	59.7
CV(%)			12	9	6	4

Table C-51. Plant Density and Hybrid Influence on Rind Strength. Lancaster, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	Pioneer 34M94		9.83
	Pioneer 34M95	Bt	9.28
	Pioneer 37R71	Bt	7.53
	Renk RK622		8.51
26000			9.25
32000			8.90
38000			8.70
44000			8.61
50000			8.48
26000	Pioneer 34M94		10.36
26000	Pioneer 34M95	Bt	9.38
26000	Pioneer 37R71	Bt	8.09
26000	Renk RK622		9.15
32000	Pioneer 34M94		9.37
32000	Pioneer 34M95	Bt	9.68
32000	Pioneer 37R71	Bt	7.77
32000	Renk RK622		8.76
38000	Pioneer 34M94		9.56
38000	Pioneer 34M95	Bt	8.89
38000	Pioneer 37R71	Bt	7.42
38000	Renk RK622		8.93
44000	Pioneer 34M94		10.24
44000	Pioneer 34M95	Bt	9.32
44000	Pioneer 37R71	Bt	7.18
44000	Renk RK622		7.70
50000	Pioneer 34M94		9.59
50000	Pioneer 34M95	Bt	9.12
50000	Pioneer 37R71	Bt	7.19
50000	Renk RK622		8.02
Mean			8.79
Probability(%)			
Plant Density (D)			7.0
Hybrid (H)			0.0
D x H			43.1
LSD (0.10)			
Plant Density (D)			0.46
Hybrid (H)			0.41
D x H			NS
Contrasts-D (%)			
Linear			0.5
Quadratic			46.2
Cubic			75.1
Quartic			95.7
CV(%)			8

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2465 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

Field: 008-03C50 **Previous Crop:** Alfalfa **Soil Type:** Withee Silt Loam

Soil Test: **Date:** 10/6 /03 **pH** 6.5 **OM (%)** 3.4 **P (ppm)** 66 **K (ppm)** 109

Plot Management

Tillage Operations: Fall Chisel Field Cultivator Cultivated 6/19/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /1 /03
	Post plant :	28-0-0	45 lbs/A	6 /19/03
	Manure:	Dairy	12872 gal/A	N/A

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
5/2/03
Atrazine 4L 1.1 qt/A

Permit 1.07 oz/A
6/27/03

Insecticide: Force 4.4 lbs/A 5/1/03

Hybrid:

Irrigation: None

Planting Date: 5/1/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/8/03 **Harvest Method:** Kincaid Plot Combine

Very poor emergence

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	NK Brand 3030
32000	NK Brand 3030Bt
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-52 and C-53.

Table C-52. Plant Density and Hybrid Influence on Corn Grain. Marshfield, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Grain Moisture	Grain Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	NK Brand N3030		112	31.6	51	140	2	2	0	3	0	21701	23417	22018	49896
	NK Brand N3030Bt	Bt	115	31.1	51	129	1	1	0	1	0	19404	23364	19615	49896
	Pioneer 37R71	Bt	126	31.8	47	153	1	1	0	2	0	29542	31627	31205	49896
	Renk RK622		104	32.1	50	128	3	3	0	4	1	33290	32762	35270	49896
26000			110	32.8	50	146	2	2	0	2	0	18645	22341	18777	34056
32000			118	31.8	50	153	1	1	0	1	0	21417	24453	21483	41976
38000			111	31.0	50	134	1	1	0	2	0	25773	27126	26697	49896
44000			117	31.0	50	135	2	2	0	3	0	31218	31812	33165	57816
50000			115	31.7	50	121	2	2	0	4	0	32868	33231	35013	65736
26000	NK Brand N3030		101	31.7	51	136	4	4	0	3	0	16104	19800	15840	34056
26000	NK Brand N3030Bt	Bt	106	33.6	50	129	1	1	0	1	0	14124	19800	14652	34056
26000	Pioneer 37R71	Bt	122	32.5	47	165	2	2	0	1	0	20988	24288	20460	34056
26000	Renk RK622		113	33.3	51	155	2	2	0	4	0	23364	25476	24156	34056
32000	NK Brand N3030		117	32.6	50	154	3	2	1	3	0	17820	21384	17952	41976
32000	NK Brand N3030Bt	Bt	110	30.3	52	133	0	0	0	2	0	17424	21252	16632	41976
32000	Pioneer 37R71	Bt	139	32.0	47	184	1	1	0	1	0	25080	28776	25080	41976
32000	Renk RK622		107	32.4	50	140	2	2	0	0	0	25344	26400	26268	41976
38000	NK Brand N3030		108	31.7	51	133	1	1	0	2	1	19008	21648	18612	49896
38000	NK Brand N3030Bt	Bt	108	30.8	52	118	1	1	0	1	0	17820	21252	17556	49896
38000	Pioneer 37R71	Bt	125	30.9	47	154	0	0	0	2	0	33132	32868	35244	49896
38000	Renk RK622		103	30.6	50	130	4	4	0	3	1	33132	32736	35376	49896
44000	NK Brand N3030		123	31.1	51	151	2	2	0	3	0	26796	26664	27720	57816
44000	NK Brand N3030Bt	Bt	125	29.5	52	140	1	1	0	1	0	24816	27720	25608	57816
44000	Pioneer 37R71	Bt	119	31.6	47	133	0	0	0	2	0	34056	35244	36696	57816
44000	Renk RK622		100	31.8	49	115	4	4	0	6	1	39204	37620	42636	57816
50000	NK Brand N3030		113	30.9	52	127	2	2	0	4	0	28776	27588	29964	65736
50000	NK Brand N3030Bt	Bt	125	31.5	52	123	0	0	0	1	0	22836	26796	23628	65736
50000	Pioneer 37R71	Bt	124	32.0	47	132	1	1	0	3	0	34452	36960	38544	65736
50000	Renk RK622		96	32.4	49	101	4	4	0	5	1	45408	41580	47916	65736
Mean			114	31.7	50	138	2	2	0	2	0	25984	27793	27027	49896
Probability(%)															
Plant Density (D)			37.8	3.4	69.0	0.4	82.5	67.6	42.0	18.3	48.7	0.0	0.0	0.0	-
Hybrid (H)			0.0	36.7	0.0	0.3	0.4	0.2	40.3	1.4	2.0	0.0	0.0	0.0	-
D x H			11.3	55.0	0.0	21.3	30.5	27.0	46.7	77.2	63.7	2.7	8.8	1.6	-
LSD (0.10)															
Plant Density (D)			NS	1.0	NS	14	NS	NS	NS	NS	NS	2289	1868	2416	-
Hybrid (H)			7	NS	0	12	1	1	NS	1	0	2048	1671	2161	-
D x H			NS	NS	1	NS	NS	NS	NS	NS	NS	4578	3735	4832	-
Contrasts-D (%)															
Linear			50.4	3.5	54.3	0.1	68.1	76.4	48.4	7.4	32.6	0.0	0.0	0.0	-
Quadratic			57.5	1.4	50.6	32.7	32.0	23.8	55.4	14.2	48.5	75.0	83.2	90.4	-
Cubic			48.1	67.2	88.6	55.9	58.1	38.6	16.5	36.4	42.3	8.5	13.1	3.2	-
Quartic			8.9	83.0	24.3	10.3	98.4	85.0	29.2	74.4	25.1	58.8	31.1	58.9	-
CV(%)			10	5	1	14	103	98	775	91	290	13	10	13	-

Table C-53. Plant Density and Hybrid Influence on Rind Strength. Marshfield, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	NK Brand N3030		8.05
	NK Brand N3030Bt	Bt	8.03
	Pioneer 37R71	Bt	8.69
	Renk RK622		9.11
26000			9.11
32000			8.91
38000			8.46
44000			8.26
50000			7.63
26000	NK Brand N3030		8.70
26000	NK Brand N3030Bt	Bt	8.36
26000	Pioneer 37R71	Bt	9.07
26000	Renk RK622		10.30
32000	NK Brand N3030		8.26
32000	NK Brand N3030Bt	Bt	8.13
32000	Pioneer 37R71	Bt	8.90
32000	Renk RK622		10.34
38000	NK Brand N3030		8.11
38000	NK Brand N3030Bt	Bt	8.34
38000	Pioneer 37R71	Bt	8.52
38000	Renk RK622		8.86
44000	NK Brand N3030		7.66
44000	NK Brand N3030Bt	Bt	8.22
44000	Pioneer 37R71	Bt	8.95
44000	Renk RK622		8.21
50000	NK Brand N3030		7.53
50000	NK Brand N3030Bt	Bt	7.10
50000	Pioneer 37R71	Bt	8.02
50000	Renk RK622		7.85
Mean			8.47
Probability(%)			
Plant Density (D)			0.1
Hybrid (H)			0.2
D x H			45.4
LSD (0.10)			
Plant Density (D)			0.56
Hybrid (H)			0.50
D x H			NS
Contrasts-D (%)			
Linear			0.0
Quadratic			48.2
Cubic			80.2
Quartic			55.3
CV(%)			10

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2473 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Clay Loam

Soil Test: **Date:** 10/3 /03 **pH** 7.3 **OM (%)** 2.8 **P (ppm)** 25 **K (ppm)** 97

Plot Management

Tillage Operations: Fall Chisel Plow Soil Finisher Cultivated 6/26/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /2 /03
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	9000 gal/A	N/A

Herbicide: Accent 0.67 oz/A
Atrazine 0.5 lbs/A
6/20/03
Callisto 3.0 oz/A

Insecticide: Force 4.4 lbs/A 5/1/03

Hybrid:

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/24/03 **Harvest Method:** Kincaid Plot Combine

Planted into very heavy residue and row cleaners worked well.

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	NK Brand 3030
32000	NK Brand 3030Bt
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-54, C-55, and C-56.

Table C-54. Plant Density and Hybrid Influence on Corn Grain. Seymour, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Moisture	Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	NK Brand N3030		201	22.1	53	327	7	6	1	3	0	38702	37646	44194	49896
	NK Brand N3030Bt	Bt	204	22.0	54	318	9	6	3	3	0	38623	38544	45276	49896
	Pioneer 37R71	Bt	210	25.2	49	323	6	5	1	2	0	39151	39864	45118	49896
	Renk RK622		200	23.6	51	324	7	7	0	1	0	39046	39415	46992	49896
26000			189	23.6	52	312	1	1	0	1	0	26928	29139	31482	34056
32000			200	23.6	52	323	4	4	0	1	0	33198	34056	38544	41976
38000			213	23.1	52	341	5	4	1	2	0	39270	38874	45243	49896
44000			211	23.0	52	328	9	8	1	2	0	44385	43593	52206	57816
50000			207	22.9	52	312	17	13	4	4	0	50622	48675	59499	65736
26000	NK Brand N3030		185	22.6	53	311	1	1	0	2	0	26796	27456	30096	34056
26000	NK Brand N3030Bt	Bt	189	22.7	53	308	1	1	0	2	0	27456	29040	31548	34056
26000	Pioneer 37R71	Bt	194	25.2	50	313	1	1	0	1	0	26268	30888	31812	34056
26000	Renk RK622		190	24.1	51	317	0	0	0	0	0	27192	29172	32472	34056
32000	NK Brand N3030		202	22.2	53	336	2	2	0	0	0	33000	32868	38808	41976
32000	NK Brand N3030Bt	Bt	199	22.4	53	317	4	4	0	3	0	32868	33792	37884	41976
32000	Pioneer 37R71	Bt	199	25.3	50	313	5	5	0	2	0	33528	35640	37488	41976
32000	Renk RK622		198	24.4	51	325	4	4	0	0	0	33396	33924	39996	41976
38000	NK Brand N3030		206	22.2	53	337	6	5	1	2	0	39600	39204	43824	49896
38000	NK Brand N3030Bt	Bt	219	21.8	55	346	7	7	0	1	0	38940	38808	45672	49896
38000	Pioneer 37R71	Bt	220	25.2	50	341	3	3	0	3	0	39732	38676	43560	49896
38000	Renk RK622		207	23.2	51	338	3	3	0	1	0	38808	38808	47916	49896
44000	NK Brand N3030		214	21.9	54	345	10	9	1	4	0	43824	42108	50556	57816
44000	NK Brand N3030Bt	Bt	208	21.5	54	317	9	7	3	3	0	43428	42504	51480	57816
44000	Pioneer 37R71	Bt	223	25.0	49	338	7	7	0	1	0	44484	44220	53064	57816
44000	Renk RK622		198	23.4	51	313	8	8	0	1	0	45804	45540	53724	57816
50000	NK Brand N3030		197	21.7	54	306	17	15	2	7	0	50292	46596	57684	65736
50000	NK Brand N3030Bt	Bt	207	21.6	54	304	21	11	10	4	0	50424	48576	59796	65736
50000	Pioneer 37R71	Bt	214	25.5	49	312	13	10	3	4	0	51744	49896	59664	65736
50000	Renk RK622		208	22.7	52	328	18	18	1	2	0	50028	49632	60852	65736
Mean			204	23.2	52	323	7	6	1	2	0	38881	38867	45395	49896
Probability(%)															
Plant Density (D)			0.0	0.8	17.3	0.9	0.0	0.0	6.0	0.0	72.5	0.0	0.0	0.0	-
Hybrid (H)			4.5	0.0	0.0	71.0	54.3	92.0	27.6	0.1	4.4	29.4	0.0	0.1	-
D x H			56.2	52.4	27.6	67.9	98.4	95.8	56.0	8.6	89.2	7.2	7.0	56.1	-
LSD (0.10)															
Plant Density (D)			7	0.4	NS	14	4	4	2	1	NS	605	792	1152	-
Hybrid (H)			6	0.4	0	NS	NS	NS	NS	1	0	NS	708	1031	-
D x H			NS	NS	NS	NS	NS	NS	NS	2	NS	1210	1584	NS	-
Contrasts-D (%)															
Linear			0.0	0.0	15.1	76.7	0.0	0.0	1.2	0.0	90.5	0.0	0.0	0.0	-
Quadratic			0.0	68.5	16.8	0.1	2.3	18.2	12.5	2.4	18.1	28.8	85.4	69.0	-
Cubic			63.6	41.7	55.8	58.8	18.1	34.6	54.0	56.9	81.1	10.8	66.3	65.3	-
Quartic			19.5	51.1	13.9	19.7	85.2	70.5	75.5	60.0	72.1	18.9	86.9	89.0	-
CV(%)			5	3	1	6	76	92	310	71	449	2	3	4	-

Table C-55. Plant Density and Hybrid Influence on Yield Components. Seymour, WI - 2003.

Target Density	Hybrid	Trait	Ear Size			1000 Kernel weight
			Kernels/Ear	Kernels/Row	Rows/Ear	
			no./ear	no./row	no./ear	grams
	Pioneer 37R71	Bt	400	25	16	253.3
	Renk RK622		439	27	16	241.7
26000			434	27	16	270.1
32000			443	29	15	256.8
38000			439	27	16	246.9
44000			401	26	16	236.5
50000			379	24	16	227.7
26000	Pioneer 37R71	Bt	419	26	16	276.1
26000	Renk RK622		449	27	16	264.2
32000	Pioneer 37R71	Bt	405	26	15	261.1
32000	Renk RK622		482	31	16	254.0
38000	Pioneer 37R71	Bt	433	26	16	258.2
38000	Renk RK622		446	27	16	235.7
44000	Pioneer 37R71	Bt	390	25	16	244.9
44000	Renk RK622		413	27	16	228.1
50000	Pioneer 37R71	Bt	355	23	15	228.9
50000	Renk RK622		403	25	16	226.5
Mean			419	26	16	247.3
Probability(%)						
Plant Density (D)			13.1	11.2	2.3	0.0
Hybrid (H)			4.2	7.4	12.9	0.0
D x H			80.3	73.4	67.1	9.4
LSD (0.10)						
Plant Density (D)			NS	NS	0	4.9
Hybrid (H)			30	2	NS	4.4
D x H			NS	NS	NS	9.8
Contrasts-D (%)						
Linear			2.5	3.1	27.5	0.0
Quadratic			20.1	18.9	68.8	37.4
Cubic			64.0	37.7	34.7	64.4
Quartic			67.1	45.5	0.2	65.4
CV(%)			11	11	3	3

Table C-56. Plant Density and Hybrid Influence on Rind Strength. Seymour, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	NK Brand N3030		6.81
	NK Brand N3030Bt	Bt	6.78
	Pioneer 37R71	Bt	7.59
	Renk RK622		7.95
26000			7.17
32000			7.22
38000			7.16
44000			7.66
50000			7.20
26000	NK Brand N3030		6.51
26000	NK Brand N3030Bt	Bt	7.18
26000	Pioneer 37R71	Bt	7.29
26000	Renk RK622		7.68
32000	NK Brand N3030		6.76
32000	NK Brand N3030Bt	Bt	6.66
32000	Pioneer 37R71	Bt	7.34
32000	Renk RK622		8.13
38000	NK Brand N3030		6.71
38000	NK Brand N3030Bt	Bt	6.78
38000	Pioneer 37R71	Bt	7.27
38000	Renk RK622		7.89
44000	NK Brand N3030		7.08
44000	NK Brand N3030Bt	Bt	6.78
44000	Pioneer 37R71	Bt	8.39
44000	Renk RK622		8.38
50000	NK Brand N3030		6.97
50000	NK Brand N3030Bt	Bt	6.52
50000	Pioneer 37R71	Bt	7.64
50000	Renk RK622		7.68
Mean			7.28
Probability(%)			
Plant Density (D)			33.4
Hybrid (H)			0.0
D x H			87.1
LSD (0.10)			
Plant Density (D)			NS
Hybrid (H)			0.41
D x H			NS
Contrasts-D (%)			
Linear			41.3
Quadratic			53.3
Cubic			18.2
Quartic			18.8
CV(%)			9

FIELD EXPERIMENT HISTORY

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

Experiment: 02PD **Trial ID** 2471 **Year:** 2003

Personnel: J. G. Lauer, P. J. Flannery, K. D. Kohn, and T. F. Stanger

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/3 /03 **pH** 6.8 **OM (%)** 3.6 **P (ppm)** 102 **K (ppm)** 110

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 5/26/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	150 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /2 /03
	Post plant :	N/A	N/A	N/A
	Manure:	Dairy	Spring: 20 t/A; Fall: 7200 gal/A	N/A

Herbicide: Dual II Magnum 1.0 pt/A
Accent Gold 2.0 oz/A
Banvel 2.0 oz/A

Insecticide: Force 4.4 lbs/A

Hybrid:

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/24/03 **Harvest Method:** Kincaid Plot Combine

Poor emergence

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)	Hybrids:
26000	NK Brand 3030
32000	NK Brand 3030Bt
38000	Pioneer 37R71
44000	Renk RK622
50000	

Results: Table C-57 and C-58.

Table C-57. Plant Density and Hybrid Influence on Corn Grain. Valders, WI - 2003.

Target Density	Hybrid	Trait	Grain Yield	Grain Moisture	Grain Test Wt	Grower Return	Lodged Total	Lodged Stalk	Lodged Root	Barren	Ears Dropped	Harvest plants	Harvest ears	Plants emerged	Seeds planted
			bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A	plants/A	seeds/A
	NK Brand N3030		180	22.9	54	285	3	3	0	4	0	31601	31786	34056	49896
	NK Brand N3030Bt	Bt	191	22.6	54	291	1	1	0	1	0	32472	34267	35614	49896
	Pioneer 37R71	Bt	186	24.5	51	282	2	2	0	1	0	32393	34346	35508	49896
	Renk RK622		182	21.9	54	296	5	5	0	1	0	33158	34056	37488	49896
26000			163	23.7	52	263	1	1	0	2	0	21087	25080	23430	34056
32000			178	23.0	53	284	2	2	0	2	0	26334	28446	29271	41976
38000			192	22.9	53	302	2	2	0	2	0	33198	33957	37092	49896
44000			197	22.4	54	305	3	3	0	2	0	37917	37950	40920	57816
50000			194	22.9	53	289	5	5	0	3	0	43494	42636	47619	65736
26000	NK Brand N3030		157	23.3	53	257	3	3	0	3	0	20592	22968	22308	34056
26000	NK Brand N3030Bt	Bt	166	23.8	52	260	0	0	0	2	0	21516	26532	23892	34056
26000	Pioneer 37R71	Bt	168	25.0	51	265	0	0	0	1	0	20724	26400	23628	34056
26000	Renk RK622		161	22.6	54	269	1	1	0	0	0	21516	24420	23892	34056
32000	NK Brand N3030		171	22.3	54	279	4	4	0	4	1	25608	26664	26268	41976
32000	NK Brand N3030Bt	Bt	189	21.8	55	301	0	0	0	0	0	27060	30228	30492	41976
32000	Pioneer 37R71	Bt	170	24.8	51	262	1	1	0	1	0	25212	27852	29304	41976
32000	Renk RK622		180	23.1	53	295	2	2	0	1	0	27456	29040	31020	41976
38000	NK Brand N3030		189	22.7	54	303	2	2	0	2	0	32736	32868	37092	49896
38000	NK Brand N3030Bt	Bt	191	22.6	54	291	2	2	0	2	0	32604	33264	36168	49896
38000	Pioneer 37R71	Bt	200	24.8	50	306	1	1	0	0	0	33660	35244	34452	49896
38000	Renk RK622		188	21.7	54	309	4	4	0	1	0	33792	34452	40656	49896
44000	NK Brand N3030		195	23.0	54	306	2	2	0	4	0	36696	35772	38940	57816
44000	NK Brand N3030Bt	Bt	209	22.5	55	315	1	1	0	1	0	37620	38016	40920	57816
44000	Pioneer 37R71	Bt	192	23.4	52	289	3	3	0	1	0	37620	38280	41052	57816
44000	Renk RK622		191	20.7	55	310	7	7	0	2	1	39732	39732	42768	57816
50000	NK Brand N3030		188	23.3	54	282	3	3	0	5	0	42372	40656	45672	65736
50000	NK Brand N3030Bt	Bt	200	22.2	55	289	3	3	0	1	0	43560	43296	46596	65736
50000	Pioneer 37R71	Bt	201	24.6	50	290	7	7	0	2	0	44748	43956	49104	65736
50000	Renk RK622		188	21.4	54	296	9	9	0	2	0	43296	42636	49104	65736
Mean			185	23.0	53	289	3	3	0	2	0	32406	33614	35666	49896
Probability(%)															
Plant Density (D)			0.0	0.4	0.1	0.0	0.1	0.1	-	13.2	55.7	0.0	0.0	0.0	-
Hybrid (H)			1.1	0.0	0.0	15.5	0.6	0.6	-	0.0	21.7	0.4	0.0	0.2	-
D x H			41.3	3.5	2.7	49.9	33.2	33.2	-	50.0	9.2	15.0	23.3	38.6	-
LSD (0.10)															
Plant Density (D)			6	0.5	1	12	2	2	-	NS	NS	742	983	1563	-
Hybrid (H)			6	0.5	0	NS	2	2	-	1	NS	664	879	1398	-
D x H			NS	1.0	1	NS	NS	NS	-	NS	1	NS	NS	NS	-
Contrasts-D (%)															
Linear			0.0	0.3	0.1	0.0	0.0	0.0	-	2.8	44.4	0.0	0.0	0.0	-
Quadratic			0.0	2.7	1.0	0.0	15.8	15.8	-	17.2	28.7	21.0	47.1	35.9	-
Cubic			41.1	54.4	19.8	33.5	44.8	44.8	-	63.3	66.5	44.5	27.2	67.0	-
Quartic			61.9	15.1	14.1	80.7	99.1	99.1	-	72.4	30.2	1.3	9.7	2.5	-
CV(%)			5	3	1	6	98	98	-	74	329	3	4	6	-

Table C-58. Plant Density and Hybrid Influence on Rind Strength. Valders, WI - 2003.

Target Density	Hybrid	Trait	Rind Strength
			load-lbs/section
	NK Brand N3030		8.03
	NK Brand N3030Bt	Bt	7.92
	Pioneer 37R71	Bt	9.12
	Renk RK622		9.47
26000			8.85
32000			8.82
38000			8.63
44000			8.69
50000			8.16
26000	NK Brand N3030		8.55
26000	NK Brand N3030Bt	Bt	7.50
26000	Pioneer 37R71	Bt	9.35
26000	Renk RK622		10.01
32000	NK Brand N3030		8.09
32000	NK Brand N3030Bt	Bt	8.11
32000	Pioneer 37R71	Bt	9.17
32000	Renk RK622		9.93
38000	NK Brand N3030		8.18
38000	NK Brand N3030Bt	Bt	8.08
38000	Pioneer 37R71	Bt	9.17
38000	Renk RK622		9.09
44000	NK Brand N3030		8.11
44000	NK Brand N3030Bt	Bt	8.53
44000	Pioneer 37R71	Bt	9.07
44000	Renk RK622		9.07
50000	NK Brand N3030		7.20
50000	NK Brand N3030Bt	Bt	7.37
50000	Pioneer 37R71	Bt	8.83
50000	Renk RK622		9.25
Mean			8.63
Probability(%)			
Plant Density (D)			9.2
Hybrid (H)			0.0
D x H			48.7
LSD (0.10)			
Plant Density (D)			0.45
Hybrid (H)			0.40
D x H			NS
Contrasts-D (%)			
Linear			1.6
Quadratic			29.4
Cubic			48.0
Quartic			42.7
CV(%)			8

FIELD EXPERIMENT HISTORY

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

Experiment: 03 DOP **Trial ID** 2432 **Year:** 2003

Personnel: J.G. Lauer, P. J. Flannery, and K. D. Kohn

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

Supported By: HATCH

Site Information

Field: ARS379 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/1 /03 **pH** 6.4 **OM (%)** 3.3 **P (ppm)** 39 **K (ppm)** 115

Plot Management

Tillage Operations: Fall Chisel Plow Soil Finisher prior to each DOP

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	34-0-0	450	4 /14/03
	Starter :	6-24-24	150	Each DOP
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A

Insecticide: None

Hybrid: See Factors

Irrigation: none

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

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: S: 9/24 & 10/3
G: 10/23

Harvest Method: S:New Holland Plot Chopper
G:Kincaid Plot Combine

Experimental Design

Design: RCB split plot **Replications:** 3

Plot Size Seeded: 25' x 20' **Experiment Size:** 0.69 A

Harvest Plot Size: S: 22' x 2.5'
G: 22 'x 5'

Harvest Plant Density: S:28204 **plants per acre**
G:26598

Factors/Treatments:

Date of Planting:

April 15, May 03,
May 13, May 19,
June 02 & June 13

Hybrids:

Pioneer 38A25
Pioneer 35Y55

Results: Tables C-59 and C-60.

Table C-59. Planting Date And Hybrid Influence On Corn Grain And Silage Performance
Arlington, WI - 2003.

		Grain																
Planting				Test		Grower	Harvest	Harvest	Seeds	Plants	Flag Leaf	Silking	Early	Kernel Milk			Black
Date	Hybrid	Yield	Moisture	wt	Lodged	return	pop	ear pop	planted	emerged	height	Date	dent	75%	50%	25%	layer
		bu/A	%	lbs/bu	%	$/A	plants/A	ears/A	seeds/A	plants/A	inches	----------doy----------					
	Pioneer 35Y55	193	25.2	49	17	355	26730	27544	41184	34188	108	215	248	259	268	280	285
	Pioneer 38A25	181	20.8	57	21	345	26466	27324	41184	33539	104	211	244	253	260	268	276
April 15		208	20.0	56	6	399	26730	27258	41184	34172	96	206	237	247	257	262	268
May 03		193	20.2	55	12	369	22902	24750	41184	25526	101	209	241	250	259	271	281
May 13		197	20.6	55	10	375	26598	27258	41184	32885	108	211	246	255	262	273	278
May 19		202	20.8	55	45	384	27060	27588	41184	36416	109	211	244	254	262	273	288
June 02		181	26.3	51	33	326	27852	28380	41184	37010	112	217	249	260	269	279	286
June 13		141	30.1	47	8	245	28446	29370	41184	37175	109	223	258	273	277	287	290
April 15	Pioneer 35Y55	222	20.8	53	9	423	27060	27588	41184	35211	97	208	239	248	261	266	272
April 15	Pioneer 38A25	193	19.2	60	4	375	26400	26928	41184	33132	95	203	235	245	253	258	264
May 03	Pioneer 35Y55	200	21.0	51	11	381	21912	23364	41184	23199	102	210	243	254	262	279	290
May 03	Pioneer 38A25	185	19.5	59	13	358	23892	26136	41184	27852	100	207	239	245	257	263	272
May 13	Pioneer 35Y55	212	21.4	51	8	401	26532	27192	41184	33198	111	212	249	258	265	280	287
May 13	Pioneer 38A25	182	19.9	58	12	349	26664	27324	41184	32571	105	209	243	253	258	266	274
May 19	Pioneer 35Y55	221	21.5	51	46	417	26796	27456	41184	37653	113	212	245	257	264	279	295
May 19	Pioneer 38A25	182	20.1	59	44	350	27324	27720	41184	35178	105	210	243	251	259	266	281
June 02	Pioneer 35Y55	178	30.6	46	23	304	28776	29040	41184	37950	114	219	250	264	273	286	-
June 02	Pioneer 38A25	185	22.0	55	43	347	26928	27720	41184	36069	110	215	248	256	264	271	286
June 13	Pioneer 35Y55	125	35.8	44	5	201	29304	30624	41184	37917	109	225	259	275	284	290	-
June 13	Pioneer 38A25	158	24.4	50	10	289	27588	28116	41184	36432	109	221	257	270	270	284	290
Mean		187	23.0	53	19	350	26598	27434	41184	33864	106	213	246	256	264	274	279
Probability(%)																	
Date of Planting (D)		0.2	0.0	0.0	0.0	0.0	0.1	3.1	-	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.5
Hybrid (H)		1.2	0.0	0.0	19.0	20.5	63.7	69.6	-	8.4	0.6	0.0	0.2	0.0	0.0	0.0	4.6
D x H		0.3	0.0	0.1	26.1	0.0	37.1	19.5	-	0.1	37.1	2.1	88.4	79.7	0.3	7.8	57.4
LSD (0.10)																	
Date of Planting (D)		12	0.4	1	6	40	927	1151	-	901	4	0	1	2	2	2	4
Hybrid (H)		13	0.8	0	NS	NS	NS	NS	-	1062	3	1	3	4	1	3	8
D x H		18	1.2	1	NS	33	NS	NS	-	1502	NS	1	NS	NS	2	4	NS
CV(%)		7	3	1	47	6	6	6	-	3	3	0	1	1	1	1	2

continued

Table C-59. Planting Date And Hybrid Influence On Corn Grain And Silage Performance

(continued) **Arlington, WI - 2003.**

		Whole Plant												
Planting		Dry Matter		Kernel	Harvest		Crude			*In Vitro*			Milk per	
Date	Hybrid	yield	Moisture	milk	plants	ears	protien	ADF	NDF	Digest	NDFD	Starch	Ton	Acre
		tons/A	%	%	plants/A	ears/A	%	%	%	%	%	%	lbs/T	lbs/A
	Pioneer 35Y55	9.6	63.8	55.6	27808	28776	7.8	23.3	45.2	85.2	67.2	33.9	3744	36098
	Pioneer 38A25	9.3	53.1	25.8	28600	29744	7.1	21.8	43.7	85.0	65.6	39.2	3519	32786
April 15		9.0	53.0	14.2	28380	28908	7.1	21.4	43.1	85.4	66.3	40.2	3583	32545
May 03		8.0	58.7	34.2	21516	23628	7.6	21.5	43.3	85.6	66.7	37.9	3675	29250
May 13		10.5	60.8	39.2	30096	31548	7.5	22.2	43.3	85.3	66.1	37.9	3670	38475
May 19		10.2	59.3	35.8	29700	31020	7.2	22.9	44.7	84.4	65.1	37.5	3574	36453
June 02		10.6	56.0	48.3	30096	30756	7.3	22.5	44.5	85.4	67.2	36.0	3632	38560
June 13		8.6	62.7	72.5	29436	29700	8.0	24.7	47.7	84.3	67.1	30.0	3655	31372
April 15	Pioneer 35Y55	10.1	58.3	25.0	29568	29832	7.4	19.9	40.5	87.2	68.4	40.8	3805	38283
April 15	Pioneer 38A25	8.0	47.8	3.3	27192	27984	6.8	23.0	45.8	83.6	64.3	39.7	3362	26807
May 03	Pioneer 35Y55	7.1	64.6	50.0	17688	19272	7.8	23.5	45.9	84.9	67.1	33.3	3735	26462
May 03	Pioneer 38A25	8.9	52.7	18.3	25344	27984	7.3	19.6	40.6	86.4	66.4	42.4	3616	32038
May 13	Pioneer 35Y55	10.5	66.8	55.0	29568	30888	7.8	23.1	44.1	85.4	66.9	35.6	3798	39734
May 13	Pioneer 38A25	10.5	54.9	23.3	30624	32208	7.2	21.3	42.5	85.2	65.2	40.1	3541	37216
May 19	Pioneer 35Y55	10.6	65.1	50.0	29832	31416	7.5	24.0	45.6	84.1	65.2	34.6	3692	39187
May 19	Pioneer 38A25	9.8	53.5	21.7	29568	30624	7.0	21.8	43.8	84.6	64.9	40.5	3456	33720
June 02	Pioneer 35Y55	10.9	60.8	68.3	30624	31152	7.6	23.4	45.5	85.4	67.9	33.7	3752	40755
June 02	Pioneer 38A25	10.4	51.3	28.3	29568	30360	7.1	21.6	43.6	85.4	66.5	38.3	3512	36364
June 13	Pioneer 35Y55	8.7	67.3	85.0	29568	30096	8.5	26.2	49.7	83.9	67.6	25.5	3683	32170
June 13	Pioneer 38A25	8.4	58.2	60.0	29304	29304	7.5	23.3	45.7	84.7	66.6	34.5	3627	30574
Mean		9.5	58.4	40.7	28204	29260	7.4	22.5	44.4	85.1	66.4	36.6	3632	34442
Probability(%)														
Date of Planting (D)		1.1	0.5	0.0	0.1	0.3	0.0	7.3	8.0	37.0	21.3	0.2	34.7	1.5
Hybrid (H)		22.7	0.0	0.0	27.0	20.7	0.0	0.6	4.9	58.1	0.0	0.0	0.0	0.6
D x H		1.9	55.8	16.8	1.6	1.1	10.2	1.7	1.6	0.1	2.4	3.6	0.5	0.9
LSD (0.10)														
Date of Planting (D)		0.7	1.9	3.9	1449	1501	0.1	1.1	1.6	NS	NS	1.8	NS	2608
Hybrid (H)		NS	1.7	5.8	NS	NS	0.2	1.5	2.2	NS	0.9	2.6	67.3	3083
D x H		1.1	NS	NS	2988	3168	NS	2.1	3.1	1.3	1.2	3.6	95.2	4360
CV(%)		8	3	14	7	7	2	6	5	1	1	7	2	9

Table C-60. Planting Date And Hybrid Influence On Corn Leaf Development Arlington, WI - 2003.

Date of Planting	Hybrid	Observation Day of year	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
		143	2.0	2.7	3.7	2.7
		157	2.4	3.8	4.9	4.5
		164	3.3	5.4	6.3	6.4
		176	5.3	7.6	9.0	15.9
		191	9.5	12.6	13.8	42.6
		204	14.0	15.6	16.8	80.3
		219	18.5	18.7	18.9	104.6
		233	19.3	19.3	19.3	106.0
	Pioneer 35Y55		10.4	11.9	12.7	54.2
	Pioneer 38A25		11.3	12.8	13.7	55.6
	Pioneer 35Y55	143	2.0	2.3	3.3	2.8
	Pioneer 35Y55	157	2.2	3.5	4.5	4.0
	Pioneer 35Y55	164	3.1	5.1	5.9	5.6
	Pioneer 35Y55	176	5.0	7.1	8.6	15.2
	Pioneer 35Y55	191	9.1	12.1	13.1	40.8
	Pioneer 35Y55	204	13.1	15.1	16.1	76.8
	Pioneer 35Y55	219	17.8	18.0	18.3	105.1
	Pioneer 35Y55	233	18.8	18.8	18.8	107.9
	Pioneer 38A25	143	2.0	3.0	4.0	2.6
	Pioneer 38A25	157	2.7	4.2	5.3	4.9
	Pioneer 38A25	164	3.5	5.6	6.6	7.2
	Pioneer 38A25	176	5.5	8.0	9.4	16.6
	Pioneer 38A25	191	9.9	13.2	14.4	44.4
	Pioneer 38A25	204	14.8	16.2	17.4	83.8
	Pioneer 38A25	219	19.2	19.3	19.5	104.1
	Pioneer 38A25	233	19.7	19.7	19.7	104.1
April 15			10.6	12.0	12.8	48.5
May 03			11.5	13.1	13.9	54.6
May 13			10.5	11.9	12.7	53.4
May 19			10.6	12.1	13.0	54.8
June 02			12.1	13.7	14.6	67.9
June 13			10.2	11.7	12.5	54.9
April 15		143	2.0	2.7	3.7	2.7
April 15		157	3.6	5.2	6.5	5.8
April 15		164	4.3	6.8	7.7	8.7
April 15		176	7.5	10.9	12.2	24.1
April 15		191	12.2	14.9	16.3	58.9
April 15		204	17.3	17.4	18.5	95.1
April 15		219	18.9	18.9	18.9	96.8
April 15		233	18.9	18.9	18.9	95.9

continued

Table C-60. Planting Date And Hybrid Influence On Corn Leaf Development
(continued) **Arlington, WI - 2003.**

Date of Planting	Hybrid	Observation Day of year	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
May 03		143	-	-	-	-
May 03		157	2.8	4.3	5.3	4.4
May 03		164	3.8	5.9	6.8	6.8
May 03		176	6.7	9.9	11.5	22.3
May 03		191	11.4	14.8	16.1	53.9
May 03		204	16.4	17.3	18.4	91.1
May 03		219	19.6	19.6	19.6	102.7
May 03		233	19.6	19.6	19.6	101.1
May 13		143	-	-	-	-
May 13		157	1.9	3.1	4.0	4.0
May 13		164	2.7	4.5	5.3	5.4
May 13		176	5.8	7.8	9.4	16.3
May 13		191	9.7	13.1	14.2	43.3
May 13		204	14.6	16.3	17.3	86.8
May 13		219	19.3	19.3	19.3	110.1
May 13		233	19.3	19.3	19.3	108.3
May 19		143	-	-	-	-
May 19		157	1.4	2.8	3.8	3.6
May 19		164	2.4	4.2	5.2	4.9
May 19		176	5.8	8.3	9.8	17.8
May 19		191	9.8	13.3	14.7	49.5
May 19		204	14.8	16.3	17.6	88.3
May 19		219	19.9	19.9	19.9	110.4
May 19		233	19.9	19.9	19.9	109.3
June 02		143	-	-	-	-
June 02		157	-	-	-	-
June 02		164	-	-	-	-
June 02		176	3.8	5.3	7.0	10.6
June 02		191	7.8	11.2	12.2	31.7
June 02		204	11.6	14.5	15.7	73.1
June 02		219	18.4	18.4	18.9	112.0
June 02		233	19.0	19.0	19.0	112.3
June 13		143	-	-	-	-
June 13		157	-	-	-	-
June 13		164	-	-	-	-
June 13		176	2.0	3.3	4.3	4.1
June 13		191	5.9	8.3	9.3	18.3
June 13		204	9.1	12.0	13.2	47.5
June 13		219	15.0	15.8	16.9	95.7
June 13		233	18.8	18.8	18.8	109.2
April 15	Pioneer 35Y55		10.1	11.4	12.3	47.9
April 15	Pioneer 38A25		11.1	12.5	13.4	49.1
May 03	Pioneer 35Y55		10.9	12.5	13.3	52.6
May 03	Pioneer 38A25		12.0	13.6	14.5	56.6

continued

Table C-60. Planting Date And Hybrid Influence On Corn Leaf Development
(continued) **Arlington, WI - 2003.**

Date of Planting	Hybrid	Observation Day of year	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
May 13	Pioneer 35Y55		10.0	11.5	12.3	53.5
May 13	Pioneer 38A25		10.9	12.3	13.1	53.3
May 19	Pioneer 35Y55		10.2	11.7	12.5	55.0
May 19	Pioneer 38A25		11.0	12.5	13.5	54.7
June 02	Pioneer 35Y55		11.8	13.2	14.1	67.6
June 02	Pioneer 38A25		12.5	14.2	15.0	68.2
June 13	Pioneer 35Y55		9.7	11.2	11.9	53.1
June 13	Pioneer 38A25		10.6	12.1	13.0	56.8
April 15	Pioneer 35Y55	143	2.0	2.3	3.3	2.8
April 15	Pioneer 35Y55	157	3.2	4.5	6.0	5.3
April 15	Pioneer 35Y55	164	4.0	6.5	7.2	7.4
April 15	Pioneer 35Y55	176	7.2	10.3	11.7	23.5
April 15	Pioneer 35Y55	191	11.5	14.7	15.8	57.2
April 15	Pioneer 35Y55	204	16.5	16.8	17.8	92.7
April 15	Pioneer 35Y55	219	18.2	18.2	18.2	97.3
April 15	Pioneer 35Y55	233	18.2	18.2	18.2	97.2
April 15	Pioneer 38A25	143	2.0	3.0	4.0	2.6
April 15	Pioneer 38A25	157	4.0	5.8	7.0	6.3
April 15	Pioneer 38A25	164	4.7	7.2	8.2	10.0
April 15	Pioneer 38A25	176	7.8	11.5	12.7	24.8
April 15	Pioneer 38A25	191	12.8	15.2	16.8	60.7
April 15	Pioneer 38A25	204	18.0	18.0	19.2	97.5
April 15	Pioneer 38A25	219	19.7	19.7	19.7	96.3
April 15	Pioneer 38A25	233	19.7	19.7	19.7	94.7
May 03	Pioneer 35Y55	143	-	-	-	-
May 03	Pioneer 35Y55	157	2.7	4.0	5.0	3.9
May 03	Pioneer 35Y55	164	3.7	5.3	6.3	5.8
May 03	Pioneer 35Y55	176	6.2	9.2	10.8	20.4
May 03	Pioneer 35Y55	191	10.7	14.0	15.2	48.7
May 03	Pioneer 35Y55	204	15.2	16.8	17.8	85.7
May 03	Pioneer 35Y55	219	19.0	19.0	19.0	101.8
May 03	Pioneer 35Y55	233	19.0	19.0	19.0	102.2
May 03	Pioneer 38A25	143	-	-	-	-
May 03	Pioneer 38A25	157	3.0	4.5	5.7	4.8
May 03	Pioneer 38A25	164	4.0	6.5	7.3	7.7
May 03	Pioneer 38A25	176	7.2	10.7	12.2	24.3
May 03	Pioneer 38A25	191	12.2	15.7	17.0	59.2
May 03	Pioneer 38A25	204	17.7	17.8	19.0	96.5
May 03	Pioneer 38A25	219	20.2	20.2	20.2	103.5
May 03	Pioneer 38A25	233	20.2	20.2	20.2	100.0

continued

Table C-60. (continued) **Determining Corn Hybrid Maturity - Comparison of Hybrids Arlington, WI - 2003.**

Date of Planting	Hybrid	Observation Day of year	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
May 13	Pioneer 35Y55	143	-	-	-	-
May 13	Pioneer 35Y55	157	1.5	2.8	3.7	3.3
May 13	Pioneer 35Y55	164	2.5	4.5	5.2	5.1
May 13	Pioneer 35Y55	176	5.5	7.5	9.2	15.7
May 13	Pioneer 35Y55	191	9.3	12.5	13.5	42.2
May 13	Pioneer 35Y55	204	13.7	15.7	16.7	85.0
May 13	Pioneer 35Y55	219	18.8	18.8	18.8	112.3
May 13	Pioneer 35Y55	233	18.8	18.8	18.8	111.2
May 13	Pioneer 38A25	143	-	-	-	-
May 13	Pioneer 38A25	157	2.3	3.3	4.3	4.7
May 13	Pioneer 38A25	164	2.8	4.5	5.5	5.6
May 13	Pioneer 38A25	176	6.2	8.2	9.7	16.9
May 13	Pioneer 38A25	191	10.0	13.7	14.8	44.3
May 13	Pioneer 38A25	204	15.5	16.8	17.8	88.5
May 13	Pioneer 38A25	219	19.7	19.7	19.7	107.8
May 13	Pioneer 38A25	233	19.7	19.7	19.7	105.3
May 19	Pioneer 35Y55	143	-	-	-	-
May 19	Pioneer 35Y55	157	1.3	2.5	3.5	3.5
May 19	Pioneer 35Y55	164	2.2	4.0	5.0	4.2
May 19	Pioneer 35Y55	176	5.7	8.2	9.3	17.5
May 19	Pioneer 35Y55	191	9.7	12.8	14.0	48.2
May 19	Pioneer 35Y55	204	14.0	15.8	16.8	83.8
May 19	Pioneer 35Y55	219	19.3	19.3	19.3	114.7
May 19	Pioneer 35Y55	233	19.3	19.3	19.3	113.3
May 19	Pioneer 38A25	143	-	-	-	-
May 19	Pioneer 38A25	157	1.5	3.0	4.0	3.8
May 19	Pioneer 38A25	164	2.7	4.3	5.3	5.5
May 19	Pioneer 38A25	176	6.0	8.3	10.2	18.2
May 19	Pioneer 38A25	191	10.0	13.8	15.3	50.8
May 19	Pioneer 38A25	204	15.7	16.8	18.3	92.8
May 19	Pioneer 38A25	219	20.5	20.5	20.5	106.2
May 19	Pioneer 38A25	233	20.5	20.5	20.5	105.3
June 02	Pioneer 35Y55	143	-	-	-	-
June 02	Pioneer 35Y55	157	-	-	-	-
June 02	Pioneer 35Y55	164	-	-	-	-
June 02	Pioneer 35Y55	176	3.7	4.7	6.7	9.9
June 02	Pioneer 35Y55	191	7.7	10.3	11.3	30.3
June 02	Pioneer 35Y55	204	10.8	14.0	15.0	70.8
June 02	Pioneer 35Y55	219	17.7	17.7	18.5	112.8
June 02	Pioneer 35Y55	233	19.2	19.2	19.2	114.3

continued

Table C-60. (continued) **Determining Corn Hybrid Maturity - Comparison of Hybrids Arlington, WI - 2003.**

Date of Planting	Hybrid	Observation Day of year	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
June 02	Pioneer 38A25	143	-	-	-	-
June 02	Pioneer 38A25	157	-	-	-	-
June 02	Pioneer 38A25	164	-	-	-	-
June 02	Pioneer 38A25	176	4.0	5.8	7.3	11.4
June 02	Pioneer 38A25	191	8.0	12.0	13.0	33.0
June 02	Pioneer 38A25	204	12.3	15.0	16.3	75.3
June 02	Pioneer 38A25	219	19.2	19.2	19.3	111.2
June 02	Pioneer 38A25	233	18.8	18.8	18.8	110.2
June 13	Pioneer 35Y55	143	-	-	-	-
June 13	Pioneer 35Y55	157	-	-	-	-
June 13	Pioneer 35Y55	164	-	-	-	-
June 13	Pioneer 35Y55	176	2.0	3.0	4.0	4.0
June 13	Pioneer 35Y55	191	5.7	8.0	8.8	18.0
June 13	Pioneer 35Y55	204	8.7	11.3	12.3	42.8
June 13	Pioneer 35Y55	219	14.0	15.2	16.2	91.5
June 13	Pioneer 35Y55	233	18.3	18.3	18.3	109.3
June 13	Pioneer 38A25	143	-	-	-	-
June 13	Pioneer 38A25	157	-	-	-	-
June 13	Pioneer 38A25	164	-	-	-	-
June 13	Pioneer 38A25	176	2.0	3.5	4.5	4.1
June 13	Pioneer 38A25	191	6.2	8.7	9.7	18.7
June 13	Pioneer 38A25	204	9.5	12.7	14.0	52.2
June 13	Pioneer 38A25	219	16.0	16.5	17.7	99.8
June 13	Pioneer 38A25	233	19.3	19.3	19.3	109.0
Mean			10.9	12.4	13.2	54.9
Probability(%)						
Date of Planting (D)			0.0	0.0	0.0	0.0
Hybrid (H)			0.0	0.0	0.0	2.3
D x H			0.8	15.5	14.1	9.7
Sample DOY (S)			0.0	0.0	0.0	0.0
D x S			0.0	0.0	0.0	0.0
H x S			0.0	5.0	0.4	0.0
D x H x S			0.1	12.6	63.2	87.9
LSD(0.10)						
Date of Planting (D)			0.5	0.5	0.5	4.1
Hybrid (H)			0.1	0.1	0.1	0.8
D x H			0.2	NS	NS	1.4
Sample DOY (S)			0.2	0.2	0.2	1.6
D x S			0.4	0.4	0.4	4.0
H x S			0.2	0.3	0.3	2.3
D x H x S			0.6	NS	NS	NS
CV(%)			4	4	4	8

FIELD EXPERIMENT HISTORY

Title: **Plant Density, Planting Date, and Hybrid Influence on Corn Grain and Silage**

Experiment: 04PDxDOP **Trial ID** 2502 **Year:** 2003

Personnel: J. G. Lauer, K.D. Kohn, P.J. Flannery

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

Supported By: HATCH

Site Information

Field: 412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 11/01/03 **pH** 7.1 **OM (%)** 4.1 **P (ppm)** 69 **K (ppm)** 236

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Soil Finisher Cultivated

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	4 /21/03
	Starter :	6-24-24	150	Each DOP
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A
Callisto 3.0 oz/A

Insecticide: None

Hybrid: See Factors

Irrigation: None

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

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

Harvest Date: S: 10/3/03
G: 10/17/03

Harvest Method: S:New Holland Plot Chopper
G:Kincaid Plot Combine

Large number of lodged plants hindered Grain Harvest Stand count totals.

Experimental Design

Design: RCB split plot **Replications:** 3

Plot Size Seeded: 20' x 25' **Experiment Size:** 1.15 Acre

Harvest Plot Size: S: 2.5' x 22'
G: 5 'x 22'

Harvest Plant Density: Varies

Factors/Treatments:

Planting Dates:	Plant Densities: (plants/A)	Hybrids:
May 03, May 19, and June 13	15000, 30000, and 45000	Mycogen 4521Bt Pioneer 38A25

Results: Table C-61.

Table C-61. Plant Density, Planting Date, and Hybrid Influence on Corn Silage Yield and Quality and Corn Grain Arlington, WI - 2003

Date of planting	Target plant density	Hybrid	Grain				Grower return	Seeds planted	Stand		Harvest ears
			Yield	Moisture	Test Wt	Lodging			Emerged	Harvest	
			bu/A	%	lbs/bu	%	$/A	seeds/A	seeds/A	plants/A	ears/A
		Mycogen 4521Bt	125	24.7	54	41	232	42240	39112	26884	28145
		Pioneer 38A25	145	23.6	55	36	270	42240	34206	24757	26781
	15000		130	25.0	54	14	238	23760	20834	17336	21208
	30000		146	23.1	55	45	274	43560	37725	27082	27588
	45000		130	24.4	54	56	241	59400	51420	33044	33594
	15000	Mycogen 4521Bt	122	25.2	54	25	226	23760	21912	18304	20900
	15000	Pioneer 38A25	137	24.9	55	4	251	23760	19756	16368	21516
	30000	Mycogen 4521Bt	136	23.5	55	48	255	43560	40645	27940	28424
	30000	Pioneer 38A25	156	22.7	56	42	293	43560	34804	26224	26752
	45000	Mycogen 4521Bt	116	25.3	52	51	217	59400	54780	34408	35112
	45000	Pioneer 38A25	143	23.4	55	61	265	59400	48059	31680	32076
May 03			151	18.5	58	39	294	42240	35184	24706	26994
May 19			144	20.8	57	62	274	42240	36762	25696	26664
June 13			111	33.2	49	15	185	42240	38033	27060	28732
May 03		Mycogen 4521Bt	145	17.5	57	49	285	42240	38060	25608	27632
May 03		Pioneer 38A25	157	19.6	58	30	302	42240	32307	23804	26356
May 19		Mycogen 4521Bt	138	20.7	56	70	263	42240	38775	25872	26488
May 19		Pioneer 38A25	150	20.9	58	53	285	42240	34749	25520	26840
June 13		Mycogen 4521Bt	93	35.8	47	5	150	42240	40502	29172	30316
June 13		Pioneer 38A25	129	30.5	50	25	221	42240	35563	24948	27148
May 03	15000		145	19.7	58	13	279	23760	19536	16236	21582
May 03	30000		157	18.0	58	49	307	43560	36366	26796	27522
May 03	45000		150	17.9	58	56	295	59400	49649	31086	31878
May 19	15000		144	22.0	57	29	271	23760	21467	19074	21582
May 19	30000		158	20.1	58	68	303	43560	37554	26862	27126
May 19	45000		129	20.2	56	88	248	59400	51266	31152	31284
June 13	15000		99	33.4	49	1	165	23760	21500	16698	20460
June 13	30000		124	31.2	50	20	211	43560	39254	27588	28116
June 13	45000		110	35.0	48	24	180	59400	53345	36894	37620

continued

Table C-61. Plant Density, Planting Date, and Hybrid Influence on Corn Silage Yield and Quality and Corn Grain
(continued) **Arlington, WI - 2003**

Date of planting	Target plant density	Hybrid	Grain				Grower return	Seeds planted	Stand		Harvest ears
			Yield	Moisture	Test Wt	Lodging			Emerged	Harvest	
			bu/A	%	lbs/bu	%	$/A	seeds/A	seeds/A	plants/A	ears/A
May 03	15000	Mycogen 4521Bt	144	18.5	57	24	280	23760	20625	17424	21648
May 03	15000	Pioneer 38A25	146	20.9	58	3	278	23760	18447	15048	21516
May 03	30000	Mycogen 4521Bt	144	17.2	58	64	285	43560	39600	27324	28116
May 03	30000	Pioneer 38A25	169	18.8	58	34	328	43560	33132	26268	26928
May 03	45000	Mycogen 4521Bt	146	16.8	57	59	289	59400	53955	32076	33132
May 03	45000	Pioneer 38A25	155	18.9	58	52	301	59400	45342	30096	30624
May 19	15000	Mycogen 4521Bt	137	22.1	56	50	258	23760	22341	19008	20328
May 19	15000	Pioneer 38A25	151	21.8	57	9	285	23760	20592	19140	22836
May 19	30000	Mycogen 4521Bt	152	19.3	59	74	293	43560	40623	27192	27456
May 19	30000	Pioneer 38A25	164	20.9	57	61	312	43560	34485	26532	26796
May 19	45000	Mycogen 4521Bt	124	20.6	54	87	237	59400	53361	31416	31680
May 19	45000	Pioneer 38A25	135	19.8	59	89	259	59400	49170	30888	30888
June 13	15000	Mycogen 4521Bt	86	34.9	48	1	139	23760	22770	18480	20724
June 13	15000	Pioneer 38A25	113	31.8	49	1	190	23760	20229	14916	20196
June 13	30000	Mycogen 4521Bt	113	33.9	48	7	186	43560	41712	29304	29700
June 13	30000	Pioneer 38A25	135	28.4	51	32	237	43560	36795	25872	26532
June 13	45000	Mycogen 4521Bt	80	38.6	46	6	124	59400	57024	39732	40524
June 13	45000	Pioneer 38A25	140	31.3	50	41	237	59400	49665	34056	34716
Mean			135	24.2	55	38	251	42240	36659	25821	27463
Probability(%)											
Date of Planting (D)			0.0	0.0	0.0	0.1	0.0	-	0.1	6.3	17.8
Plant Density (P)			0.0	0.2	1.8	0.0	0.0	-	0.0	0.0	0.0
D x P			0.6	0.9	80.5	2.8	1.1	-	18.6	0.8	0.6
Hybrid (H)			0.0	1.6	0.0	11.2	0.0	-	0.0	0.5	5.2
D x H			0.0	0.0	14.8	0.0	0.0	-	8.5	9.6	12.0
P x H			15.1	22.1	3.5	0.5	11.7	-	0.0	83.0	9.9
D x P x H			1.0	24.8	21.4	38.3	1.3	-	8.6	96.1	93.5
LSD(0.10)											
Date of Planting (D)			4	2.1	1	10	5	-	544	1459	NS
Plant Density (P)			5	0.8	1	7	9	-	633	1475	1401
D x P			9	1	NS	13	16	-	NS	2555	2427
Hybrid (H)			4	0.7	0.7	NS	8	-	517	1204	1144
D x H			7	1.2	NS	10	13	-	896	2086	NS
P x H			NS	NS	1	10	NS	-	896	NS	1981
D x P x H			13	NS	NS	NS	23	-	1551	NS	NS
CV(%)			7	6	3	33	7	-	3	10	9

continued

Table C-61. Plant Density, Planting Date, and Hybrid Influence on Corn Silage Yield and Quality and Corn Grain
(continued) **Arlington, WI - 2003**

			Whole Plant												
Date			Dry Matter		Kernel milk	Harvest		Crude				*In Vitro*	Cell Wall		Milk per	
of planting	Density	Hybrid	yield	Moisture	stage	plants	ears	protien	ADF	NDF		Digest	Digest	Starch	Ton	Acre
			tons/A	%	%	plants/A	ears/A	%	%	%		%	%	%	lbs/T	lbs/A
		Mycogen 4521Bt	7.3	64.7	44.3	30419	32736	8.3	28.9	53.9		80.4	63.7	26.7	3393	24612
		Pioneer 38A25	7.8	58.6	35.0	27955	30272	7.8	25.3	49.5		83.2	66.1	33.1	3542	27524
	15000		6.6	63.5	53.9	16852	22484	8.3	25.7	49.7		83.2	66.1	29.7	3619	24079
	30000		7.7	61.5	33.6	29392	30360	7.9	27.1	51.4		81.8	64.7	30.8	3457	26575
	45000		8.2	60.0	31.4	41316	41668	7.9	28.6	53.9		80.4	63.9	29.1	3331	27360
	15000	Mycogen 4521Bt	6.5	65.7	52.2	17512	23408	8.6	26.9	51.2		82.3	65.5	28.0	3567	23270
	15000	Pioneer 38A25	6.8	61.3	55.6	16192	21560	8.1	24.3	47.9		84.1	66.8	31.7	3678	24988
	30000	Mycogen 4521Bt	7.5	65.1	38.9	31504	32296	8.2	29.0	53.7		80.3	63.4	27.8	3395	25440
	30000	Pioneer 38A25	7.9	57.9	28.3	27280	28424	7.7	25.2	49.1		83.2	65.9	33.8	3519	27710
	45000	Mycogen 4521Bt	7.8	63.4	41.7	42240	42504	8.1	30.8	56.7		78.4	62.1	24.3	3216	25127
	45000	Pioneer 38A25	8.6	56.6	21.1	40392	40832	7.7	26.4	51.2		82.4	65.7	33.8	3445	29592
May 03			7.9	57.9	21.1	29260	32516	7.6	27.5	51.9		80.6	62.9	32.4	3318	26541
May 19			7.4	63.7	40.8	29480	32032	7.9	28.8	53.9		80.9	64.7	29.5	3441	25506
June 13			7.2	63.4	56.9	28820	29964	8.7	25.2	49.3		83.6	66.9	27.7	3632	26103
May 03		Mycogen 4521Bt	7.7	59.7	19.4	31504	34760	7.7	28.7	53.0		79.5	61.5	31.3	3268	25111
May 03		Pioneer 38A25	8.2	56.0	22.8	27016	30272	7.4	26.2	50.7		81.9	64.3	33.7	3374	28149
May 19		Mycogen 4521Bt	7.2	67.0	43.3	30712	33528	8.1	30.5	56.1		79.7	64.0	26.6	3380	24299
May 19		Pioneer 38A25	7.6	60.5	38.3	28248	30536	7.6	27.0	51.7		82.2	65.5	32.5	3501	26714
June 13		Mycogen 4521Bt	6.9	67.4	70.0	29040	29920	9.1	27.6	52.5		81.8	65.5	22.1	3531	24428
June 13		Pioneer 38A25	7.4	59.4	43.9	28600	30008	8.3	22.8	46.1		85.4	68.4	33.3	3734	27778
May 03	15000		6.9	61.5	32.5	17688	25212	7.9	25.6	49.1		82.5	64.3	32.1	3551	24790
May 03	30000		8.4	58.1	19.2	29436	30888	7.5	27.3	51.6		81.0	63.2	33.3	3354	28246
May 03	45000		8.5	54.0	11.7	40656	41448	7.4	29.3	54.7		78.7	61.2	31.8	3088	26295
'May 19	15000		7.0	65.0	65.8	16896	23100	8.0	26.9	51.3		82.8	66.5	30.8	3621	25487
May 19	30000		7.3	63.5	28.3	28908	29832	7.8	28.7	53.4		80.8	64.0	30.4	3413	24839
May 19	45000		7.9	62.8	28.3	42636	43164	7.8	30.8	57.0		79.2	63.7	27.5	3288	26193
June 13	15000		6.0	64.0	63.3	15972	19140	9.0	24.6	48.5		84.1	67.2	26.7	3676	22078
June 13	30000		7.4	62.9	53.3	29832	30360	8.6	25.3	49.3		83.5	66.7	28.6	3604	26641
June 13	45000		8.2	63.2	54.2	40656	40392	8.5	25.8	50.2		83.3	66.9	27.8	3616	29590

continued

Table C-61. Plant Density, Planting Date, and Hybrid Influence on Corn Silage Yield and Quality and Corn Grain
(continued) **Arlington, WI - 2003**

			Whole Plant												
Date			Dry Matter		Kernel milk	Harvest		Crude				*In Vitro*	Cell Wall		Milk per	
of planting	Density	Hybrid	yield	Moisture	stage	plants	ears	protien	ADF	NDF		Digest	Digest	Starch	Ton	Acre
			tons/A	%	%	plants/A	ears/A	%	%	%		%	%	%	lbs/T	lbs/A
May 03	15000	Mycogen 4521Bt	6.9	62.2	26.7	20328	27984	7.9	26.1	49.9		82.0	64.1	32.5	3524	24506
May 03	15000	Pioneer 38A25	6.9	60.8	38.3	15048	22440	7.7	24.7	47.9		83.1	64.8	31.6	3590	25216
May 03	30000	Mycogen 4521Bt	8.0	60.8	23.3	31680	33000	7.6	29.2	53.6		79.4	61.7	31.6	3290	26456
May 03	30000	Pioneer 38A25	8.8	55.5	15.0	27192	28776	7.4	25.4	49.5		82.6	64.8	35.0	3418	30037
May 03	45000	Mycogen 4521Bt	8.1	56.1	8.3	42504	43296	7.5	30.6	55.6		77.0	58.8	29.8	2989	24372
May 03	45000	Pioneer 38A25	8.9	51.8	15.0	38808	39600	7.2	27.9	53.7		80.4	63.6	33.9	3186	28218
May 19	15000	Mycogen 4521Bt	6.9	67.2	65.0	16896	24552	8.3	27.7	52.0		82.5	66.4	29.8	3599	24708
May 19	15000	Pioneer 38A25	7.2	62.7	66.7	16896	21648	7.8	26.0	50.6		83.2	66.7	31.9	3642	26266
May 19	30000	Mycogen 4521Bt	7.3	66.5	21.7	32472	32736	8.0	29.9	54.7		79.8	63.2	29.2	3384	24730
May 19	30000	Pioneer 38A25	7.3	60.5	35.0	25344	26928	7.5	27.4	52.1		81.7	64.8	31.5	3443	24947
May 19	45000	Mycogen 4521Bt	7.4	67.3	43.3	42768	43296	8.0	34.0	61.5		76.9	62.4	20.9	3159	23457
May 19	45000	Pioneer 38A25	8.5	58.3	13.3	42504	43032	7.7	27.6	52.5		81.6	65.0	34.0	3417	28929
June 13	15000	Mycogen 4521Bt	5.8	67.6	65.0	15312	17688	9.4	26.9	51.7		82.5	66.1	21.6	3579	20596
June 13	15000	Pioneer 38A25	6.2	60.5	61.7	16632	20592	8.5	22.2	45.3		85.6	68.3	31.7	3773	23559
June 13	30000	Mycogen 4521Bt	7.2	67.9	71.7	30360	31152	9.1	27.9	52.9		81.6	65.2	22.5	3512	25134
June 13	30000	Pioneer 38A25	7.6	57.8	35.0	29304	29568	8.0	22.6	45.8		85.5	68.2	34.8	3697	28147
June 13	45000	Mycogen 4521Bt	7.9	66.7	73.3	41448	40920	8.8	27.9	53.0		81.5	65.0	22.2	3501	27552
June 13	45000	Pioneer 38A25	8.5	59.8	35.0	39864	39864	8.2	23.7	47.3		85.2	68.7	33.4	3732	31628
Mean			7.5	61.7	39.6	29187	31504	8.0	27.1	51.7		81.8	64.9	29.9	3466	26041
Probability(%)																
Date of Planting (D)			20.1	0.1	1.9	85.1	4.9	0.2	3.6	5.5		1.7	0.6	4.8	0.4	88.3
Plant Density (P)			0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0		0.0	0.4	26.4	0.0	0.1
D x P			6.2	0.9	0.5	29.2	2.2	73.4	42.5	38.0		15.0	18.2	47.6	0.2	0.6
Hybrid (H)			0.9	0.0	0.2	0.0	0.1	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.1
D x H			98.9	1.7	0.0	2.5	2.1	1.7	14.9	7.6		38.8	38.8	0.1	41.2	75.3
P x H			43.6	13.0	0.4	10.5	31.3	74.1	17.8	30.9		5.7	6.4	2.6	14.8	15.7
D x P x H			71.0	48.2	0.6	11.1	26.9	78.4	24.8	20.1		54.7	86.3	13.9	81.0	54.1
LSD(0.10)																
Date of Planting (D)			NS	1.2	15.3	NS	1539	0.3	1.9	2.7		1.3	1.2	2.5	82	NS
Plant Density (P)			0.4	1.2	5.5	1190	1334	0.2	1.0	1.5		0.9	0.9	NS	61	1407
D x P			0.6	2.1	13.6	NS	2311	NS	NS	NS		NS	NS	NS	106	2437
Hybrid (H)			0.3	1.0	4.5	972	1090	0.1	0.8	1.2		0.7	0.8	1.4	50	1149
D x H			NS	1.8	7.8	1683	1887	0.2	NS	2.1		NS	NS	2.5	NS	NS
P x H			NS	NS	7.8	NS	NS	NS	NS	NS		1.2	1.3	2.5	NS	NS
D x P x H			NS	NS	13.6	NS	NS	NS	NS	NS		NS	NS	NS	NS	NS
CV(%)			8	4	25	7	7	4	6	5		2	3	10	3	10

FIELD EXPERIMENT HISTORY

Title: **Twin Row Corn Strip Trial**

Experiment: 05 Row Spacing **Trial ID:** 03C57 **Year:** 2003

Personnel: M.G. Bertram

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

Supported by: Marshfield Ag. Research Station

Site Information

Field: N5 **Soil Type:** Withee Silt Loam

Soil Test : **Date:** 10/25/02 **pH** 6.5 **OM (%)** 3.0 **P (ppm)** 64 **K (ppm)** 127

Plot Management

Tillage Operations: Moldboard Plow Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	none	N/A	N/A
Starter	15-10-24	200	5/1/2003
Post plant	none	N/A	N/A
Manure	Manure	10800 gallons	9/15/2002

Herbicide: Dual 1.33 pt/A
Hornet 2.4 oz/A
Atrazine 1.0 qt/A

Insecticide: None

Irrigation: None **Hybrid:** Pioneer 38K06

Planting Date: 5/1/2003 **Planting Depth:** 1.5" **Row Width:** Varies

Target Plant Density: Varies **plants per acre** **Planting Method:** John Deere 1750 planter

Harvest Date: 10/27/2003 **Harvest Method:** John Deere combine

Notes:

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 585' x 15' **Experiment Size:** 3.63 A

Harvest Plot size: 585' x 15'

Factors/Treatments:

Row Spacing	Target Population
Single 30"	30000
Twin 6" on 30" centers	45000
	60000

Results: Table C-62.

Table C-62. Twin Row Corn Strip Trial
Marshfield, WI

Row Spacing	Target population	Harvested population	Broken Stalks	Test Weight	Grain	
					Moisture	Yield
	x 1000 ppa	ppa	%	lb/bu	%	bu/A
Single		42514	16.8	53.1	17.2	101
Twin		44876	21.3	53.1	17.1	98
	30	31479	4.1	53.9	15.9	107
	45	43966	13.0	53.5	17.1	102
	60	55641	40.0	51.9	18.4	90
Single	30	29969	1.5	54.0	15.8	109
Single	45	42630	14.4	53.5	17.0	102
Single	60	54944	34.5	51.8	18.6	93
Twin	30	32989	6.7	53.8	16.0	106
Twin	45	45302	11.6	53.5	17.2	102
Twin	60	56338	45.5	52.0	18.2	87
Mean		43695	19.0	53.1	17.1	100
Probability (%)						
Row Spacing (S)		8.4	29.1	>50	>50	6.3
Population (P)		<0.1	<0.1	<0.1	<0.1	<0.1
S x P		>50	39.6	>50	32.9	24.9
LSD 10%						
Row Spacing (S)		2237	NS	NS	NS	2
Population (P)		2740	8.8	0.5	0.3	3
S x P		NS	NS	NS	NS	NS
C.V. (%)		6	45	1	2	3

FIELD EXPERIMENT HISTORY

Title: **Plant Density and Row Spacing Effects on Corn Grain and Silage**

Experiment: 06 RS x PD **Trial ID** 2501 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery and K.D. Kohn

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 11/01/03 **pH** 7.1 **OM (%)** 3.0 **P (ppm)** 39 **K (ppm)** 139

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Soil Finisher

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	None	

Herbicide: Dual II 2.0 pt/A
Hornet 4.0 oz/A

Insecticide: None

Hybrid: Dekalb DKC5334

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width:** See Factors

Target Plant Density: See Factors **Planting Method:** Kinze Inter-Row Planter

Harvest Date: S: 9/17/03
G: 10/23/03

Harvest Method: S:New Holland Plot Chopper
G:Kincaid Plot Combine

Experimental Design

Design: See Factors **Replications:** 3

Plot Size Seeded: 10' x 75' **Experiment Size:** 0.41 Acre

Harvest Plot Size: S: 5' x 8.75'
G: 5' x 66.25'

Harvest Plant Density: See Factors

Factors/Treatments:

Row Spacing:	Plant Density: (plants/A)
15 inch	25000, 30000, 35000
30 inch	and 40000

Results: Table C-63.

Table C-63. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality
Arlington, WI - 2003

		Grain								
								Yield Components @ 0% moisture		
Row spacing	Density	Harvest pop	Broken stalks	Yield	Moisture	Test weight	Grower return	Ear number	Kernels number	100 Kernel wt
inches	plants/A	plants/A	%	bu/A	%	lbs/bu	$/A	ears/A	no./ear	grams
	25000	19664	2	128	19.0	57	248	20660	504	26.8
	30000	22568	0	142	19.6	57	274	23066	476	27.8
	35000	26385	2	131	18.0	56	256	26551	429	25.3
	40000	29787	2	151	19.0	55	293	29787	434	25.4
15 inches		23149	2	133	19.2	56	258	23481	471	26.6
30 inches		26053	1	142	18.6	56	276	26551	451	26.1
15 inches	25000	18586	4	115	19.2	57	222	19083	517	25.6
15 inches	30000	21407	1	137	19.9	57	264	21904	492	27.3
15 inches	35000	24062	0	141	19.0	57	273	24394	479	25.9
15 inches	40000	28542	2	141	18.8	54	275	28542	394	27.4
30 inches	25000	20743	0	141	18.8	56	274	22236	490	27.9
30 inches	30000	23730	0	146	19.3	57	283	24228	459	28.3
30 inches	35000	28708	4	121	17.1	54	238	28708	379	24.6
30 inches	40000	31031	2	160	19.2	56	310	31031	474	23.5
Mean		24601	1	138	18.9	56	267	25016	461	26.3
Probability(%)										
Row Space (S)		0.5	82.3	12.8	18.6	35.5	8.1	0.6	44.0	66.2
Plant Density (D)		0.0	74.0	3.1	14.9	11.7	2.3	0.0	16.2	31.5
S x D		72.5	19.1	3.9	36.4	5.2	3.3	87.3	13.4	20.1
LSD(0.10)										
Row Space (S)		1543	NS	NS	NS	NS	17	1653	NS	NS
Plant Density (D)		2183	NS	13	NS	NS	24	2338	NS	NS
S x D		NS	NS	19	NS	2	34	NS	NS	NS
CV(%)		9	189	9	6	2	9	9	13	10

continued

Table C-63. Plant Density and Row Spacing Effects on Corn Grain and Silage Yield and Quality
(continued) **Arlington, WI - 2003**

		Whole Plant											
Row spacing	Density	Harvest pop	Yield	Moisture	Kernel milk	Crude protien	ADF	NDF	In Vitro Digest	NDFD	Starch	Milk per Ton	Milk per Acre
inches	plants/A	plants/A	tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/A
	25000	25000	7.6	46.7	26	7.0	23.2	46.6	84.4	66.9	40.0	3455	26454
	30000	27833	8.2	48.5	23	6.5	27.8	53.1	81.6	65.9	33.8	3284	27120
	35000	30000	7.7	43.4	17	7.3	23.0	47.1	85.1	68.7	39.1	3510	27019
	40000	33333	8.2	52.2	24	6.3	30.3	56.6	79.4	64.5	30.0	3155	27236
15 inches		27417	8.0	49.7	22	6.6	26.8	51.9	82.1	66.5	35.0	3323	27553
30 inches		30667	7.8	45.7	23	7.0	25.3	49.8	83.1	66.4	36.5	3379	26388
15 inches	25000	24000	7.6	48.5	28	6.7	24.9	49.4	83.2	66.7	37.7	3387	25933
15 inches	30000	26667	8.2	50.5	20	6.5	28.9	55.1	81.2	66.8	31.1	3292	27224
15 inches	35000	26667	7.6	45.4	13	7.3	21.0	44.3	86.3	69.3	42.0	3580	27220
15 inches	40000	32333	9.2	54.5	27	6.0	32.3	58.7	77.8	63.4	29.1	3032	30974
30 inches	25000	26000	7.7	44.8	23	7.3	21.4	43.7	85.6	67.2	42.3	3523	26975
30 inches	30000	29000	8.2	46.5	27	6.6	26.6	51.1	82.0	65.0	36.5	3276	27017
30 inches	35000	33333	7.7	41.4	20	7.4	25.0	49.9	83.9	68.0	36.1	3440	26817
30 inches	40000	34333	7.5	49.9	22	6.6	28.2	54.4	81.0	65.6	30.9	3277	24743
Mean		29042	7.9	47.7	23	6.8	26.0	50.8	82.6	66.5	35.7	3351	26945
Probability(%)													
Row Space (S)		2.0	53.8	17.3	89.5	18.3	67.1	66.1	69.0	96.2	75.3	71.6	54.3
Plant Density (D)		0.2	51.3	21.8	73.8	7.7	38.3	39.0	36.9	38.4	41.0	36.6	98.5
S x D		48.6	36.0	100	82.7	79.2	83.0	81.8	85.9	82.7	81.9	81.8	72.6
LSD(0.10)													
Row Space (S)		2172	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Plant Density (D)		3071	NS	NS	NS	0.7	NS	NS	NS	NS	NS	NS	NS
S x D		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CV(%)		10	11	15	67	10	32	22	7	6	32	11	19

FIELD EXPERIMENT HISTORY

Title: **Narrow Row Corn x Population Study**

Experiment: 06 RS x PD **Trial ID:** 03C53 **Year:** 2003

Personnel: M.G. Bertram

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

Supported by: Marshfield Ag. Research Station

Site Information

Field: W9 **Soil Type:** Withee Silt Loam

Soil Test : **Date:** 10/25/02 **pH** 6.5 **OM (%)** 2.9 **P (ppm)** 44 **K (ppm)** 107

Plot Management

Tillage Operations: Chisel Plow Field Cultivator

Fertilizer:

	Analysis	Rate	Date
Preplant	none	N/A	N/A
Starter	none	N/A	N/A
Post plant	46-0-0	300	6/23/2002
Manure	none	N/A	N/A

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
Atrazine 1.0 qt/A
Permit 1.07 oz/A

Insecticide: None

Irrigation: None **Hybrid:** Pioneer 38K07

Planting Date: 5/2/2003 **Planting Depth:** 1.5" **Row Width:** Varies

Target Plant Density: Varies **plants per acre** **Planting Method:** Varies

Harvest Date: 10/27/2003 **Harvest Method: John Deere plot combine**

Notes:

Experimental Design

Design: RCB **Replications:** 4

Plot Size Seeded: 30' x 10' **Experiment Size:** 0.87 A

Harvest Plot size: **Silage:** 10' x 4.5 - 5'
Grain: 20' x 4.5 - 5'

Factors/Treatments:

Row Spacing	Target Population
John Deere 7000 corn planter: 30"	30000
John Deere 450 grain drill: 30"	45000
John Deere 450 grain drill: 18"	60000
John Deere 450 grain drill: Twin 30"	75000

Results: Table C-64.

Table C-64. Narrow Row Corn x Population Study

Marshfield, WI

Equipment type	Row spacing	Target population	Early population	Average spacing	Std. Dev spacing	Grain population	Ear:Plant ratio	Barren stalks	Broken stalks	Grain		Partial return[1]
										Moisture	Yield	
	in.	K ppa	ppa	in.	in.	ppa		%	%	%	bu/A	$/A
Planter	30	30	26281	7.6	4.8	26622	99.5	5.9	0.9	17.3	91.9	143
Planter	30	45	42471	4.5	2.7	40285	91.6	9.3	1.5	18.1	90.3	116
Planter	30	60	50457	4.2	2.7	50207	90.3	7.4	0.7	18.5	90.2	93
Planter	30	75	87193	2.4	1.5	84245	78.1	22.5	1.6	19.7	73.8	36
Drill	30	30	26281	7.4	5.9	28077	97.4	8.3	0.4	16.9	86.1	131
Drill	30	45	37825	5.7	4.6	37305	93.7	6.6	0.9	17.8	89.4	115
Drill	30	60	42108	4.6	3.7	44720	88.9	11.1	0.9	18.2	87.4	88
Drill	30	75	53071	3.7	3.0	51840	89.1	9.1	0.4	17.8	87.7	67
Drill	18	30	22909	13.7	12.1	26101	100.2	6.5	0.5	17.0	79.1	117
Drill	18	45	36300	8.5	7.5	38332	92.9	7.4	0.0	18.7	89.5	113
Drill	18	60	39527	6.9	6.5	44200	92.0	8.3	0.7	17.5	93.4	101
Drill	18	75	52353	6.2	5.7	57160	88.2	10.4	0.6	18.8	99.0	88
Drill	Twin 30	30	24176	14.4	11.0	26013	102.1	3.8	0.0	17.7	86.9	132
Drill	Twin 30	45	38914	8.6	7.4	39152	92.9	7.1	1.8	17.6	77.9	92
Drill	Twin 30	60	46972	7.6	5.6	48912	90.3	9.5	0.7	18.0	95.9	105
Drill	Twin 30	75	57717	6.0	5.0	58360	88.8	11.6	1.0	18.1	94.1	80
Mean			42785	7.0	5.6	43846	92.2	9.1	0.8	18.0	88.3	101
Probability (%)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	>50	0.1	30.6	<0.1
LSD (0.10)			5868	2.2	2.1	5508	5.7	3.8	NS	0.9	NS	29
C.V. (%)			12	26	31	11	5	35	150	4	14	24

(continued)

1/ Partial return is calculated using: $2.24 per bushel minus seed cost: $118/80K unit; drying: $0.02/bu over 15.5% moisture; handling: $0.02/bu; hauling: $0.04/bu; and trucking: $0.11/bu.

Table C-64. Narrow Row Corn x Population Study

(continued) Marshfield, WI

Equipment type	Row spacing	Target population	Silage population	Ear:Plant ratio	Kernel milk	Whole Plant Moisture	Whole Plant Yield	Crude protein	NDF	ADF	IVTDMD	Starch	NDFD	Milk Per ton	Milk Per acre
	in.	K ppa	ppa	%	%	%	tn dm/A	%	%	%	%	%	%	lb/t	lb/A
Planter	30	30	26572	108	50.0	54.9	4.7	6.4	46.8	23.0	84.4	28.5	66.7	3836	17884
Planter	30	45	43124	95	57.5	53.4	5.5	6.2	45.2	22.0	84.7	30.4	66.4	3882	21412
Planter	30	60	51183	93	42.5	55.1	5.2	6.2	50.1	25.1	83.2	25.7	66.8	3749	19319
Planter	30	75	87338	81	32.5	58.9	5.3	5.9	50.8	26.0	83.4	22.1	67.5	3749	19778
Drill	30	30	27443	105	50.0	52.8	4.6	6.3	49.9	24.2	83.8	26.5	67.5	3817	17513
Drill	30	45	41382	96	47.5	56.1	5.0	5.7	49.4	24.8	83.2	26.8	66.0	3772	19059
Drill	30	60	45520	89	47.5	54.9	5.1	6.1	47.6	23.1	84.1	28.3	66.5	3836	19728
Drill	30	75	55975	91	55.0	55.7	5.1	6.4	48.3	23.6	84.3	28.0	67.5	3838	19772
Drill	18	30	27104	70	52.5	56.4	4.5	5.8	50.7	25.3	83.1	24.4	66.7	3763	17102
Drill	18	45	40172	65	45.0	56.6	5.2	5.8	47.8	23.8	83.7	27.8	66.0	3817	19814
Drill	18	60	43560	65	47.5	55.7	5.1	6.3	48.3	23.4	84.3	27.9	67.5	3851	21755
Drill	18	75	53240	60	57.5	53.4	5.9	5.8	47.3	23.0	83.9	30.1	66.2	3826	22557
Drill	Twin 30	30	26354	104	42.5	55.3	4.7	6.3	46.7	22.6	85.2	28.4	68.3	3933	18479
Drill	Twin 30	45	46174	92	62.5	53.8	5.5	5.9	47.0	23.4	83.8	30.3	65.6	3835	20945
Drill	Twin 30	60	51183	91	57.5	54.0	5.1	6.6	48.2	23.6	84.3	27.1	67.5	3808	19510
Drill	Twin 30	75	63815	90	47.5	55.0	5.9	5.8	49.9	24.6	83.8	26.3	67.5	3824	22574
Mean			45633	87	49.7	55.1	5.2	6.1	48.4	23.8	84.0	27.4	66.9	3821	19831
Probability (%)			<0.1	<0.1	1.80	0.60	2.60	3.70	>50	>50	>50	8.20	>50	>50	9.00
LSD (0.10)			6649	7	11.7	2.2	0.7	0.5	NS	NS	NS	4.0	NS	NS	3064
C.V. (%)			12	7	20	3	11	6	7	9	2	12	3	4	13

FIELD EXPERIMENT HISTORY

Title: **Date of Planting and Row Spacing Influence on Grain Yield**

Experiment: 07 Date of Planting and Row Space **Trial ID** 2500 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery and K.D. Kohn

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 11/01/03 **pH** 7.1 **OM (%)** 2.8 **P (ppm)** 54 **K (ppm)** 148

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator prior to each DOP

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Dual II 2.0 pt/A
Hornet 4.0 oz/A

Insecticide: None

Hybrid: See Factors

Irrigation: None

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

Target Plant Density: 30000 **Planting Method:** Kinze Inter-Row Planter

Harvest Date: 10/23/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB Split-Plot **Replications:** 3

Plot Size Seeded: 10' x 75' **Experiment Size:** 0.62 Acre

Harvest Plot Size: 5' x 75' **Harvest Plant Density:** 27200

Factors/Treatments:

Date of Planting:	Row Spacing:	Hybrid:
May 02	15 inch	Dekalb DKC3947
May 21	30 inch	Dekalb DKC5334
June 10		

Results: Table C-65.

Table C-65. Date of Planting and Row Spacing Influence on Grain Yield

Arlington, WI - 2003

								Yield Components @ 0% moisture			
Planting date	Row spacing	Hybrid	Yield	Moisture	Test wt.	Grower return	Lodged	Plant number	Ear number	100 Kernel wt.	Kernel no./ear
			bu/A	%	lbs/bu	$/A	%	plants/A	ears/A	grams	kernels/ear
		DeKalb DKC3947	150	20.0	57	288	2.9	26966	27270	30.3	476
		DeKalb DKC5334	158	24.9	53	289	3.0	27464	27685	26.7	560
	15 inches		151	22.5	56	281	1.9	26081	26274	29.4	513
	30 inches		158	22.4	55	296	4.0	28349	28680	27.5	523
	15 inches	DeKalb DKC3947	143	20.2	58	274	3.8	25887	26164	31.4	459
	15 inches	DeKalb DKC5334	158	24.9	53	288	0.0	26274	26385	27.5	566
	30 inches	DeKalb DKC3947	157	19.8	57	302	2.1	28044	28376	29.1	493
	30 inches	DeKalb DKC5334	159	25.0	53	290	5.9	28653	28985	25.8	554
May 02			149	19.2	58	287	1.2	20328	21199	31.2	576
May 21			169	20.0	58	324	4.9	29662	29621	28.2	522
June 10			145	28.2	50	255	2.7	31654	31612	25.9	456
May 02		DeKalb DKC3947	140	17.8	60	275	1.5	19664	20743	32.3	538
May 02		DeKalb DKC5334	157	20.6	57	300	0.8	20992	21656	30.2	615
May 21		DeKalb DKC3947	162	18.7	60	314	2.6	29123	29123	30.6	462
May 21		DeKalb DKC5334	176	21.3	56	333	7.3	30202	30119	25.9	581
June 10		DeKalb DKC3947	149	23.6	53	275	4.7	32110	31944	27.9	427
June 10		DeKalb DKC5334	141	32.9	47	235	0.8	31197	31280	23.9	485
May 02	15 inches		142	19.5	59	273	1.5	19083	19913	32.0	573
May 02	30 inches		156	18.9	58	302	0.8	21573	22485	30.5	580
May 21	15 inches		165	20.3	58	315	1.8	27712	27629	29.2	527
May 21	30 inches		173	19.7	58	333	8.1	31612	31612	27.3	516
June 10	15 inches		145	27.8	50	256	2.3	31446	31280	27.1	438
June 10	30 inches		145	28.7	50	254	3.1	31861	31944	24.7	474

continued

Table C-65. Date of Planting and Row Spacing Influence on Grain Yield

(continued) **Arlington, WI - 2003**

Planting date	Row spacing	Hybrid	Yield	Moisture	Test wt.	Grower return	Lodged	Yield Components @ 0% moisture: Plant number	Ear number	100 Kernel wt.	Kernel no./ear
			bu/A	%	lbs/bu	$/A	%	plants/A	ears/A	grams	kernels/ear
May 02	15 inches	DeKalb DKC3947	131	18.4	60	256	3.1	18254	19249	33.4	527
May 02	15 inches	DeKalb DKC5334	153	20.7	57	291	0.0	19913	20577	30.6	619
May 02	30 inches	DeKalb DKC3947	149	17.2	59	294	0.0	21075	22236	31.1	549
May 02	30 inches	DeKalb DKC5334	162	20.6	56	309	1.6	22070	22734	29.9	611
May 21	15 inches	DeKalb DKC3947	149	19.0	60	289	3.6	27381	27381	31.5	439
May 21	15 inches	DeKalb DKC5334	181	21.6	56	341	0.0	28044	27878	27.0	616
May 21	30 inches	DeKalb DKC3947	174	18.4	59	339	1.6	30865	30865	29.8	485
May 21	30 inches	DeKalb DKC5334	172	21.0	56	326	14.5	32359	32359	24.7	547
June 10	15 inches	DeKalb DKC3947	150	23.2	53	278	4.6	32027	31861	29.3	411
June 10	15 inches	DeKalb DKC5334	140	32.3	47	234	0.0	30865	30699	24.9	464
June 10	30 inches	DeKalb DKC3947	148	23.9	53	272	4.7	32193	32027	26.5	444
June 10	30 inches	DeKalb DKC5334	143	33.4	46	236	1.6	31529	31861	22.8	505
Mean			154	22.5	55	289	2.9	27215	27477	28.5	518
Probability(%)											
Planting Date (D)			19.3	0.1	0.0	5.6	50.3	0.0	0.1	2.2	5.0
Row Spacing (S)			1.1	72.0	5.4	0.4	16.9	0.2	0.2	0.2	56.6
D x S			14.5	13.5	78.5	3.9	15.5	10.8	13.4	75.8	57.3
Hybrid (H)			0.6	0.0	0.0	78.6	99.6	44.4	52.6	0.0	0.0
D x H			0.2	0.0	0.1	0.0	8.3	31.3	50.6	13.8	38.9
S x H			2.9	51.6	79.0	1.0	1.9	86.4	76.6	58.8	22.7
D x S x H			1.9	79.9	58.0	1.1	11.7	88.2	80.1	73.3	39.9
LSD (0.10)											
Planting Date (D)			NS	1.9	1	41	NS	1857	2022	2.4	69
Row Spacing (S)			5	NS	0	8	NS	1103	1112	0.9	NS
D x S			NS	NS	NS	13	NS	NS	NS	NS	NS
Hybrid (H)			5	0.6	0	NS	NS	NS	NS	0.9	32
D x H			8	1.0	1	13	4.4	NS	NS	NS	NS
S x H			6	NS	NS	11	3.6	NS	NS	NS	NS
D x S x H			11	NS	NS	19	NS	NS	NS	NS	NS
CV(%)			5	4	1	5	149	7	7	6	11

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Fungicide **Trial ID** 2507 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

Field: ARS412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/15/03 **pH** 6.8 **OM (%)** 3.8 **P (ppm)** 61 **K (ppm)** 159

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	N/A
Starter	6-24-24	150	4 /23/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 4.5 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Hybrid: NK N32L9
NK N43C4

Planting Date: 4/23/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/30/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB Factorial **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.6 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 29200 **plants per acre**

Factors/Treatments:

Seed Treatments:

Check	(2x)Maxim XL+Protege+Crusier
A14075A @ 0.136	A13641A @ 0.134
A14075A @ 0.272	A13641A @ 0.268
A14075B @ 0.136	Maxim XL+Cruiser
A14075B @ 0.272	Maxim XL
A14115A @ 0.138	Maxim XL+Protege
A14117A @ 0.135	Maxim XL+Apron
Maxim XL+Protege+Crusier	Captan+Allegiance+Gaucho

Results: Table C-66.

Table C-66. Seed Treatment Fungicide.
Arlington, WI - 2003

Hybrid	Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
			plants/A	plants/A	%	bu/A	%	lb/bu	$/A
	1	Check	28588	27878	2	193	23.6	52	357
	2	A14075A @ 0.136	31557	30331	1	194	22.7	52	363
	3	A14075A @ 0.272	30847	29492	1	189	22.2	52	354
	4	A14075B @ 0.136	31879	30073	1	189	21.5	53	358
	5	A14075B @ 0.272	30847	30266	1	192	21.3	52	364
	6	A14115A @ 0.138	28007	29427	2	184	21.2	52	349
	7	A14117A @ 0.135	29685	28137	1	190	22.6	52	355
	8	Maxim XL+Protege+Crusier	29105	27491	0	189	22.0	52	355
	9	(2x)Maxim XL+Protege+Crusier	31363	30460	1	189	20.9	53	360
	10	A13641A @ 0.134	31105	29234	1	203	22.3	52	380
	11	A13641A @ 0.268	31299	29234	2	195	21.7	52	367
	12	Maxim XL+Cruiser	30460	29427	0	196	21.9	52	369
	13	Maxim XL	30524	28911	1	189	22.8	52	351
	14	Maxim XL+Protege	30395	29040	0	196	23.3	52	363
	15	Maxim XL+Apron	29879	28459	1	194	22.4	52	364
	16	Captan+Allegiance+Gaucho	31299	30008	1	189	21.4	52	357
NK N32L9			31549	30024	2	192	19.6	54	370
NK N43C4			29306	28459	0	192	24.7	50	351
NK N32L9	1	Check	30331	29814	3	203	21.0	53	386
NK N32L9	2	A14075A @ 0.136	31750	30202	1	199	20.0	55	382
NK N32L9	3	A14075A @ 0.272	32138	30847	1	194	19.3	54	375
NK N32L9	4	A14075B @ 0.136	32912	30589	1	189	19.2	54	365
NK N32L9	5	A14075B @ 0.272	31621	31621	2	195	19.9	54	375
NK N32L9	6	A14115A @ 0.138	30460	28911	4	182	18.7	55	353
NK N32L9	7	A14117A @ 0.135	31492	29685	1	191	19.0	55	370
NK N32L9	8	Maxim XL+Protege+Crusier	29169	27362	1	186	20.5	54	354
NK N32L9	9	(2x)Maxim XL+Protege+Crusier	32138	31105	2	186	19.1	54	361
NK N32L9	10	A13641A @ 0.134	32138	29814	2	204	20.3	54	390
NK N32L9	11	A13641A @ 0.268	32396	29298.1	3	185	18.9	54	359
NK N32L9	12	Maxim XL+Cruiser	32009	31234.1	0	197	18.8	54	382
NK N32L9	13	Maxim XL	31363	29169	1	181	19.0	55	351
NK N32L9	14	Maxim XL+Protege	31234	29556	1	195	20.3	53	372
NK N32L9	15	Maxim XL+Apron	32009	30460	1	197	19.7	55	379
NK N32L9	16	Captan+Allegiance+Gaucho	31621	30717.9	2	188	19.1	54	364

continued.

Table C-66. Seed Treatment Fungicide.
Arlington, WI - 2003
(continued)

Hybrid	Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
			plants/A	plants/A	%	bu/A	%	lb/bu	$/A
NK N43C4	1	Check	26846	25942	0	183	26.2	50	328
NK N43C4	2	A14075A @ 0.136	31363	30460	1	190	25.4	50	344
NK N43C4	3	A14075A @ 0.272	29556	28137	0	184	25.1	50	334
NK N43C4	4	A14075B @ 0.136	30847	29556	1	190	23.1	51	353
NK N43C4	5	A14075B @ 0.272	30073	28911	0	189	22.6	50	353
NK N43C4	6	A14115A @ 0.138	25555	29943	0	187	23.6	50	344
NK N43C4	7	A14117A @ 0.135	27878	26588	0	189	26.2	50	340
NK N43C4	8	Maxim XL+Protege+Crusier	29040	27620	0	192	23.5	50	356
NK N43C4	9	(2x)Maxim XL+Protege+Crusier	30589	29814	0	192	22.6	51	358
NK N43C4	10	A13641A @ 0.134	30073	28653	0	202	24.4	50	370
NK N43C4	11	A13641A @ 0.268	30202	29169	0	205	24.5	50	375
NK N43C4	12	Maxim XL+Cruiser	28911	27620	0	196	25.1	50	356
NK N43C4	13	Maxim XL	29685	28653	1	201	28.7	50	350
NK N43C4	14	Maxim XL+Protege	29556	28524	0	198	26.4	50	355
NK N43C4	15	Maxim XL+Apron	27749	26459	0	192	25.1	50	348
NK N43C4	16	Captan+Allegiance+Gaucho	30976	29298	0	190	23.7	50	351
Mean			30427	29242	1	192	22.1	52	360
Probability (%)									
Seed treatment (S)			2.7	1.7	41.0	54.9	11.3	60.1	51.4
Hybrid (H)			0.0	0.0	0.0	935	0.0	0.0	0.0
S x H			71.6	7.2	31.7	24.2	7.2	75.7	14.3
LSD (0.10)									
Seed treatment (S)			1837	1432	NS	NS	NS	NS	NS
Hybrid (H)			649	506	0	4	0.5	0	6
S x H			NS	2026	NS	NS	2.1	NS	NS
CV (%)			6	5	130	6	7	1	5

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Fungicide **Trial ID** 2508 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

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

Soil Test: **Date:** 10/22/03 **pH** 6.7 **OM (%)** 2.9 **P (ppm)** 47 **K (ppm)** 57

Plot Management

Tillage Operations: Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	120 lbs/A	N/A
Starter	6-24-24	9 lbs/A	5 /3 /03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Basis 0.33 oz/A
Lumax 5.0 pt/A

Insecticide: None

Irrigation: None

Hybrid: NK N43C4

Planting Date: 5/3/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/22/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 22' x 5'

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** N/A **plants per acre**

Factors/Treatments:

Seed Treatments:

Check	(2x)Maxim XL+Protege+Crusier
A14075A @ 0.136	A13641A @ 0.134
A14075A @ 0.272	A13641A @ 0.268
A14075B @ 0.136	Maxim XL+Cruiser
A14075B @ 0.272	Maxim XL
A14115A @ 0.138	Maxim XL+Protege
A14117A @ 0.135	Maxim XL+Apron
Maxim XL+Protege+Crusier	Captan+Allegiance+Gaucho

Results: Table C-67.

Table C-67. Seed Treatment Fungicide.
Fond du Lac, WI - 2003

Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
		plants/A	plants/A	%	bu/A	%	lb/bu	$/A
1	Check	22458	24006	0	175	21.8	53	329
2	A14075A @ 0.136	25684	26330	0	178	20.4	54	341
3	A14075A @ 0.272	26459	26975	0	174	21.0	53	331
4	A14075B @ 0.136	25168	25684	0	177	21.0	54	336
5	A14075B @ 0.272	25813	26975	0	181	21.3	53	342
6	A14115A @ 0.138	24910	25039	0	177	21.4	53	335
7	A14117A @ 0.135	26459	25942	0	175	20.2	53	336
8	Maxim XL+Protege+Crusier	26588	25942	0	176	20.9	53	334
9	(2x)Maxim XL+Protege+Crusier	24265	25555	1	174	21.8	53	328
10	A13641A @ 0.134	27104	25684	0	181	21.9	53	340
11	A13641A @ 0.268	25297	25555	0	175	20.9	54	332
12	Maxim XL+Cruiser	25426	28524	0	176	21.0	54	335
13	Maxim XL	23490	24394	0	167	21.7	53	315
14	Maxim XL+Protege	25555	24781	0	169	21.2	53	320
15	Maxim XL+Apron	24910	25297	0	174	21.2	53	330
16	Captan+Allegiance+Gaucho	23361	25426	1	166	20.8	53	316
Mean		25184	25757	0	175	21.2	53	331
Probability (%)								
Seed treatment (S)		21.2	71.1	19.9	37.9	15.8	22.5	29.6
LSD (0.10)								
Seed treatment (S)		NS	NS	NS	NS	NS	NS	NS
CV (%)		7	8	278	4	3	1	4

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Fungicide **Trial ID** 2509 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

Field: 008-03C50 **Previous Crop:** Alfalfa **Soil Type:** Withee Silt Loam

Soil Test: **Date:** 10/6 /03 **pH** 6.5 **OM (%)** 3.4 **P (ppm)** 66 **K (ppm)** 109

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	6-24-24	9 lbs/A	5 /1 /03
Post plant	28-0-0	45 lbs/A	6 /19/03
Manure:	Dairy	12872 gallon	

Herbicide: Harness 1.8 pt/A
Hornet 2.4 oz/A
Atrazine 4L 1.1 qt/A

Insecticide: Force 4.4 lbs/A

Irrigation:

Hybrid: NK N32L9

Planting Date: 5/1/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/8/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 5' x 25' **Experiment Size:** 0.2755 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 23611 **plants per acre**

Factors/Treatments:

Seed Treatments:

Check	(2x)Maxim XL+Protege+Crusier
A14075A @ 0.136	A13641A @ 0.134
A14075A @ 0.272	A13641A @ 0.268
A14075B @ 0.136	Maxim XL+Cruiser
A14075B @ 0.272	Maxim XL
A14115A @ 0.138	Maxim XL+Protege
A14117A @ 0.135	Maxim XL+Apron
Maxim XL+Protege+Crusier	Captan+Allegiance+Gaucho

Results: Table C-68.

Table C-68. Seed Treatment Fungicide.
Marshfield, WI - 2003

Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
		plants/A	plants/A	%	bu/A	%	lb/bu	$/A
1	Check	11100	12778	0	94	30.3	49	162
2	A14075A @ 0.136	22458	22587	1	117	26.3	51	211
3	A14075A @ 0.272	26330	27233	0	117	24.4	52	214
4	A14075B @ 0.136	24652	24523	0	114	24.6	52	209
5	A14075B @ 0.272	26071	25168	0	121	24.2	51	222
6	A14115A @ 0.138	28782	27104	1	111	23.4	51	205
7	A14117A @ 0.135	20522	21425	1	110	24.9	51	201
8	Maxim XL+Protege+Crusier	20134	20263	0	117	24.5	52	215
9	(2x)Maxim XL+Protege+Crusier	28911	28653	0	119	23.4	51	220
10	A13641A @ 0.134	24394	23103	1	121	24.3	51	222
11	A13641A @ 0.268	28911	27233	0	117	23.0	52	217
12	Maxim XL+Cruiser	22845	22716	0	109	24.7	51	199
13	Maxim XL	21554	21812	0	116	25.3	51	210
14	Maxim XL+Protege	19489	21296	0	110	27.2	51	196
15	Maxim XL+Apron	25942	24910	0	114	23.4	52	211
16	Captan+Allegiance+Gaucho	28524	26975	0	112	22.3	52	210
Mean		23789	23611	0	114	24.8	51	208
Probability (%)								
Seed treatment (S)		0.0	0.0	66.8	7.7	1.9	14.0	1.1
LSD (0.10)								
Seed treatment (S)		3687	3695	NS	11	2.9	NS	21
CV (%)		11	11	388	7	9	2	7

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Insecticide **Trial ID** 2505 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

Field: ARS412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/15/03 **pH** 6.4 **OM (%)** 4.3 **P (ppm)** 63 **K (ppm)** 120

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	46-0-0	325	N/A
Starter	6-24-24	150	4 /23/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 4.5 oz/A
Callisto 3.0 oz/A

Insecticide: None

Irrigation: None

Hybrid: NK N32L9
NK N43C4

Planting Date: 4/23/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/30/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB Factorial **Replications:** 3

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

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 29300 **plants per acre**

Factors/Treatments:

Seed Treatments:

A14075 @ 0.136
A14075 @ 0.272
MaximXL+CGA301940+Cruiser
2X MaximXL+CGA301940+Cruiser
A13641 @ 0.134
A13641 @ 0.268
Captan+Allegiance+Gaucho
Maxim XL

Results: Table C-69.

Table C-69. Seed Treatment Insecticide.
Arlington, WI - 2003

Hybrid	Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
			plants/A	plants/A	%	bu/A	%	lb/bu	$/A
	1	A14075 @ 0.136	30524	29685	0	221	23.0	52	410
	2	A14075 @ 0.272	30008	28459	0	219	25.3	52	397
	3	MaximXL+CGA301940+Cruiser	31363	29621	0	222	25.7	52	402
	4	(2x) MaximXL+CGA301940+Cruiser	30976	30137	0	221	24.4	52	405
	5	A13641 @ 0.134	30911	29363	1	217	22.3	52	407
	6	A13641 @ 0.268	30847	29234	0	220	22.5	52	412
	7	Captan+Allegiance+Gaucho	30782	29556	2	217	24.7	52	396
	8	Maxim XL	29750	28717	0	219	26.4	51	393
NK N32L9			31702	30137	1	223	21.5	54	421
NK N43C4			29589	28556	0	216	27.0	50	385
NK N32L9	1	A14075 @ 0.136	31621	30331	0	224	19.8	55	431
NK N32L9	2	A14075 @ 0.272	31363	29556	0	219	22.0	54	413
NK N32L9	3	MaximXL+CGA301940+Cruiser	32009	29169	0	225	22.7	54	420
NK N32L9	4	(2x) MaximXL+CGA301940+Cruiser	31363	30460	0	224	22.6	53	419
NK N32L9	5	A13641 @ 0.134	31879	30976	2	216	19.8	53	416
NK N32L9	6	A13641 @ 0.268	31750	30589	1	221	20.6	53	421
NK N32L9	7	Captan+Allegiance+Gaucho	32138	30202	3	221	21.4	54	417
NK N32L9	8	Maxim XL	31492	29814	0	230	23.0	53	427
NK N43C4	1	A14075 @ 0.136	29427	29040	0	217	26.2	50	390
NK N43C4	2	A14075 @ 0.272	28653	27362	0	218	28.6	50	382
NK N43C4	3	MaximXL+CGA301940+Cruiser	30718	30073	0	219	28.6	50	383
NK N43C4	4	(2x) MaximXL+CGA301940+Cruiser	30589	29814	0	218	26.1	50	391
NK N43C4	5	A13641 @ 0.134	29943	27749	0	219	24.8	51	399
NK N43C4	6	A13641 @ 0.268	29943	27878	0	220	24.4	50	403
NK N43C4	7	Captan+Allegiance+Gaucho	29427	28911	0	213	28.1	50	374
NK N43C4	8	Maxim XL	28007	27620	0	207	29.7	50	358
Mean			30645	29347	0	219	24.3	52	403
Probability (%)									
Seed treatment (S)			18.3	45.5	28.0	95.8	1.1	77.0	30.1
Hybrid (H)			0.0	0.0	6.1	2.0	0.0	0.0	0.0
S x H			43.1	22.5	28.0	39.3	75.0	46.7	13.2
LSD (0.10)									
Seed treatment (S)			NS	NS	NS	NS	2.0	NS	NS
Hybrid (H)			509	652	1	4	1.0	0	8
S x H			NS	NS	NS	NS	NS	NS	NS
CV (%)			3	5	356	4	9	2	4

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Insecticide **Trial ID** 2506 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

Field: R5-E **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/9 /03 **pH** 6.6 **OM (%)** 3.9 **P (ppm)** 98 **K (ppm)** 229

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	28-0-0	100 lbs/A	4 /24/03
Starter	6-24-24	9 lbs/A	4 /25/03
Post plant	N/A	N/A	N/A
Manure:	N/A	N/A	N/A

Herbicide: Dual II Magnum 1.8 pt/A
Hornet 4.5 oz/A
Callisto 3.0 oz/A
Steadfast 0.25 lbs/A

Insecticide: No soil applied

Irrigation:

Hybrid: NK N43C4

Planting Date: 4/25/03 **Planting Depth:** 1.5" **Row Width:** 30"

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

Harvest Date: 10/21/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 0.1328 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 27733 **plants per acre**

Factors/Treatments:

Seed Treatments:

A14075 @ 0.136
A14075 @ 0.272
MaximXL+CGA301940+Cruiser
2X MaximXL+CGA301940+Cruiser
A13641 @ 0.134
A13641 @ 0.268
Captan+Allegiance+Gaucho
Maxim XL

Results: Table C-70.

Table C-70. Seed Treatment Insecticide.
Janesville, WI - 2003

Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
		plants/A	plants/A	%	bu/A	%	lb/bu	$/A
1	A14075 @ 0.136	29427	27362	0	193	15.0	58	388
2	A14075 @ 0.272	30847	29169	0	188	15.1	58	377
3	MaximXL+CGA301940+Cruiser	30073	29169	0	207	15.9	58	415
4	(2x) MaximXL+CGA301940+Cruiser	30460	27620	1	202	15.7	59	406
5	A13641 @ 0.134	29556	27491	2	195	15.0	58	393
6	A13641 @ 0.268	30460	26975	0	191	14.6	58	383
7	Captan+Allegiance+Gaucho	29685	26330	0	187	15.9	58	373
8	Maxim XL	29685	27749	0	184	15.2	58	369
Mean		30024	27733	1	193	15.3	58	388
Probability (%)								
Seed treatment (S)		63.9	6.6	3.1	18.2	31.5	22.9	16.7
LSD (0.10)								
Seed treatment (S)		NS	1552	1	NS	NS	NS	NS
CV (%)		3	4	126	5	5	1	5

FIELD EXPERIMENT HISTORY

Title: **Corn Seed Decay and Seedling Blight in Reduced Tillage Systems**

Experiment: 08 Seed Treatment Insecticide **Trial ID** 2504 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Syngenta Crop Protection

Site Information

Field: **Previous Crop:** Corn **Soil Type:** Clay Loam

Soil Test: **Date:** 10/3 /03 **pH** 7.3 **OM (%)** 2.8 **P (ppm)** 25 **K (ppm)** 97

Plot Management

Tillage Operations: Fall Chisel Plow Soil Finisher Cultivated

Fertilizer:

	Analysis	Rate	Date
Preplant	N/A	N/A	N/A
Starter	6-24-24	9 lbs/A	5 /2 /03
Post plant	N/A	N/A	N/A
Manure:	Dairy	9000 gallons	

Herbicide: Accent 0.67 oz/A
Atrazine 0.5 lbs/A
Callisto 3.0 oz/A

Insecticide: Force 4.4 lbs/A

Irrigation: None

Hybrid: NK N32L9

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/24/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 25' x 10' **Experiment Size:** 0.1377 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 27846 **plants per acre**

Factors/Treatments:

Seed Treatments:

A14075 @ 0.136
A14075 @ 0.272
MaximXL+CGA301940+Cruiser
2X MaximXL+CGA301940+Cruiser
A13641 @ 0.134
A13641 @ 0.268
Captan+Allegiance+Gaucho
Maxim XL

Results: Table C-71.

Table C-71. Seed Treatment Insecticide.
Seymour, WI - 2003

Treatment	Seed treatment	Population at V5	Harvest population	Lodging	Grain yield	Grain moisture	Test weight	Grower return
		plants/A	plants/A	%	bu/A	%	lb/bu	$/A
1	A14075 @ 0.136	29169	28395	5	208	23.3	51	386
2	A14075 @ 0.272	28007	27104	1	207	23.2	51	384
3	MaximXL+CGA301940+Cruiser	29814	28524	0	219	23.3	51	407
4	(2x) MaximXL+CGA301940+Cruiser	30202	28653	0	220	23.2	51	409
5	A13641 @ 0.134	29427	27491	0	219	23.1	52	406
6	A13641 @ 0.268	28782	27749	0	218	23.3	51	405
7	Captan+Allegiance+Gaucho	29685	27104	0	214	23.4	51	396
8	Maxim XL	29556	27749	0	217	23.2	52	403
Mean		29330	27846	1	215	23.2	51	399
Probability (%)								
Seed treatment (S)		38.8	56.3	50.6	56.3	100	58.1	65.8
LSD (0.10)								
Seed treatment (S)		NS	NS	NS	NS	NS	NS	NS
CV (%)		4	4	389	5	3	1	5

FIELD EXPERIMENT HISTORY

Year: 2003

Title: **Ten year Corn/Soybean/Wheat Rotation Study**
Experiment: **09 Ten year Corn/Soybean/Wheat Rotation**
Personnel: **J.G. Lauer, R. Borges, J.M. Gaska, K.D. Kohn, P.J. Flannery, and T.F. Stanger**
Organization: **UW Madsion, Dept. of Agronomy**
Location: **Arlington Agricultural Research Station, Arlington, WI**

FIELD INFORMATION

Field:	ARS 335				
Soil Type:	Plano Silt Loam				
Soil Test Results:	Date:10/99	pH: 6.5	O.M.(%): 3.2	P(ppm): 35	K(ppm): 203
Fertilizer Applied:	Soybean: None Wheat: None Corn: 210 lb/a nitrogen preemerge				
Tillage Operations:	No-till				
Previous Crop:	Corn/Soybean/Wheat				
Previous Herbicide:	Roundup				
Irrigation:	None				

EXPERIMENTAL PROCEDURE

Exp. Design: RCB Split plot

Replicates: 3

Variables: Factors/Treatments:

System	Rotation
Continuous	Corn, Soybean or Winter Wheat
Alternating	Corn/Soybean
Grain system I	Corn/Soybean(early)/Winter Wheat(red clover)
Grain system II	Corn(early)/Winter Wheat(red clover)/Soybean
Livestock system	Corn(silage)/Winter Wheat(straw removed)/Soybean

	Corn	Soybean	Wheat
Area Planted:	60' x 60'	60' x 60'	60' x 60'
Area Harvested:	5' x 56'	5' x 56'	5' x 56'
Row Spacing:	30"	30"	7.5"
Seeding Rate (spa):	32,500 seeds/acre	130,000 seeds/acre	100 lb/acre
Hybrid/Variety:	Dekalb DKC39-47(e) Kaltenberg (MBS1236 X LH295)	Kaltenberg KB121(e) Kaltenberg KB230	Hopewell
Planting Date:	21-May-03	17-May-03	27-Sep-02
Planting Equip:	Kinze 2000 Interplant planter	Kinze 2000 Interplant planter	JD 750 No-Till Drill
Harvesting Date:	26-Sept and 17-Oct	27-Sept and 7-Oct	31-Jul
Harvesting Equip:	Kincaid plot combine	Almaco plot combine	Almaco plot combine
Seed Treatments:	Maxim XL Captan 400 + Allegiance Maxim XL + Apron XL Maxim XL + Azoxystrobin	SoyGard Rival/Alleg ApronMaxx	None

	Material	Crop	Rate	Timing
Herbicides:	2, 4-D	Corn/Soybean	1.0 pt/A	preplant
	Gramoxone	Corn/Soybean	2.0 pt/A	preplant
	Dual	Corn	2.0 pt/A	preemerge
	Hornet	Corn	3.0 oz/A	preemerge
	Harness	Corn	2.5 pt/A	preemerge
	Callisto	Corn	3.0 oz/A	preemerge
	Roundup	Soybean	1.0 qt/A	postemerge
	Roundup	Soybean	21 oz/A	postemerge
Insecticides:	Force 3G	Corn	4.4 lbs/A	at planting

Results: Tables C-72, C-73, C-74, C-75, and C-76.

Table C-72. Corn, Soybean, and Wheat Rotation.
Arlington, WI - 2003.

Crop	Rotation	Treatment	Yield	Moisture	Test Wt	Grower Return	Lodged			Ears	Harvest	
							Total	Stalk	Root	Dropped	plants	ears
			bu/A	%	lbs/bu	$/A	%	%	%	%	plants/A	ears/A
Corn		Maxim XL	133	17.9	58	259	1	1	0	0	30091	29538
Corn		Captan 400 + Allegiance	124	18.9	58	240	0	0	0	0	23896	24006
Corn		Maxim XL + Apron XL	138	18.0	58	270	1	1	0	0	29206	28763
Corn		Maxim XL + Azoxystrobin	143	18.0	58	279	1	1	0	0	30533	29980
Corn	Continuous		111	18.3	59	216	0	0	0	0	28376	27712
Corn	Alternating		133	16.6	58	264	1	1	0	0	29621	29455
Corn	Grain system I		159	19.8	58	306	1	1	0	0	27298	27049
Corn	Continuous	Maxim XL	105	17.8	59	207	0	0	0	0	29870	29206
Corn	Continuous	Captan 400 + Allegiance	103	19.1	59	199	0	0	0	0	25555	25223
Corn	Continuous	Maxim XL + Apron XL	115	17.9	59	226	1	1	0	0	26219	25223
Corn	Continuous	Maxim XL + Azoxystrobin	120	18.3	59	234	0	0	0	0	31861	31197
Corn	Alternating	Maxim XL	134	16.7	57	265	1	1	0	0	30202	30202
Corn	Alternating	Captan 400 + Allegiance	123	16.7	58	244	1	0	1	0	26219	26551
Corn	Alternating	Maxim XL + Apron XL	135	16.6	57	267	2	2	0	0	31861	31529
Corn	Alternating	Maxim XL + Azoxystrobin	141	16.3	58	279	1	1	0	0	30202	29538
Corn	Grain system I	Maxim XL	159	19.3	58	306	1	1	0	0	30202	29206
Corn	Grain system I	Captan 400 + Allegiance	146	21.0	57	278	0	0	0	0	19913	20245
Corn	Grain system I	Maxim XL + Apron XL	163	19.4	58	315	1	1	0	0	29538	29538
Corn	Grain system I	Maxim XL + Azoxystrobin	168	19.4	58	324	1	1	0	0	29538	29206
Mean			134	18.2	58	262	1	1	0	0	28432	28072
Probability(%)												
Rotation (R)			5.7	1.6	34.7	6.2	31.1	13.5	44.2	44.4	48.0	52.6
Treatment (T)			0.0	0.0	20.6	0.0	1.0	0.6	84.5	41.6	0.0	0.1
R x T			88.6	5.1	68.5	86.9	53.5	55.8	67.1	45.5	8.6	7.0
LSD (0.10)												
Rotation (R)			29	1.3	NS	55	NS	NS	NS	NS	NS	NS
Treatment (T)			6	0.4	NS	11	0	0	NS	NS	2189	2158
R x T			NS	0.6	NS	NS	NS	NS	NS	NS	3791	3737
Contrasts-T (%)												
Maxim XL			41.4	3.2	61.8	50.2	24.7	40.7	54.3	10.0	4.6	7.0
Captan 400 + Allegiance			0.0	0.0	40.9	0.0	2.6	0.8	42.1	57.1	0.0	0.0
Maxim XL + Apron XL			10.3	8.6	14.6	8.0	0.2	0.2	94.8	57.1	33.0	37.6
Maxim XL + Azoxystrobin			0.1	15.6	7.9	0.0	97.0	90.4	89.2	57.1	1.4	2.2
CV(%)			5	2	1	5	70	82	258	600	9	9

Table C-73. Corn, Soybean, and Wheat Rotation. Arlington, WI - 2003.

Crop	Rotation	Yield	Moisture	Test Wt	Grower Return	Lodged			Ears	Harvest	
						Total	Stalk	Root	Dropped	plants	ears
		bu/A	%	lbs/bu	$/A	%	%	%	%	plants/A	ears/A
Corn	Continuous	111	16.4	59	216	0	0	0	0	28376	27712
Corn	Alternating	133	15.9	58	264	1	1	0	0	29621	29455
Corn	Grain system I	159	16.9	58	306	1	1	0	0	27298	27049
Corn	Grain system II	137	19.0	53	245	1	1	0	0	30948	29953
Mean		135	17.0	57	258	1	1	0	0	29061	28542
Probability(%)											
Rotation (R)		0.0	0.0	0.0	0.0	6.6	15.5	6.2	58.4	10.6	20.7
LSD (0.10)											
Rotation (R)		9	0.6	0	17	0	NS	0	NS	NS	NS
Contrasts-R (%)											
Continuous		0.0	0.0	0.0	0.0	4.9	3.7	94.9	35.7	46.4	38.8
Alternating		76.2	0.0	0.1	56.4	2.3	20.2	1.1	42.6	54.9	34.3
Grain system I		0.0	32.7	0.0	0.0	70.7	31.7	19.9	42.6	6.4	12.4
Grain system II		74.3	0.0	0.0	22.2	48.1	87.5	19.9	50.2	4.8	14.6
CV(%)		17	7.6	2	16	90	96	306	497	13	13

Table C-74. Corn, Soybean, and Wheat Rotation.
Arlington, WI - 2003.

Crop	Treatment	Dry Matter Yield	Moisture	Kernel Milk	Crude Protein	ADF	NDF	*In Vitro* Digest	NDFD	Starch	Milk per Ton	Milk per Acre	Harvest plants
		tons/A	%	%	%	%	%	%	%	%	lbs/T	lbs/T	plants/A
Corn Silage	Maxim XL	7.1	57.5	63.3	7.1	29.6	57.9	78.1	62.2	26.6	3171	22626	29538
Corn Silage	Captan 400 + Allegiance	6.8	61.5	75.0	7.3	28.8	56.0	79.2	62.8	25.9	3314	22600	24891
Corn Silage	Maxim XL + Apron XL	6.5	60.1	61.7	7.5	29.0	56.8	79.2	63.3	26.2	3305	21494	27547
Corn Silage	Maxim XL + Azoxystrobin	8.0	59.3	75.0	7.0	28.0	54.7	79.9	63.3	28.8	3324	26568	31529
Mean		7.1	59.6	68.8	7.2	28.8	56.3	79.1	62.9	26.9	3278	23322	28376
Probability(%)													
Treatment (T)		31.3	47.0	40.2	21.1	86.6	71.2	75.4	82.6	70.4	45.3	46.7	9.1
LSD (0.10)													
Treatment (T)		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4179
Contrasts-T (%)													
Maxim XL		96.0	20.1	39.0	27.0	53.5	39.8	36.4	44.1	89.5	13.5	73.5	41.2
Captan 400 + Allegiance		55.2	24.8	32.6	56.7	95.5	83.0	94.1	87.7	55.8	59.4	72.5	3.8
Maxim XL + Apron XL		22.7	75.0	27.1	8.6	91.3	78.8	92.1	64.4	69.3	68.5	38.7	55.2
Maxim XL + Azoxystrobin		10.3	86.3	32.6	20.0	50.3	37.0	45.3	63.4	28.6	48.9	14.9	5.4
CV(%)		13	5	17	4	8	6	3	3	12	4	17	9

Table C-75. Corn, Soybean, and Wheat Rotation.
Arlington, WI - 2003.

Crop	Rotation	Treatment	Yield	Moisture	Grower return	NIR Moisture	NIR Protein	NIR Oil	NIR Fiber
			bu/A	%	$/A	%	%	%	%
Soybean		Untreated	29	10.8	200	9.7	38.1	19.3	4.8
Soybean		SoyGard	28	11.0	189	9.7	38.1	19.2	4.8
Soybean		Rival/Alleg	29	10.7	196	9.7	38.1	19.3	4.8
Soybean		ApronMaxx	30	10.7	207	9.7	38.0	19.3	4.8
Soybean	Continuous		30	10.0	202	9.7	38.1	19.5	4.8
Soybean	Alternating		34	10.1	233	9.9	38.0	19.5	4.8
Soybean	Grain system I		28	13.0	190	9.0	38.7	18.7	4.9
Soybean	Grain system II		23	10.8	160	10.2	37.7	19.3	4.8
Soybean	Livestock system		31	10.2	209	9.8	38.0	19.4	4.8
Soybean	Continuous	Untreated	31	9.9	213	9.8	38.0	19.6	4.8
Soybean	Continuous	SoyGard	29	9.9	195	9.7	38.0	19.5	4.8
Soybean	Continuous	Rival/Alleg	30	10.0	204	9.7	38.1	19.6	4.8
Soybean	Continuous	ApronMaxx	29	10.0	198	9.8	38.2	19.3	4.8
Soybean	Alternating	Untreated	35	10.1	236	9.9	38.0	19.4	4.8
Soybean	Alternating	SoyGard	33	10.4	224	9.9	38.0	19.4	4.9
Soybean	Alternating	Rival/Alleg	34	9.9	231	9.9	38.0	19.6	4.8
Soybean	Alternating	ApronMaxx	35	10.1	237	9.8	37.9	19.5	4.8
Soybean	Grain system I	Untreated	31	12.9	210	8.9	38.8	18.8	4.9
Soybean	Grain system I	SoyGard	27	12.9	184	9.0	38.9	18.6	4.9
Soybean	Grain system I	Rival/Alleg	25	13.0	173	9.0	38.9	18.6	4.9
Soybean	Grain system I	ApronMaxx	28	13.0	194	9.1	38.4	18.9	4.9
Soybean	Grain system II	Untreated	21	10.8	142	10.3	37.7	19.2	4.8
Soybean	Grain system II	SoyGard	22	11.1	154	10.3	37.8	19.3	4.8
Soybean	Grain system II	Rival/Alleg	23	10.5	158	10.3	37.6	19.4	4.8
Soybean	Grain system II	ApronMaxx	27	10.7	187	10.0	37.7	19.4	4.8
Soybean	Livestock system	Untreated	29	10.2	200	9.7	38.2	19.2	4.8
Soybean	Livestock system	SoyGard	29	10.3	201	9.9	37.8	19.5	4.8
Soybean	Livestock system	Rival/Alleg	32	10.3	216	9.8	38.1	19.3	4.8
Soybean	Livestock system	ApronMaxx	32	10.0	221	9.8	37.8	19.6	4.8
Mean			29	10.8	198	9.7	38.1	19.3	4.8
Probability(%)									
Rotation (R)			2.0	0.0	2.0	0.0	23.6	21.5	0.7
Treatment (T)			50.0	49.1	50.0	86.9	78.7	88.6	47.7
R x T			59.1	93.5	59.1	51.0	93.8	81.9	25.6
LSD (0.10)									
Rotation (R)			4.4	0.2	30	0.1	NS	NS	0.0
Treatment (T)			NS	NS	NS	NS	NS	NS	NS
R x T			NS	NS	NS	NS	NS	NS	NS
Contrasts-R (%)									
Continuous			66.8	0.0	66.8	69.0	99.8	2.9	13.3
Alternating			0.0	0.0	0.0	0.1	18.7	6.0	1.1
Grain system I			13.4	0.0	13.4	0.0	0.0	0.0	0.0
Grain system II			0.0	99.8	0.0	0.0	0.1	81.1	13.3
Livestock system			12.3	0.0	12.3	3.9	27.0	17.1	0.1
CV(%)			12	3	12	2	1	2	1

Table C-76. Corn, Soybean, and Wheat Rotation. Arlington, WI - 2003.

Crop	Rotation	Yield	Moisture	Grower return
		bu/A	%	$/A
Wheat	Continuous	56	12.8	184
Wheat	Grain system I	66	13.0	216
Wheat	Grain system II	56	12.8	182
Wheat	Livestock system	58	12.4	188
Mean		59	12.7	192
Probability(%)				
Rotation (R)		7.2	84.4	7.2
LSD (0.10)				
Rotation (R)		3	NS	9
Contrasts-R (%)				
Continuous		25.8	89.7	25.8
Grain system I		1.5	62.1	1.5
Grain system II		17.5	83.9	17.5
Livestock system		56.7	41.9	56.7
CV(%)		7	7	7

FIELD EXPERIMENT HISTORY

Year	**2003**
Expt. Number:	**09334**
Title:	**Twenty Year Corn/Soybean Rotation Study**
Personnel:	**R. Borges, J. Lauer, J. Gaska, R. Temperly, and K.D. Kohn**
Supported by:	**HATCH and Wisconsin Soybean Marketing Board**
Organization:	**UW Madsion, Dept. of Agronomy**
Location:	**Arlington Agricultural Research Station, Arlington, WI**

FIELD INFORMATION

Field:	334W			
Soil Type:	Plano Silt Loam			
Soil Test Results:	pH: 6.4	OM (%): 3.6	P (ppm): 27	K (ppm): 172
Fertilizer Applied:	Soybean : None Corn: 210 lb/a nitrogen preemerge			
Tillage Operations:	No-till and fall chisel plowed Spring field cultivated and cultimulched			
Previous Crop:	Corn and soybean			
Previous Herbicide:	Roundup			
Irrigation:	None			

EXPERIMENTAL PROCEDURE

Exp. Design:	RCB Split-Split Plot		
Replicates:	4		
Variables:	A: Tillage, B: Rotation Sequence, C: Insecticide Seed Treatment		
Plot Size:	Planted:	10' x 35'	
	Harvested:	5' x 31'	
Row Spacing:	30"		
		Corn	**Soybean**
Planting:	Date:	13-May-03	17-May-03
	Equipment:	Kinze 2000 Interplant planter	Kinze 2000 Interplant planter
	Rate:	1.8 viable seeds per foot of row	7.4 viable seeds per foot of row
	Depth:	1.5"	1"
	Cultivar:	DKC5334	NK S24-K4
Harvesting:	Date:	9-Oct-03	20-Oct-03
	Equipment:	Kincaid plot combine	Almaco plot combine #1

	Date	**Material**	**Rate**	
Herbicides:	28-Apr	2,4-D	1.0 pt/a	
	13-May	Gramoxone + 25% oil	2.0 pt/a	
	21-May	Dual	2.0 pt/a	
	12-Jun	Roundup WMX	1.0 qt/a	
	9-Jul	Roundup WMX	21 oz	Soybean only

	Corn	**Soybean**
Seed Applied Insecticides:	Force	Gaucho
	Prescribe	Cruiser
	Poncho	Untreated check

Results: Table C-77 and C-78.

Table C-77. 20 Year Corn/Soybean Rotation Study - Corn. Arlington, WI - 2003

Tillage	Rotation 20th year	Fungicide	Yield	Moisture	Test wt.	Grower return	Lodged	Harvest population	Ear density
			bu/A	%	lbs/bu	$/A	%	plants/A	ears/A
		Force	172	26.8	52	306	2	27265	28394
		Poncho	171	27.3	51	303	0	27852	28865
		Prescribe	174	26.9	52	310	0	27754	28945
	1st Year Corn		190	25.7	52	342	1	27982	29289
	2nd Year Corn		182	27.6	52	322	0	27588	28542
	3rd Year Corn		165	26.1	51	296	1	27194	28273
	4th Year Corn		164	28.1	51	287	2	27132	28169
	5th Year Corn		152	27.9	51	268	0	27899	29185
	Continuous Corn		163	27.1	51	288	0	27692	28750
	Rotated Corn		192	26.4	52	342	0	27878	28936
	1st Year Corn	Force	184	25.3	52	334	0	28314	29496
	1st Year Corn	Poncho	188	26.3	52	337	1	28003	29185
	1st Year Corn	Prescribe	197	25.5	52	356	1	27629	29185
	2nd Year Corn	Force	182	27.9	52	320	1	27007	27941
	2nd Year Corn	Poncho	178	27.4	52	316	0	27505	28190
	2nd Year Corn	Prescribe	187	27.5	52	331	0	28252	29496
	3rd Year Corn	Force	168	26.1	52	302	3	26260	27505
	3rd Year Corn	Poncho	161	25.7	51	289	1	27941	28874
	3rd Year Corn	Prescribe	165	26.4	51	296	0	27381	28438
	4th Year Corn	Force	161	27.7	52	284	6	26012	26883
	4th Year Corn	Poncho	162	28.5	51	282	0	28252	29310
	4th Year Corn	Prescribe	168	28.1	51	294	1	27132	28314
	5th Year Corn	Force	157	27.9	51	276	1	27754	29061
	5th Year Corn	Poncho	154	28.6	51	270	0	28190	29496
	5th Year Corn	Prescribe	144	27.4	50	257	0	27754	28999
	Continuous Corn	Force	158	26.5	51	282	0	27132	28376
	Continuous Corn	Poncho	164	27.6	51	290	0	27878	28687
	Continuous Corn	Prescribe	166	27.3	52	294	0	28065	29185
	Rotated Corn	Force	191	26.2	52	342	0	28376	29496
	Rotated Corn	Poncho	191	27.0	52	339	0	27194	28314
	Rotated Corn	Prescribe	193	25.9	52	345	0	28065	28999
Conventional			166	24.9	52	301	1	26669	27772
No-Till			179	29.1	51	312	1	28578	29698
Conventional		Force	164	24.9	52	297	1	25958	27025
Conventional		Poncho	165	25.2	52	298	0	26936	27950
Conventional		Prescribe	168	24.6	52	307	1	27114	28341
No-Till		Force	180	28.7	51	314	2	28572	29763
No-Till		Poncho	178	29.4	51	308	0	28767	29781
No-Till		Prescribe	181	29.2	51	314	0	28394	29550

continued

Table C-77. 20 Year Corn/Soybean Rotation Study - Corn.

(continued) **Arlington, WI - 2003**

Tillage	Rotation 20th year	Fungicide	Yield	Moisture	Test wt.	Grower return	Lodged	Harvest population	Ear density
			bu/A	%	lbs/bu	$/A	%	plants/A	ears/A
Conventional	1st Year Corn		178	25.1	52	322	1	26800	28335
Conventional	2nd Year Corn		187	26.1	53	336	0	26966	27795
Conventional	3rd Year Corn		153	22.7	52	285	1	26758	27837
Conventional	4th Year Corn		156	25.2	52	283	3	26468	27381
Conventional	5th Year Corn		158	25.9	52	284	0	27215	28625
Conventional	Continuous Corn		154	24.9	52	280	0	26509	27505
Conventional	Rotated Corn		173	24.3	53	315	0	25970	26924
No-Till	1st Year Corn		202	26.3	52	362	0	29164	30243
No-Till	2nd Year Corn		178	29.1	51	308	0	28210	29289
No-Till	3rd Year Corn		177	29.4	50	306	1	27629	28708
No-Till	4th Year Corn		171	31.0	50	291	2	27795	28957
No-Till	5th Year Corn		146	30.0	50	251	1	28584	29745
No-Till	Continuous Corn		171	29.4	51	297	0	28874	29994
No-Till	Rotated Corn		211	28.5	52	369	0	29787	30948
Conventional	1st Year Corn	Force	173	25.1	52	314	0	26758	28127
Conventional	1st Year Corn	Poncho	176	25.7	52	317	1	26758	28003
Conventional	1st Year Corn	Prescribe	185	24.6	52	336	2	26883	28874
Conventional	2nd Year Corn	Force	184	26.3	52	330	1	26385	27132
Conventional	2nd Year Corn	Poncho	185	25.9	53	333	0	26509	26883
Conventional	2nd Year Corn	Prescribe	192	26.1	53	345	0	28003	29372
Conventional	3rd Year Corn	Force	154	22.7	53	287	2	25638	27007
Conventional	3rd Year Corn	Poncho	150	22.5	52	281	1	26883	27878
Conventional	3rd Year Corn	Prescribe	154	22.8	52	287	0	27754	28625
Conventional	4th Year Corn	Force	156	25.8	53	281	6	25389	26012
Conventional	4th Year Corn	Poncho	156	25.3	52	282	0	27505	28501
Conventional	4th Year Corn	Prescribe	157	24.7	52	286	2	26509	27629
Conventional	5th Year Corn	Force	155	25.7	51	280	0	26012	27381
Conventional	5th Year Corn	Poncho	159	26.5	51	284	0	28252	29621
Conventional	5th Year Corn	Prescribe	160	25.4	52	289	0	27381	28874
Conventional	Continuous Corn	Force	148	24.4	52	271	0	25389	26509
Conventional	Continuous Corn	Poncho	156	25.7	52	282	0	27007	27878
Conventional	Continuous Corn	Prescribe	158	24.7	52	288	0	27132	28127
Conventional	Rotated Corn	Force	174	24.3	53	319	0	26136	27007
Conventional	Rotated Corn	Poncho	171	24.8	53	311	0	25638	26883
Conventional	Rotated Corn	Prescribe	172	23.8	53	316	0	26136	26883

continued

Table C-77. 20 Year Corn/Soybean Rotation Study - Corn.

(continued) **Arlington, WI - 2003**

Tillage	Rotation 20th year	Fungicide	Yield	Moisture	Test wt.	Grower return	Lodged	Harvest population	Ear density
			bu/A	%	lbs/bu	$/A	%	plants/A	ears/A
No-Till	1st Year Corn	Force	195	25.5	52	353	0	29870	30865
No-Till	1st Year Corn	Poncho	201	26.8	51	358	0	29247	30368
No-Till	1st Year Corn	Prescribe	210	26.4	52	375	0	28376	29496
No-Till	2nd Year Corn	Force	179	29.4	51	310	1	27629	28750
No-Till	2nd Year Corn	Poncho	172	28.9	51	299	0	28501	29496
No-Till	2nd Year Corn	Prescribe	182	28.9	51	317	0	28501	29621
No-Till	3rd Year Corn	Force	183	29.5	51	316	3	26883	28003
No-Till	3rd Year Corn	Poncho	171	28.8	50	297	0	28999	29870
No-Till	3rd Year Corn	Prescribe	177	30.0	50	305	0	27007	28252
No-Till	4th Year Corn	Force	167	29.7	51	287	7	26634	27754
No-Till	4th Year Corn	Poncho	168	31.7	50	283	0	28999	30119
No-Till	4th Year Corn	Prescribe	179	31.5	50	302	0	27754	28999
No-Till	5th Year Corn	Force	159	30.0	50	273	2	29496	30741
No-Till	5th Year Corn	Poncho	150	30.7	50	255	0	28127	29372
No-Till	5th Year Corn	Prescribe	129	29.4	49	225	0	28127	29123
No-Till	Continuous Corn	Force	168	28.7	51	293	0	28874	30243
No-Till	Continuous Corn	Poncho	172	29.5	51	298	0	28750	29496
No-Till	Continuous Corn	Prescribe	174	30.0	51	299	0	28999	30243
No-Till	Rotated Corn	Force	208	28.2	52	365	0	30616	31985
No-Till	Rotated Corn	Poncho	212	29.1	52	367	0	28750	29745
No-Till	Rotated Corn	Prescribe	213	28.0	52	374	0	29994	31114
Mean			172	27.0	51	306	1	27624	28735
Probability(%)									
Tillage (T)			13.9	0.0	0.1	44.3	73.5	0.2	0.4
Rotation (R)			1.0	3.4	0.0	0.2	12.3	56.2	33.5
T x R			32.6	5.0	0.7	25.2	98.1	12.5	12.7
Fungicide (F)			28.2	3.7	45.9	14.0	2.4	12.2	18.3
T x F			58.8	16.4	67.1	40.4	57.8	9.3	6.1
R x F			15.8	23.7	53.5	28.7	9.8	23.8	26.6
T x R x F			42.6	65.3	76.0	61.1	99.9	76.8	72.7
LSD(0.10)									
Tillage (T)			NS	0.3	0.3	NS	NS	428	571
Rotation (R)			20	1.4	0.3	33	NS	NS	NS
T x R			NS	2.0	0.4	NS	NS	NS	NS
Fungicide (F)			NS	0.3	NS	NS	1	NS	NS
T x F			NS	NS	NS	NS	NS	712	752
R x F			NS	NS	NS	NS	2	NS	NS
T x R x F			NS	NS	NS	NS	NS	NS	NS
CV(%)			6	4	1	6	407	6	6

Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390

Tillage	Rotation	Seed Treatment	Yield	Moisture	Height	Lodging	Protein	Oil	Fiber	Protein	Oil	Protein+Oil	Aphid Rating
			bu/a	%	in	1-5	%	%	%	lbs/a	lbs/a	lbs/a	1-5
		UTC	37.4	10.3	36.1	1.0	36.0	20.6	4.86	804	461	1265	1.75
		Cruiser	41.0	10.5	36.3	1.0	36.0	20.6	4.85	883	506	1389	1.15
		Gaucho	41.0	10.5	36.5	1.0	35.9	20.7	4.86	880	508	1387	1.02
	Continuous soybean		33.5	10.1	35.1	1.0	35.7	21.0	4.86	717	423	1140	1.32
	5th year soybean		35.9	10.4	35.6	1.0	36.0	20.9	4.85	772	449	1221	1.25
	4th year soybean		39.7	10.6	35.4	1.0	35.8	20.7	4.85	850	493	1343	1.16
	3rd year soybean		36.3	10.3	35.0	1.0	36.4	20.5	4.81	786	444	1230	1.50
	2nd year soybean		43.4	10.5	38.1	1.0	35.8	20.6	4.88	930	536	1466	1.35
	1st year soybean		45.9	10.6	37.9	1.0	36.2	20.2	4.87	993	556	1549	1.35
	S/C rotation		43.9	10.5	37.0	1.0	35.8	20.5	4.88	940	541	1481	1.23
	Continuous soybean	UTC	31.9	10.1	35.0	1.0	35.9	21.0	4.86	685	401	1087	1.75
	Continuous soybean	Cruiser	35.7	10.2	35.5	1.0	35.6	21.1	4.86	762	452	1214	1.20
	Continuous soybean	Gaucho	32.9	10.1	34.9	1.0	35.7	21.0	4.85	704	415	1119	1.00
	5th year soybean	UTC	33.4	10	36.3	1.0	36.2	20.8	4.85	723	416	1138	1.55
	5th year soybean	Cruiser	38.0	10.5	36.1	1.0	35.8	20.9	4.84	814	476	1290	1.16
	5th year soybean	Gaucho	36.3	10.4	34.5	1.0	35.9	21.0	4.85	779	456	1235	1.03
	4th year soybean	UTC	38.3	10.5	35.0	1.0	35.7	20.7	4.88	819	476	1295	1.43
	4th year soybean	Cruiser	39.6	10.7	35.5	1.0	36.0	20.6	4.83	853	489	1342	1.04
	4th year soybean	Gaucho	41.1	10.6	35.8	1.0	35.7	20.8	4.85	879	513	1392	1.01
	3rd year soybean	UTC	32.6	10.1	34.6	1.0	36.7	20.5	4.80	702	393	1095	2.29
	3rd year soybean	Cruiser	38.0	10.3	35.6	1.0	36.3	20.6	4.83	826	470	1296	1.16
	3rd year soybean	Gaucho	38.2	10.6	34.8	1.0	36.3	20.5	4.81	829	471	1300	1.05
	2nd year soybean	UTC	39.3	10.5	37.5	1.0	35.9	20.6	4.89	843	487	1330	1.86
	2nd year soybean	Cruiser	45.4	10.4	38.0	1.0	35.9	20.6	4.85	976	561	1537	1.18
	2nd year soybean	Gaucho	45.4	10.6	38.9	1.0	35.8	20.5	4.89	970	559	1530	1.01
	1st year soybean	UTC	43.6	10.5	37.8	1.0	36.1	20.2	4.88	942	528	1470	1.86
	1st year soybean	Cruiser	45.8	10.7	36.9	1.0	36.3	20.1	4.86	994	552	1546	1.18
	1st year soybean	Gaucho	48.2	10.7	39.0	1.0	36.2	20.2	4.86	1045	586	1631	1.00
	S/C rotation	UTC	42.7	10.4	36.3	1.0	35.9	20.5	4.88	917	526	1443	1.53
	S/C rotation	Cruiser	44.4	10.6	36.8	1.0	35.9	20.4	4.88	952	544	1496	1.13
	S/C rotation	Gaucho	44.7	10.5	38.0	1.0	35.5	20.6	4.90	951	553	1504	1.04
Notill			43.3	10.5	36.4	1.0	36.0	20.5	4.86	932	533	1464	1.39
Conventional			36.2	10.4	36.2	1.0	35.9	20.7	4.85	779	451	1230	1.22
Notill		UTC	40.9	10.4	36.0	1.0	36.0	20.5	4.87	878	502	1380	1.90
Notill		Cruiser	44.7	10.5	36.7	1.0	36.0	20.5	4.86	963	550	1513	1.23
Notill		Gaucho	44.4	10.5	36.4	1.0	35.9	20.5	4.86	954	546	1500	1.04
Conventional		UTC	33.9	10.3	36.1	1.0	36.1	20.7	4.85	731	420	1151	1.60
Conventional		Cruiser	37.3	10.5	36.0	1.0	35.9	20.7	4.84	802	463	1265	1.07

Continued

Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390

Tillage	Rotation	Seed Treatment	Yield	Moisture	Height	Lodging	Protein	Oil	Fiber	Protein	Oil	Protein+Oil	Aphid Rating
Conventional		Gaucho	37.6	10.5	36.6	1.0	35.8	20.8	4.85	806	469	1275	1.00
Notill	Continuous soybean		34.0	10.1	35.7	1.0	35.8	21.0	4.87	730	428	1157	1.36
Notill	5th year soybean		38.4	10.5	35.4	1.0	36.3	20.6	4.82	833	475	1308	1.23
Notill	4th year soybean		43.8	10.6	36.3	1.0	35.8	20.6	4.87	941	542	1482	1.28
Notill	3rd year soybean		39.9	10.5	35.8	1.0	37.0	20.1	4.80	870	478	1347	1.68
Notill	2nd year soybean		48.7	10.5	38.3	1.0	35.5	20.6	4.89	1039	602	1641	1.48
Notill	1st year soybean		50.0	10.5	36.9	1.0	35.9	20.3	4.88	1078	610	1688	1.48
Notill	S/C rotation		48.4	10.5	36.3	1.0	35.5	20.5	4.92	1031	594	1625	1.22
Conventional	Continuous soybean		33.0	10.1	34.6	1.0	35.7	21.1	4.85	704	418	1123	1.28
Conventional	5th year soybean		33.3	10.3	35.8	1.0	35.6	21.2	4.88	711	423	1134	1.26
Conventional	4th year soybean		35.6	10.5	34.6	1.0	35.8	20.8	4.83	759	444	1204	1.04
Conventional	3rd year soybean		32.6	10.2	34.2	1.0	35.9	21.0	4.83	702	411	1113	1.33
Conventional	2nd year soybean		38.0	10.5	38.0	1.0	36.2	20.6	4.86	821	470	1291	1.22
Conventional	1st year soybean		41.7	10.7	38.8	1.0	36.5	20.0	4.85	908	502	1410	1.21
Conventional	S/C rotation		39.5	10.5	37.7	1.0	36.0	20.5	4.85	849	488	1337	1.24
Notill	Continuous soybean	UTC	32.1	10.1	35.8	1.0	36.0	20.9	4.88	692	402	1094	1.78
Notill	Continuous soybean	Cruiser	36.8	10.2	36.3	1.0	35.6	21.1	4.88	787	466	1253	1.30
Notill	Continuous soybean	Gaucho	33.1	10.2	35.0	1.0	35.8	20.9	4.85	710	416	1126	1.00
Notill	5th year soybean	UTC	36.3	10.4	36.0	1.0	36.5	20.5	4.83	793	447	1240	1.38
Notill	5th year soybean	Cruiser	40.6	10.5	35.8	1.0	36.3	20.5	4.80	876	502	1378	1.28
Notill	5th year soybean	Gaucho	38.4	10.5	34.5	1.0	36.2	20.7	4.83	831	477	1308	1.05
Notill	4th year soybean	UTC	41.4	10.5	35.8	1.0	35.6	20.7	4.90	885	515	1400	1.75
Notill	4th year soybean	Cruiser	44.2	10.7	37.3	1.0	36.1	20.5	4.83	957	545	1501	1.05
Notill	4th year soybean	Gaucho	45.7	10.6	35.8	1.0	35.8	20.6	4.88	981	566	1546	1.03
Notill	3rd year soybean	UTC	35.8	10.3	35.5	1.0	37.3	20.1	4.78	767	415	1182	2.68
Notill	3rd year soybean	Cruiser	41.9	10.4	36.8	1.0	36.7	20.2	4.83	918	510	1428	1.25
Notill	3rd year soybean	Gaucho	42.1	10.7	35.3	1.0	36.9	20.0	4.80	924	509	1433	1.10
Notill	2nd year soybean	UTC	45.3	10.5	37.0	1.0	35.5	20.6	4.90	964	562	1526	2.10
Notill	2nd year soybean	Cruiser	49.9	10.3	38.5	1.0	35.7	20.6	4.88	1069	617	1686	1.33
Notill	2nd year soybean	Gaucho	51.0	10.7	39.3	1.0	35.4	20.5	4.90	1083	628	1711	1.03
Notill	1st year soybean	UTC	47.1	10.5	36.8	1.0	35.7	20.4	4.90	1009	577	1586	2.18
Notill	1st year soybean	Cruiser	50.3	10.7	36.3	1.0	36.1	20.2	4.88	1089	608	1697	1.28
Notill	1st year soybean	Gaucho	52.7	10.5	37.8	1.0	36.0	20.4	4.88	1138	645	1782	1.00
Notill	S/C rotation	UTC	48.5	10.3	35.3	1.0	35.7	20.5	4.90	1036	596	1632	1.45
Notill	S/C rotation	Cruiser	49.1	10.6	36.3	1.0	35.6	20.4	4.93	1048	601	1648	1.13
Notill	S/C rotation	Gaucho	47.5	10.5	37.5	1.0	35.4	20.6	4.93	1008	586	1594	1.08
Conventional	Continuous soybean	UTC	31.7	10.1	34.3	1.0	35.8	21.0	4.85	679	400	1079	1.73
Conventional	Continuous soybean	Cruiser	34.6	10.3	34.8	1.0	35.6	21.1	4.85	737	439	1176	1.10
Conventional	Continuous soybean	Gaucho	32.7	10.1	34.8	1.0	35.6	21.1	4.85	697	415	1112	1.00

Continued

Table C-78. 20 Year Corn/Soybean Rotation Study
Arlington, WI Expt. 2390

Tillage	Rotation	Seed Treatment	Yield	Moisture	Height	Lodging	Protein	Oil	Fiber	Protein	Oil	Protein+Oil	Aphid Rating
Conventional	5th year soybean	UTC	30.4	10.2	36.5	1.0	35.8	21.1	4.88	652	385	1037	1.73
Conventional	5th year soybean	Cruiser	35.5	10.4	36.5	1.0	35.4	21.2	4.88	752	450	1203	1.05
Conventional	5th year soybean	Gaucho	34.1	10.3	34.5	1.0	35.6	21.3	4.88	728	435	1163	1.00
Conventional	4th year soybean	UTC	35.2	10.4	34.3	1.0	35.9	20.7	4.85	752	438	1191	1.10
Conventional	4th year soybean	Cruiser	34.9	10.6	33.8	1.0	36.0	20.7	4.83	749	434	1183	1.03
Conventional	4th year soybean	Gaucho	36.6	10.6	35.8	1.0	35.5	20.9	4.83	777	460	1237	1.00
Conventional	3rd year soybean	UTC	29.5	10.0	33.8	1.0	36.1	21.0	4.83	636	371	1007	1.90
Conventional	3rd year soybean	Cruiser	34.2	10.2	34.5	1.0	35.9	21.0	4.83	735	430	1164	1.08
Conventional	3rd year soybean	Gaucho	34.3	10.4	34.3	1.0	35.8	21.0	4.83	734	433	1167	1.00
Conventional	2nd year soybean	UTC	33.3	10.4	38.0	1.0	36.3	20.6	4.88	722	413	1135	1.63
Conventional	2nd year soybean	Cruiser	40.8	10.6	37.5	1.0	36.1	20.6	4.83	884	504	1388	1.03
Conventional	2nd year soybean	Gaucho	39.8	10.5	38.5	1.0	36.1	20.5	4.88	858	491	1349	1.00
Conventional	1st year soybean	UTC	40.0	10.6	38.8	1.0	36.6	20.0	4.85	875	480	1354	1.55
Conventional	1st year soybean	Cruiser	41.3	10.7	37.5	1.0	36.5	20.0	4.85	899	497	1396	1.08
Conventional	1st year soybean	Gaucho	43.7	10.9	40.3	1.0	36.5	20.1	4.85	951	528	1479	1.00
Conventional	S/C rotation	UTC	37.0	10.5	37.3	1.0	36.1	20.5	4.85	798	456	1254	1.60
Conventional	S/C rotation	Cruiser	39.6	10.5	37.3	1.0	36.1	20.4	4.83	856	487	1343	1.13
Conventional	S/C rotation	Gaucho	41.9	10.4	38.5	1.0	35.7	20.7	4.88	895	520	1415	1.00
Means			39.8	10.4	36.3	1.0	36.0	20.6	4.86	855	492	1347	1.31
Probability													
Tillage (T)			<0.1	26.1	>50	>50	46.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rotation (R)			<0.1	>50	<0.1	>50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	8.60
T x R			<0.1	1.7	<0.1	>50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	47.90
Seed Treatment (S)			<0.1	<0.1	29.2	>50	10.7	34.4	9.4	<0.1	<0.1	<0.1	<0.1
T x S			>50	>50	23.2	>50	>50	38.2	>50	>50	>50	>50	22.20
R x S			>50	30.8	6.3	>50	>50	>50	9.6	>50	7.3	6.4	19.30
T x R x S			>50	43.5	>50	>50	>50	>50	49.1	>50	>50	>50	>50
LSD 10%													
Tillage (T)			2.9	0.0	1.2	0.0	0.3	0.2	0.02	59	36	96	0.10
Rotation (R)			5.2	0.2	2.3	0.0	0.7	0.3	0.05	98	68	166	0.20
T x R			7.3	0.2	3.3	0.0	0.9	0.4	0.06	141	96	236	0.27
Seed Treatment (S)			1.0	0.1	0.5	0.0	0.1	0.2	0.01	20	13	33	0.13
T x S			3.1	0.1	1.4	0.0	0.3	0.3	0.02	64	39	102	0.18
R x S			5.6	0.2	2.6	0.0	0.8	0.6	0.05	108	73	180	0.34
C.V. %			7	2	4	0	1	1	1	7	8	7	30

FIELD EXPERIMENT HISTORY

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

Experiment: 11Misc **Trial ID** 2478 **Year:** 2003

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

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/1 /03 **pH** 6.8 **OM (%)** 3.8 **P (ppm)** 59 **K (ppm)** 199

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Cultivated 7/2/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	150 lbs/A	N/A
	Starter :	6-24-24	9 lbs/A	5 /27/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Hornet 3.0 oz/A
Dual II 2.0 pt/A

Insecticide: N/A

Hybrid: See Factors

Irrigation: None

Planting Date: 5/27/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: See Factors **Planting Method:** Kinze 2000 Interplant Planter

Harvest Date: 10/23/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design:

Replications: 3

Plot Size Seeded: 25' x 10'

Experiment Size: 22' x 5'

Harvest Plot Size: 2.5' x 22

Harvest Plant Density: N/A **plants per acre**

Factors/Treatments:

Plant Density: (plants/A)

30000
38000

Hybrids:

Dekalb DKC3947
Dekalb DKC4628
NK Brand 3030

Results: Table C-79

Table C-79. Cultivation, Plant Density, and Hybrid Influence on Corn Grain. Arlington, WI - 2003.

				Grain										
Target							Grower	Lodged				Ears	Harvest	
Density	Hybrid	Trait	Cultivation	Yield	Moisture	Test Wt	Return	Total	Stalk	Root	Barren	Dropped	plants	ears
			Y or N	bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A
			Y	178	20.9	57	338	37	37	0	0	0	31944	32604
			N	181	21.1	57	344	36	36	0	1	0	32846	33286
	Dekalb 3947	RR		184	20.7	58	350	17	17	0	0	0	32505	32934
	Dekalb 4628	RR		190	21.6	56	359	46	46	0	0	0	32670	33528
	NK 3030			165	20.7	57	315	47	47	0	1	0	32010	32373
	Dekalb 3947	RR	Y	177	20.4	57	338	20	20	0	0	0	32076	32472
	Dekalb 3947	RR	N	191	21.0	58	362	14	14	0	0	0	32934	33396
	Dekalb 4628	RR	Y	194	21.6	56	365	46	46	0	0	0	32406	33462
	Dekalb 4628	RR	N	187	21.6	56	353	46	46	0	0	0	32934	33594
	NK 3030		Y	164	20.8	56	312	45	45	0	0	0	31350	31878
	NK 3030		N	166	20.6	57	317	49	49	1	1	0	32670	32868
30000				180	20.7	57	342	28	28	0	0	0	29436	30118
38000				180	21.3	57	340	46	45	0	0	0	35354	35772
30000			Y	182	20.8	57	346	28	28	0	0	0	29304	30008
30000			N	178	20.6	57	338	28	28	0	0	0	29568	30228
38000			Y	174	21.0	57	330	46	46	0	0	0	34584	35200
38000			N	185	21.5	57	350	45	45	0	1	0	36124	36344
30000	Dekalb 3947	RR		183	20.5	58	350	7	7	0	0	0	29502	30294
30000	Dekalb 4628	RR		185	20.8	56	353	38	38	0	0	0	29172	29898
30000	NK 3030			171	20.8	56	324	38	38	0	0	0	29634	30162
38000	Dekalb 3947	RR		184	20.9	58	349	27	27	0	1	0	35508	35574
38000	Dekalb 4628	RR		195	22.3	56	365	54	54	0	0	0	36168	37158
38000	NK 3030			160	20.6	57	305	56	56	1	1	0	34386	34584

(continued)

Table C-79. Cultivation, Plant Density, and Hybrid Influence on Corn Grain.

(continued) **Arlington, WI - 2003.**

				Grain										
Target							Grower	Lodged				Ears	Harvest	
Density	Hybrid	Trait	Cultivation	Yield	Moisture	Test Wt	Return	Total	Stalk	Root	Barren	Dropped	plants	ears
			Y or N	bu/A	%	lbs/bu	$/A	%	%	%	%	%	plants/A	ears/A
30000	Dekalb 3947	RR	Y	183	20.3	58	350	9	9	0	0	0	29172	29964
30000	Dekalb 3947	RR	N	184	20.6	58	350	5	5	0	0	0	29832	30624
30000	Dekalb 4628	RR	Y	185	21.0	56	351	39	39	0	0	0	28776	29568
30000	Dekalb 4628	RR	N	186	20.6	57	354	37	37	0	0	0	29568	30228
30000	NK 3030		Y	178	21.1	56	338	35	35	0	0	0	29964	30492
30000	NK 3030		N	163	20.5	56	311	41	41	0	1	0	29304	29832
38000	Dekalb 3947	RR	Y	170	20.5	57	325	31	31	0	0	0	34980	34980
38000	Dekalb 3947	RR	N	198	21.3	58	374	23	23	0	1	0	36036	36168
38000	Dekalb 4628	RR	Y	202	22.1	56	379	53	53	0	0	0	36036	37356
38000	Dekalb 4628	RR	N	188	22.5	56	351	54	54	0	0	0	36300	36960
38000	NK 3030		Y	150	20.4	57	286	55	55	0	0	0	32736	33264
38000	NK 3030		N	170	20.7	57	324	57	56	1	1	0	36036	35904
Mean				180	21.0	57	341	37	37	0	0	0	32395	32945
Probability(%)														
Hybrid (H)				49.8	59.6	63.9	48.7	26.4	27.1	42.2	7.1	42.2	54.4	15.4
Plant Density (D)				99.1	38.7	84.5	81.5	0.6	0.6	42.3	22.7	42.3	1.2	2.1
H x D				19.6	0.7	34.5	31.9	87.2	87.4	38.7	18.4	38.7	12.6	6.6
Cultivation (C)				63.7	58.0	1.9	63.4	82.2	77.0	42.3	34.7	42.3	5.9	13.2
C x H				19.3	36.6	97.9	22.4	52.4	55.3	38.7	0.2	38.7	75.1	71.5
C x D				41.7	2.8	78.7	44.8	65.6	60.7	42.3	20.9	42.3	45.0	54.3
C x D x H				7.0	91.6	75.8	6.8	86.1	83.9	38.7	64.0	38.7	10.3	19.1
LSD (0.10)														
Hybrid (H)				NS	NS	NS	NS	NS	NS	NS	0	NS	NS	NS
Plant Density (D)				NS	NS	NS	NS	4	4	NS	NS	NS	1896	2454
H x D				NS	0.6	NS	NS	NS	NS	NS	NS	NS	NS	1417
Cultivation (C)				NS	NS	0	NS	NS	NS	NS	NS	NS	671	NS
C x H				NS	NS	NS	NS	NS	NS	NS	0	NS	NS	NS
C x D				NS	0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
C x D x H				19	NS	NS	35	NS	NS	NS	NS	NS	NS	NS
CV(%)				7	3	2	7	30	29	600	125	600	4	4

FIELD EXPERIMENT HISTORY

Title: **16 Influence of Clipping Timing on Corn Grain Yield**

Experiment: 16 Influence of Clipping on Corn **Trial ID** 2433 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:** 10/01/03 **pH** 6.8 **OM (%)** 3.8 **P (ppm)** 59 **K (ppm)** 199

Plot Management

Tillage Operations: Fall Chisel Plow Field Cultivator Soil Finisher Cultivated

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 4.5 oz/A

Insecticide: None

Hybrid: Pioneer 35R58

Irrigation: None

Planting Date: 5/2/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Inter-Row Planter

Harvest Date: 10/23/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB Factorial **Replications:** 3

Plot Size Seeded: 10' x 15' **Experiment Size:** 0.17 Acre

Harvest Plot Size: 15' x 5' **Harvest Plant Density:** 26200 **plants per acre**

Factors/Treatments:

Growth Stage at Time of Clipping:

V2 - 2 plant pattern
V2 - 4 plant pattern
V2 - 8 plant pattern
V2 - All plants
V4 - 2 plant pattern
V4 - 4 plant pattern
V4 - 8 plant pattern
V4 - All plants
V6 - 2 plant pattern
V6 - 4 plant pattern
V6 - 8 plant pattern
V6 - All plants
Control

Date of Clipping:

V2 - June 6
V4 - June 18
V6 - June 25

Results: Table C-80.

Table C-80. Influence of Clipping on Corn Grain Yield
Arlington, WI - 2003

Treatment	Grain yield	Grain moisture	Test weight	Lodging	Harvest pop	Grower return
	bu/A	%	lbs/bu	%	plants/A	$/A
V2 - 2 plant	212	22.4	55	1	31170	397
V2 - 4 plant	198	22.9	55	15	26717	369
V2 - 8 plant	222	23.1	56	0	25555	412
V2 - Clip entire plot	220	23.4	55	0	31944	408
V4 - 2 plant	185	23.0	55	0	20522	343
V4 - 4 plant	195	22.6	55	5	20909	365
V4 - 8 plant	194	24.1	54	3	23038	356
V4 - Clip entire plot	147	28.6	50	0	23426	256
V6 - 2 plant	184	23.2	55	0	18198	341
V6 - 4 plant	194	22.2	55	12	26523	363
V6 - 8 plant	208	23.1	55	4	28266	386
V6 - Clip entire plot	177	24.1	53	3	27491	325
Control A - UTC	217	22.2	57	4	30589	408
Control B - UTC	219	22.2	57	3	32138	412
Mean	198	23.4	55	4	26177	367
Probability(%)						
Treatment (T)	0.0	0.0	0.0	15.9	0.2	0.0
LSD(0.10)						
Treatment (T)	16	0.8	1	NS	5524	30
CV(%)	6	2	1	176	15	6

FIELD EXPERIMENT HISTORY

Title: **16 Corn Grain yield response to cohort emergence**

Experiment: 16 Cohorts **Trial ID** 2434 **Year** 2003

Personnel: J.G. Lauer, P.J. Flannery and K.D. Kohn

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

Supported By: HATCH

Site Information

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

Soil Test: **Date** 10/01/03 **pH** 6.8 **OM (%)** 3.8 **P (ppm)** 59 **K (ppm)** 199

Plot Managemen

Tillage Operations: Fall Chisel Plow Field Cultivator Soil Finisher Cultivated

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 4.5 oz/A

Insecticide: None

Hybrid: Pioneer 35R58

Irrigation: None

Planting Date 5/2/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30000 **plants per acre** **Planting Method:** Kinze Inter-Row Planter

Harvest Date: 10/27/03 **Harvest Method:** Hand Harvest

Experimental Design

Design: RCB Factorial **Replications:** 3

Plot Size Seeded 15' x 10' **Experiment Size** 0.19 Acre

Harvest Plot Size: Single Plants

Factors/Treatments:

Treatments:

A = Plant clipped completely at V3 on 6/13
B = Emerged leaves clipped at V3 on 6/13
C = Control - No clipping

Results: Table C-81.

Table C-81. Corn Grain response to cohort emergence.
Arlington, WI - 2003

Treatment	Five Neighboring plants south	Plant	Five Neighboring plants north	Yield Components @ 0% Moisture		
				Kernels per ear	Yield per ear	100 Kernel weight
				no./ear	grams	grams
1	All leaves clipped	A	All leaves clipped	549	121	22.2
2	All leaves clipped	B	All leaves clipped	623	164	26.3
3	All leaves clipped	C	All leaves clipped	665	195	29.3
4	All leaves clipped	A	Emerged leaves clipped	442	96	21.7
5	All leaves clipped	B	Emerged leaves clipped	609	151	24.8
6	All leaves clipped	C	Emerged leaves clipped	629	180	28.8
7	All leaves clipped	A	Control	498	110	22.0
8	All leaves clipped	B	Control	623	156	25.1
9	All leaves clipped	C	Control	654	182	27.8
10	Emerged leaves clipped	A	Emerged leaves clipped	391	89	23.5
11	Emerged leaves clipped	B	Emerged leaves clipped	524	125	23.8
12	Emerged leaves clipped	C	Emerged leaves clipped	626	160	25.5
13	Emerged leaves clipped	A	Control	351	77	21.3
14	Emerged leaves clipped	B	Control	544	112	20.7
15	Emerged leaves clipped	C	Control	585	165	28.1
16	Control	A	Control	296	65	22.1
17	Control	B	Control	474	101	21.2
18	Control	C	Control	587	155	26.3
Mean				547	138	24.8
Probability(%)						
Treatment (T)				0.1	0.0	0.0
LSD(0.10)						
Treatment (T)				110	25	2.9
CV(%)				14	13	8

A = All leaves clipped

B = Emerged leaves clipped

C = Control

FIELD EXPERIMENT HISTORY

Title: **16 Effect of Primed Seed on Corn Grain Performance**

Experiment: 16 Effect of Primed Seed on Corn **Trial ID** 2498 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: Hatch

Site Information

Field: ARS412 **Previous Crop:** Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:**10/15/03 **pH** 6.6 **OM (%)** 4.1 **P (ppm)** 74 **K (ppm)** 151

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher Cultivated 6/18/03

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	6-24-24	150	4 /23/03
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	

Herbicide: Harness 2.5 pt/A
Hornet 4.5 oz/A
Callisto 3.0 oz/A

Insecticide: None

Hybrid: See Factors

Irrigation: None

Planting Date: 4/23/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 30300 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 9/30/03 **Harvest Method:** Kincaid Plot Combine

Notes: Primed seeds were moistened and then incubated for 21 hours prior to planting.

Experimental Design

Design: RCB Factorial

Replications: 3

Plot Size Seeded: 10' x 25'

Experiment Size: 0.18 Acre

Harvest Plot Size: 5' x 22'

Harvest Plant Density: 28842 **plants per acre**

Factors/Treatments:

Primed Seed:	Hybrids:
0%	Pioneer 35R58
25%	Pioneer 38T28
50%	
75%	
100%	

Results: Table C-82.

Table C-82. Effect of Primed Seed On Corn Grain Performance Arlington, WI - 2003.

Primed				Test		Harvest	Grower	Seeds	Emergence on Day of Year					Silk
seed	Hybrid	Yield	Moisture	wt	Lodged	pop	return	planted	130	132	133	135	155	date
		bu/A	%	lbs/bu	%	plants/A	$/A	seeds/A	---------- % ----------					doy
	Pioneer 35R58	205	27.4	51	1	27905	362	30303	26	41	70	83	93	208
	Pioneer 38T28	199	21.2	54	4	29779	376	30303	28	48	80	90	96	203
0% primed seed		199	24.6	53	3	28446	363	30303	7	26	66	84	93	206
25% primed seed		203	24.4	53	1	28380	371	30303	18	37	70	84	91	205
50% primed seed		209	24.5	53	2	29436	383	30303	24	39	72	86	95	206
75% primed seed		198	24.0	53	3	29172	364	30303	41	54	81	89	96	205
100% primed seed		198	24.2	53	3	28776	364	30303	45	67	85	90	95	206
0% primed seed	Pioneer 35R58	206	28.1	51	0	26532	362	30303	6	23	55	76	89	208
0% primed seed	Pioneer 38T28	192	21.0	54	7	30360	365	30303	8	29	77	92	97	203
25% primed seed	Pioneer 35R58	203	27.3	51	0	27720	360	30303	15	30	66	80	90	208
25% primed seed	Pioneer 38T28	202	21.4	54	1	29040	383	30303	20	43	75	89	93	203
50% primed seed	Pioneer 35R58	202	26.8	51	1	29040	360	30303	25	40	67	83	94	208
50% primed seed	Pioneer 38T28	216	22.1	54	4	29832	405	30303	23	39	77	90	95	203
75% primed seed	Pioneer 35R58	209	27.6	51	2	27984	369	30303	38	50	75	86	95	207
75% primed seed	Pioneer 38T28	187	20.3	55	4	30360	358	30303	45	58	87	92	98	203
100% primed seed	Pioneer 35R58	202	27.2	51	0	28248	359	30303	44	63	85	91	95	208
100% primed seed	Pioneer 38T28	195	21.2	55	5	29304	369	30303	45	71	84	90	95	203
Mean		202	24.3	53	2	28842	369	30303	27	45	75	87	94	205
Probability(%)														
Primed (P)		44.9	98.2	71.4	73.7	50.4	38.3	-	0.0	0.0	0.6	20.3	31.7	36.1
Hybrid (H)		16.9	0.0	0.0	1.2	0.1	6.5	-	40.0	8.3	0.4	0.1	5.4	0.0
P x H		12.2	76.8	38.4	56.4	21.5	17.6	-	82.5	78.9	29.0	10.9	48.8	25.8
LSD (0.10)														
Primed (P)		NS	NS	NS	NS	NS	NS	-	7	10	8	NS	NS	NS
Hybrid (H)		NS	1.2	0	2	762	12	-	NS	6	5	3	2	0
P x H		NS	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS
CV(%)		6	8	1	135	4	5	-	28	22	11	6	4	0

FIELD EXPERIMENT HISTORY

Title: **16 Influence of Thinning Timing on Corn Grain Yield**

Experiment: 16 Influence of Thinning on Corn **Trial ID** 2497 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: HATCH

Site Information

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

Soil Test: **Date:**10/15/03 **pH:** 7.0 **OM (%)** 2.3 **P (ppm)** 40 **K (ppm)** 143

Plot Management

Tillage Operations: Chisel Plow Field Cultivator Soil Finisher

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	46-0-0	325	N/A
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Harness 2.5 pt/A
Hornet 3.0 oz/A

Insecticide: None

Hybrid: Pioneer 35R57

Irrigation: None

Planting Date: 5/16/03 **Planting Depth:** 1.5" **Row Width:** 30"

Target Plant Density: 22000 **plants per acre** **Planting Method:** Kinze Plot Planter

Harvest Date: 10/23/03 **Harvest Method:** Kincaid Plot Combine

Experimental Design

Design: RCB Factorial **Replications:** 3

Plot Size Seeded: 10' x 25' **Experiment Size:** 0.1 Acre

Harvest Plot Size: 5' x 22' **Harvest Plant Density:** 20680 **plants per acre**

Factors/Treatments:

Stage of Thinning:	Date of Thinning:
V2	June 6
V4	June 18
V6	June 25
V8	July 6
V10	July 11
V12	July 17

Results: Table C-83.

Table C-83. Influence of Thinning Timing on Corn Grain Yield. Arlington, WI - 2003

Treatment	Population	Grain yield	Grain moisture	Test weight	Lodging	Grower return
growth stage	plants/A	bu/A	%	lbs/bu	%	$/A
V2	22176	143	21.2	54	1	271
V4	21780	163	20.6	56	0	310
V6	19932	143	20.0	55	0	274
V8	20328	133	20.6	56	1	254
V10	19272	143	21.3	55	0	270
V12	20592	125	21.2	56	2	238
Mean	20680	142	20.8	55	1	270
Probability(%)						
Treatment (T)	17.8	14.9	38.4	45.0	26.2	14.1
LSD(0.10)						
Treatment (T)	NS	NS	NS	NS	NS	NS
CV(%)	7	11	4	2	202	11

FIELD EXPERIMENT HISTORY

Title: **17 Tillage in Corn and Soybean Production Systems**

Experiment: 17 Tillage **Trial ID** 2499 **Year:** 2003

Personnel: J.G. Lauer, P.J. Flannery, and K.D. Kohn

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

Supported By: HATCH

Site Information

Field: ARS396 **Previous Crop:** Corn/Soybean **Soil Type:** Plano Silt Loam

Soil Test: **Date:** 10/15/03 **pH** 6.2 **OM (%)** 3.1 **P (ppm)** 28 **K (ppm)** 107

Plot Management

Tillage Operations: See Factors

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	34-0-0	CC - 906 lbs/A CS - 815 lbs/A	5 /13/03
	Starter :	N/A	N/A	N/A
	Post plant :	N/A	N/A	N/A
	Manure:	N/A	N/A	N/A

Herbicide: Gramox 2 pt/A 4/23 - All
Roundup 1.5 qt/A 6/12/03 - All

Insecticide: Force @ 5.0 lb/A

Irrigation: None

Hybrid/Variety: Dekalb DKC5073
Dekalb DKB2351RR

Planting Date: C: 5/13/03
S: 5/20/03

Row Width: 30"

Planting Method: Kinze Inter-Row Planter

Planting Depth: C: 1.5"
S: 0.75"

Harvest Date: C: 10/2/03
S: 10/20/03

Harvest Method: C: Kincaid Plot Combine
S: Almaco Plot Combine

Experimental Design

Design: RCB Split Plot

Replications: 4

Plot Size Seeded: 20' x 100'

Experiment Size: 4.5 A

Harvest Plot Size: 5' x 100'

Factors/Treatments:

Rotation	Tillage for All Rotations
Continuous Corn	CP = Fall chisel plow and 2 spring field cultivator
Corn / Soybean	T1 = NT- Planter unit equipped with 1 13-wave coulter with trash whippers
Soybean / Corn	T2 = NT- Planter unit equipped with 1 13-wave coulter with trash whippers
	T3 = NT- Planter unit equipped with 1 13-wave coulter with trash whippers
	T4 = Spring chisel plow and 2 spring field cultivator
	NT = Planter unit equipped with 1 13-wave coulter with trash whippers

Results: Tables C-84 and C-85.

Table C-84. Tillage in Corn and Soybean Production Systems - Corn.

Arlington, WI - 2003.

Rotation	Tillage treatment	Residue cover	Yield	Moisture	Test weight	Lodged	Harvest population	Grower return
		%	bu/A	%	lbs/bu	%	plants/A	$/A
	CP	14	141	23.1	52	1	32063	261
	NT	51	146	24.8	50	8	32875	265
	T1	55	138	23.5	51	4	32500	256
	T2	54	148	24.4	51	5	30813	271
	T3	52	153	25.2	51	4	31875	277
	T4	12	149	24.1	52	1	30188	273
CC		49	140	26.3	50	8	31063	251
CS		30	151	22.0	52	0	32375	283
CC	CP	20	139	24.5	52	2	31125	253
CC	NT	65	133	26.5	49	16	32500	237
CC	T1	68	133	26.8	49	7	31625	237
CC	T2	65	142	26.5	49	9	28750	253
CC	T3	61	155	28.0	50	9	31250	271
CC	T4	17	142	25.8	51	2	31125	255
CS	CP	8	144	21.6	53	0	33000	269
CS	NT	37	159	23.2	52	0	33250	293
CS	T1	42	143	20.3	52	0	33375	275
CS	T2	44	154	22.3	52	1	32875	288
CS	T3	44	151	22.3	52	0	32500	283
CS	T4	7	156	22.5	52	0	29250	292
Mean		40	146	24.2	51	4	31719	267
Probability(%)								
Rotation (R)		0.4	36.4	1.4	1.0	17.2	2.5	15.0
Tillage (T)		0.0	62.0	29.9	0.1	2.6	1.7	70.7
R x T		13.2	66.8	35.3	5.8	4.4	2.7	69.0
LSD (0.10)								
Rotation (R)		6	NS	1.9	1	NS	744	NS
Tillage (T)		7	NS	NS	1	4	1355	NS
R x T		NS	NS	NS	1	5	1916	NS
CV(%)		20	12	8	2	4	5	11

Table C-85. Tillage in Corn and Soybean Production Systems - Soybean. Arlington, WI - 2003.

Rotation	Tillage treatment	Residue cover	Yield	Moisture	Grower return	Seed Composition		
						Oil	Protein	Fiber
		%	bu/A	%	$/A	%	%	%
SC	CP	28	27	12.2	183	18.0	39.0	4.6
SC	NT	80	28	12.1	192	18.2	38.6	4.7
SC	T1	58	28	12.0	193	18.4	38.6	4.6
SC	T2	64	28	12.2	189	18.7	37.9	4.7
SC	T3	58	28	12.1	192	18.3	38.6	4.6
SC	T4	21	28	12.1	190	18.3	38.4	4.6
Mean		51	28	12.1	190	18.3	38.5	4.7
Probability(%)								
Tillage (T)		0.0	99.2	93.5	99.2	37.6	39.9	35.6
LSD (0.10)								
Tillage (T)		13	NS	NS	NS	NS	NS	NS
CV(%)		20	12	3	12	3	2	1

Wisconsin On-Farm Test Results
WAPAC Corn Performance Trials
2003

Analyzed and Compiled by:
Joe Lauer
University of Wisconsin
in cooperation with the
Wisconsin Association of Professional Ag Consultants (WAPAC)

Introduction

Before the time of universities, industry research programs or crop consultants, farmers implemented changes in their production practices through a myriad of methods with some success. The process of incremental change and gradual improvements has evolved into an impressive system of research, development and production never imagined just decades ago. This production system, while impressive and productive can attribute much of its success on the recurring question asked by the farmer: “What am I going to do differently next season?”

The answer to the question hopefully results in an improvement of efficiency and profitability that is real and a result of the changes implemented. Our production system is dependent on selecting the inputs and operations that achieve a desired outcome. The process of testing a hypothesis and using the information gained in a cooperative, systematic manner has been highly successful in providing viable options for producing food, feed and fiber on the farm. However, that success has created what can be a bewildering mix of options that leave the farmer and farm advisor struggling with the answer to the question above. As a result, the Wisconsin Association of Professional Agricultural Consultants (WAPAC) and UW-Extension have worked together with farm clients across the state to develop a network for the purpose of conducting applied research trials.

This network consists of crop consultants, local and statewide extension faculty and most importantly farmers cooperating in a coordinated effort across Wisconsin. The objective of this program is to evaluate new technologies and management practices. Trials are conducted across a wide range of environments and management schemes in replicated plots using production scale equipment. This publication summarizes the results of on-farm hybrid trials conducted during 2003.

Identifying the source of variability in yield is a primary objective in any hybrid trial. The use of statistical methods including replication and means comparisons improves the reliability and confidence of results and outcome from the implemented practice. On-farm testing with field scale equipment has traditionally been used for demonstration in non-replicated trials. An overriding strength of on-farm evaluations is the credibility of the results in the eyes of the end user, the farmer by showing how the practice responds within his production system. Often the power of these trials can be enhanced with simple modifications such as replication within locations and across multiple sites with coordinated effort. That coordination is what the membership of WAPAC and UW Extension provide in the execution of the trials. The advent of effective tools for collecting data related to crop production such as weigh wagons, on farm scales and yield monitors have removed many of the traditional barriers of on-farm trials. The increased incidence of having a trained specialist such as a crop consultant on the farm enables the coordination of multi-site evaluations that address production concerns in a real time manner. The evolution of all components of the production process will likely increase the need for more on-farm data collection and analysis as agriculture moves into the future. Collaborative efforts such as this will be necessary to utilize the wealth of information residing in the data collected at the farm.

Methodology of the On-Farm Trials

A recognized strength of field scale on-farm trials is the low coefficient of variability achieved within this type of trial as compared to smaller traditional field research trials. The coefficient of variability (CV) can be looked as a measure of quality of the trial itself. By reducing or addressing the variability of sites or practices within a trial, one can better evaluate the treatment effects of the trait or practice being tested. The use of randomization, replication and thoughtful plot layout help improve the quality of information gleaned from the trial. The WAPAC Hybrid Trials use a minimum of 2 replications for each site and treatments (hybrids) are randomly placed within each replication.

Plots are planted across sources of variability such as soil types or slopes to provide somewhat uniform representation of these sources within each replication. The plots are planted and harvested with field scale equipment. Individual plot sizes for hybrid trials are typically 6 to 12 rows wide and run distances of 500 to over 1000 feet in length. Data and observations are collected throughout the growing season and utilized in the analysis when appropriate. Information identifying plot locations, production inputs, site characteristics along with other supporting information is systematically collected and recorded in a database format to facilitate user queries and data archival.

Using the Results

Coupling the information from this publication with the UWEX Hybrid Corn Performance Trials as well as other hybrid performance trials will give the user the ability to evaluate how a particular hybrid performs in multiple environments. Predicting the performance of a hybrid in the future is done through analysis of past performance. A primary factor in the prediction is the number of locations or replications of a hybrid. This trial typically provides 6 to 12 or more replications of a hybrid at 3 to 6 locations across the state.

The results are reported in Yield per acre and Grower return.

Grower return = (Yield*Price) - [Yield * (Handling+ Hauling+ Storage+ Drying+ Trucking)]

where **Price** = $2.42 = **Weighted Price per Bushel** = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling costs = $0.02 per bushel
Hauling costs = $0.04 per bushel
Storage costs = $0.02 per bushel for 30 days
Drying costs = $0.02 per bushel per point of moisture
Trucking costs = $0.11 per bushel for 100 miles

The data tables contain the number labeled “LSD” which stands for least significant difference. LSD’s at the 10% level of probability are shown. Where the difference between two selected treatments within a column is equal to or greater than the LSD value at the bottom of the column, you can be sure that in nine out of ten chances that there is a real difference between the two treatment averages. If the difference is less than the LSD value, the difference may still be real, but the experiment has produced no evidence of real differences.

Statistics are a tool to help prevent us from deceiving others and ourselves. Growing conditions in any particular year can have large effects on certain practices. Two years of replicated data are a minimum for supporting most practices. On-farm testing is not a quick cure for anything, but it should greatly accelerate innovation and adoption of new practices by providing reliable, quantitative answers that apply directly to a producer’s situation. Treatments frequently differ in performance and these differences may vary with management practices, weather patterns, soil conditions, and other environmental and management practices. Replicated trials that take into account field variability are more reliable than non-replicated trials and improve the confidence of implementing of new practices for profitable crop production.

Bill Stangel and Joe Lauer, WAPAC Board of Directors – December 2003

WAPAC Trial Information: 90 day

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	Soil test P (ppm)	Soil test K (ppm)	Fertilizer (lb/a) N	Fertilizer (lb/a) P	Fertilizer (lb/a) K	Weed control	Insecticide Fungicide
Merrill, WI Roth Farms Paul Sturgis, Croptech Agronomics	2452 Rietbrock	alfalfa	5/30/03 30	11/21/03	Chisel plow Disk 2x	6.5	22	110	89 Dairy	80 20,,000 gal/A	200 manure (T/A)	Keystone LA @ 3.5 pt/A + Python @ 0.7 pt/A	
New Franken, WI Tilkens Dairy Mark Vanden Plas	2449 loam	soybean	5/26/03 30 32000	11/20/03	Chisel plow Field cultivator 2x	7.5	9	58	124	24	60	Dual II Magnum @ 1.0 pt/A + Python WDG @ 0.8 oz/A + Atrazine 90DF @ 1.0 lb/A on 5/27/03	
Peshtigo, WI Strutz Farms Scott Reuss	2451 Emmet	soybean	5/16/03 30 29900	11/14/03	 Discing 2x				110	46	60	Harness @ 1.75 pt/A + Hornet @ 3 oz/A + Atrazine @ 0.4 lb/A + COC @ 0.5 pt/A on 6/3/03	
Wind prior to harvest caused excessive lodging. Lodging numbers not taken due to uneveness of wind.													
Pulaski, WI Lee Herman Jeff Polenske, Polenske Agronomic Consulting	2441 Onaway / Solona	soybean	5/15/03 30	11/15/03		7.7	25	82	100	30	45	Dual II Magnum @ 1.67 pt/A + Sterling Plus @ 3.5 pt/A on 5/17/03	Agrox Premier @ 1 oz/A on 5/15/03
Shawano, WI Mueller Farms Phil Stern, Stern Crop Consulting	2456 Onaway	alfalfa	5/25/03 30	12/8/03	 Moldboard plow + Disc	6.7	30	110	9	23	30	Accent @ 0.33 oz/A + Northstar @ 4 oz/A + Atrazine @ 0.75 lb/A + COC @ 1 qt/A + AMS @ 2 lb/A on 6/15/03	

WAPAC Corn Hybrid Trial Results (90 day RM)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	Pulaski 2441	New Franken 2449	Peshtigo 2451	Merrill 2452	Shawano 2456
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A	bu/A
Dairyland Stealth 1592	29415	5	52	19.2	146	311	168	152	153	105	153
Kaltenberg K2718	29650	8	52	19.8	141	299	165	147	159	99	137
Golden Harvest H6775Bt	29180	6	54	19.8	148	314	167	149	166	101	158
Garst 8894Bt	28580	6	52	19.8	146	309	162	156	160	103	149
NK Brand N2555BT	29785	8	53	19.9	151	318	166	153	167	109	158
Renk RK232YGCB	29905	6	52	20.0	144	303	166	151	160	104	137
Croplan Genetics 294Bt	29560	5	52	20.2	159	334	177	157	183	117	160
LG Seeds LG2415	28670	5	51	20.2	145	306	167	143	153	99	161
Mean	29343	6	52	19.9	147	312	167	151	162	105	152
LSD (0.10)	NS	NS	1	0.2	5	11	NS	NS	13	8	NS
CV (%)					5		3	5	4	4	6

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

where Price = $2.42 = Weighted Price per Bushel = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling = $0.02 per bushel
Hauling = $0.04 per bushel
Storage = $0.02 per bushel for 30 days
Drying = $0.02 per bushel per point of moisture
Trucking = $0.11 per bushel for 100 miles

WAPAC Trial Information: 95 day A

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	P	K	Fertilizer (lb/a) N	P	K	Weed control	Insecticide Fungicide
						--- ppm ---			manure (T/A)				
Clintonville, WI Doug Behnke Michael Kiddy	2438 Hortonville	alfalfa	5/17/03 30	11/10/03	1x with urea	7.3	34	100	161 Dairy 6,000 gal/A (8-6-22) 1.2 Other	54	152	Prowl @ 2 pt/A + Stratus @ 2 pt/A + Steadfast @ 0.3 oz/A + NIS + AMS @ 2 lb/A on 6/12/03	
Wet in May, dry in July and August. Sprayed later than desired.													
New Franken, WI Tilkens Dairy Mark Vanden Plas	2450 loam	soybean	5/26/03 30 32000	11/20/03	Chisel plow Field cultivator 2x	7.5	9	58	124	24	60	Dual II Magnum @ 1.0 pt/A + Python WDG @ 0.8 oz/A + Atrazine 90DF @ 1.0 lb/A on 5/27/03	
New London, WI Russ Cartwright Knutzen Crop Consulting	2455 Grays	corn	5/19/03 30	12/5/03	Chisel plow Field cultivate 2x	6.5	29	115	150	9	80	Lumax @ 2.5 qt/A on May	
Reedsville, WI Larry Krepline Carl Buchner, Buchner Agronomy Consulting	2444 Kewaunee	soybean	5/23/03 30	10/30/03	Chisel plow Field cultivator 2x	7	11	90	174	36	72	Dual II Magnum @ 1.33 on pt/A on 5/22/03 Hornet WDG @ 2.5 oz/A + Aatrex 4L @ 1 pt/A + COC @ 1 gal/100gal on 6/14/03	
Thinning of stand by sandhill cranes.													
St. Nazianz, WI Mark and Joe Litz Steve Hoffman	2437 Kewaunee	wheat	5/18/03 30	10/23/03	Moldboard plow Field cultivate 2x 1x	7.7	6	177	158 Dairy 7,600 gal/A	98	243	Accent @ 0.33 oz/A + Northstar @ 4 oz/A on mid-June	Kernel Guard on 5/18/03

WAPAC Corn Hybrid Trial Results (95 day RM - A)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	St. Nazianz 2437	Clintonville 2438	Reedsville 2444	New Franken 2450	New London 2455
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A	bu/A
Croplan Genetics 344Bt	29656	0	54	20.1	153	322	163	129	133	162	179
Kaltenberg K4330	31031	2	53	20.2	139	292	150	112	120	148	165
Renk RK438YGCB	30344	1	53	20.7	156	325	167	128	137	163	182
Pioneer 38R92	29125	2	54	21.4	148	308	162	109	135	161	173
LG Seeds LG2463Bt	30688	1	53	21.5	152	316	169	120	137	154	182
AgriPro 8888	30406	1	52	21.6	151	313	168	126	134	149	177
Mean	30234	1	53	20.9	150	314	163	120	133	156	177
LSD (0.10)	958	NS	1	0.4	4	9	4	10	5	NS	NS
CV (%)					3		1	4	2	5	4

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

where Price = $2.42 = Weighted Price per Bushel = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling = $0.02 per bushel
Hauling = $0.04 per bushel
Storage = $0.02 per bushel for 30 days
Drying = $0.02 per bushel per point of moisture
Trucking = $0.11 per bushel for 100 miles

WAPAC Trial Information: 95 day B

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	Soil test P (ppm)	Soil test K (ppm)	Fertilizer (lb/a) N	Fertilizer (lb/a) P	Fertilizer (lb/a) K	Weed control	Insecticide Fungicide
Dale, WI Larry Danke Paul Knutzen	2442 Hortonville	soybean	5/6/03 30	11/7/03		6.6	30	110	160	22	68	Lasso @ 2.25 qt/A + Hornet WDG @ 2.5 oz/A + Atrazine @ 0.5 lb/A + Basis @ 0.33 oz/A + AMS @ 2.5 lb/A on June	
DePere, WI Robertson Brothers Jeff Polenske, Polenske Agronomic Consulting	2436 Oshkosh	soybean	5/22/03 30 32000	10/29/03	Chisel plow Field cultivator	6.8	21	106	139	62	15	Dual II Magnum @ 1.67 pt/A + Hornet WDG @ 3 oz/A + Aatrex @ 1 lb/A on 5/22/03	
Manawa, WI Dan Boerst Michael Kiddy *Wet in May and June, dry in July and August.*	2439 Hortonville	alfalfa	5/16/03 30	11/27/03	Fall chisel Field cultivator 2x 1x	6.7	30	90	150 Dairy 6,000 gal/A (10-8-23-1.6) 10.8 Other	58	165	Prowl @ 2 pt/A on 5/20/03 Steadfast @ 0.75 oz/A + Aatrex @ 0.75 lb/A + Stratus @ 0.75 pt/A + COC @ 1 qt/A + AMS @ 3 lb/A on 6/15/03	
Seymour, WI Dale Kropp Phil Stern, Stern Crop Consulting	2453 Onaway	Snap beans	5/03/03 30	11/15/03	Fall chisel Field cultivator 2x	7.1	25	120	150 Dairy 15,000 gal/A	113	360	Lumax @ 2 qt/A on 5/4/03 Basis Gold @ 14 oz/A + COC/AMS on 5/25/03	
Valders, WI David Staudinger Carl Buchner, Buchner Agronomy Consulting *Significant stalk rot through out field. Root pruning from corn rootworm.*	2443 Kewaunee	corn	5/22/03 30	10/16/03	Chisel plow Field cultivator 2x 1x	7.3	41	104	145	18	36	Dual II Magnum @ 0.7 pt/A on 5/21/03 Hornet WDG @ 2.5 oz/A + Aatrex 4L @ 1 pt/A + COC @ 1 gal/100gal on 6/11/03	Lorsban @ 6.5 lb/A on 5/22/03

WAPAC Corn Hybrid Trial Results (95 day RM - B)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	DePere 2436	Manawa 2439	Dale 2442	Valders 2443	Seymour 2453
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A	bu/A
Pioneer 38T28	29100	1	53	21.6	168	347	193	202	157	107	179
Renk RK488YGCB	29100	0	51	22.4	174	357	174	201	165	119	210
Kaltenberg K4688	29200	0	51	22.6	170	349	182	201	171	116	182
Dairyland Stealth 1497	28350	0	52	22.6	172	352	181	205	164	117	192
Pioneer 37F16	29775	0	51	22.6	177	362	191	212	157	118	205
Croplan Genetics 364Bt	28775	1	51	22.8	166	340	179	195	157	117	183
Golden Harvest H7108	28750	1	51	23.0	158	322	179	189	154	102	165
Mean	29007	0	51	22.5	169	347	183	201	161	114	188
LSD (0.10)	NS	NS	1	NS	7	15	NS	11	NS	8	NS
CV (%)					5		4	3	4	4	8

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

where Price = $2.42 = Weighted Price per Bushel = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling = $0.02 per bushel
Hauling = $0.04 per bushel
Storage = $0.02 per bushel for 30 days
Drying = $0.02 per bushel per point of moisture
Trucking = $0.11 per bushel for 100 miles

WAPAC Trial Information: 100 day

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	P	K	Fertilizer (lb/a) N	P	K	Weed control	Insecticide Fungicide
						--- ppm ---			manure (T/A)				
Appleton, WI Dave McCarthy Jeff Polenske, Polenske Agronomic Consulting	2435 Hortonville	Alfalfa	4/29/03 38	10/20/03		7.5	16	158	199 Dairy 7,000 gal/A	66	208	Dual II Magnum @ 1 pt/A + Roundup 1 qt/A + Basis @ 0.33 oz/A + Crop oil @ 1 gal/100 gal + AMS @ 2 lb/A + Aatrex 1 lb/A on 4/30/03	
Beaver Dam, WI Charles Hammer Bill Stangel, Soil Solutions Consulting	2463 St. Charles / Plano sil	soybean	5/4/03 30	11/7/03	Field Cultivate	6	84	188	125	9	2	Lumax @ 3 qt/A on 5/10/03	
Deerfield, WI Russ Dahl Tom Novak, Total Crop Management, LLC *No rain in August.*	2448 St. Charles	soybean	4/29/03 30	10/24/03		6.3	30	110	94	20	20	Generic Glyphosate @ 1 qt/A + Outlook @ 16 oz/A + 2,4-D ester @ 0.5 pt/A on Pre - Clarity @ 1 pt/A on Post	
Ripon, WI Bob and Buck Grasee Mike Rankin, UWEX	2440 Mendota	soybean	5/17/03 30 30000	11/7/03	Disk 1x 1x	6.8	76	176	118	13	30	Dual II Magnum @ 1 pt/A impregnated on urea + Basis Gold @ 12 oz/A + Banvel @ 2 oz/A on Post	

WAPAC Corn Hybrid Trial Results (100 day RM)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	Appleton 2435	Ripon 2440	Deerfield 2448	Beaver Dam 2463
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A
AgriGold XA6205Bt	28031	1	54	18.3	179	381	201	206	157	151
Renk RK636YGCB	28281	1	53	18.5	173	367	205	197	144	145
Dairyland Stealth 1602	28903	1	54	18.6	164	348	201	182	136	138
Pioneer 37R71	28544	1	54	18.7	180	382	208	206	153	153
Kaltenberg K4829	27322	1	55	18.7	172	365	201	192	151	144
Garst 8787YG1	29517	1	54	19.6	166	348	191	192	145	136
Golden Harvest H7900	28042	1	54	20.4	167	348	190	180	152	144
Mean	28548	1	54	19.1	174	367	199	194	148	144
LSD (0.10)	805	NS	NS	0.7	4	10	NS	5	5	4
CV (%)					3		5	2	2	1

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

where Price = $2.42 = Weighted Price per Bushel = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling = $0.02 per bushel
Hauling = $0.04 per bushel
Storage = $0.02 per bushel for 30 days
Drying = $0.02 per bushel per point of moisture
Trucking = $0.11 per bushel for 100 miles

WAPAC Trial Information: 105 day

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	Soil test P (ppm)	Soil test K (ppm)	Fertilizer (lb/a) N	Fertilizer (lb/a) P manure (T/A)	Fertilizer (lb/a) K	Weed control	Insecticide Fungicide
Cambridge, WI	2460	corn	5/13/03	10/29/03		6.7	24	91	167	58	152	Camix @ 2.4 qt/A + Roundup @ 1 pt/A + AMS @ 7 lb/A on 5/25/03	Force 3G @ 4.3 lb/A on 5/13/03
Jeff Nostad	Rockton		38										
Dave Cole, ITAC of Wisconsin, Inc.	sl		30000							1 Zn			Maxim XL @ 0.167 oz/cwt on 5/16/03
Clyman, WI	2454	Corn	5/18/03	11/21/03	Strip-till				155	14	42	Bicep Lite @ 3 pt/A + Basis @ 0.25 oz/A + Roundup @ 1 pt/A + Clarity @ 4 oz/A on 5/7/03	Force 3G @ 4.4 lb/A on 5/18/03
Jeff Kreuziger			30										
Randy Rabata													
Weighed by Scott Miller LG Seeds.													
Lodi, WI	2462	corn	4/29/03	10/31/03		6.8	169	286	163	6	16	Lumax @ 3 qt/A on 5/3/03	Aztec 2.1 G @ 7.3 lb/A on 4/29/03
Barbian Brothers	Plano		30		Disc + Field cultivator								
Dave Cole, ITAC of Wisconsin, Inc.	sl		32000							1 Zn			Maxim XL @ 0.167 oz/cwt on 5/16/03
Failed to cultivate allowed giant rags to escape in severe patches. We did not combine as part of plots.													
Prairie du Sac, WI	2461	soybean	5/22/03	10/28/03		6.8	40	201	155	150	382	Glyphosate @ 32 oz/A + 2,4-D Amine @ 32 oz/A on 5/25/03 Camix @ 2.4 qt/A on 5/28/03	
Dairy Forage Research Center	Richwood		30						Dairy 17,000 gal/A				Maxim XL @ 0.167 oz/cwt on 5/16/03
Dave Cole, ITAC of Wisconsin, Inc.	sl		33500										
Whitewater, WI	2447	soybean	5/17/03	10/27/03		6.8	22	85	94	20	20	Roundup WeatherMax @ 22 oz/A + Harness @ 2 pt/A on Pre Distinct @ 3 oz/A on Post	
Tom Hoffman	Mahalasville		30										
Tom Novak, Total Crop Management, LLC	sil												
Last rain of season on July 31. No-till corn stayed green into September.													

WAPAC Corn Hybrid Trial Results (105 day RM)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	Whitewater 2447	Clyman 2454	Cambridge 2460	Prairie du Sac 2461	Lodi 2462
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A	bu/A
Kaltenberg K5301	27417	12	55	16.9	144	312	185	119	123	169	126
Garst 8517LL	26850	9	53	18.6	165	351	191	154	140	172	166
Golden Harvest H8351	29750	12	53	18.9	162	343	200	147	132	178	156
Pioneer 35Y67	29017	8	54	18.9	172	364	205	162	133	192	170
Dairyland Stealth 1606	28300	10	51	19.1	159	335	185	143	139	156	171
Renk RK700YGCB	31167	8	52	19.3	159	335	191	144	122	174	165
Pioneer 35Y55	29583	9	51	20.0	165	346	195	158	119	177	177
AgriGold A6333Bt	29233	9	49	21.5	162	334	188	140	134	185	161
Mean	28915	9	52	19.2	161	340	193	146	130	175	161
LSD (0.10)	906	NS	1	0.9	6	14	8	19	NS	NS	11
CV (%)					5		2	7	7	6	4

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

where Price = $2.42 = Weighted Price per Bushel = 50% November 15 Average Cash price + 25% March CBOT Futures price ($0.15 basis) + 25% July CBOT Futures price ($0.10 basis). November 15 Average Cash price derived from Wisconsin Ag Statistics; CBOT Futures prices derived from closing price on first business day in December.

Handling = $0.02 per bushel
Hauling = $0.04 per bushel
Storage = $0.02 per bushel for 30 days
Drying = $0.02 per bushel per point of moisture
Trucking = $0.11 per bushel for 100 miles

WAPAC Trial Information: 110 day

Location Cooperator Consultant	tri_id Soil series Soil texture	Previous crop	Planting Date Row width Target Population	Harvest Date	Fall and SpringTillage Cultivation (times)	Soil test pH	Soil test P (ppm)	Soil test K (ppm)	Fertilizer (lb/a) N	Fertilizer (lb/a) P	Fertilizer (lb/a) K	Weed control	Insecticide Fungicide
Elkhorn, WI	2446	soybean	5/19/03	10/29/03		5.7	68	146	123	20	20	Surpass @ 2 pt/A on Pre Distinct @ 3 oz/A on Post	
Lauderdale Farms, Inc.	Plano		30		Soil finisher				Poultry manure 7 T/A				
Tom Novak, Total Crop Management, LLC	sil												
Last rain of the season in mid-July.													
Lodi, WI	2459	Alfalfa	5/10/03	10/11/03		6.8	110	374	204	24	64	Roundup @ 1.5 pt/A + 2,4-D @ 1.0 pt/A + AMS on 10/10/02 Camix @ 2 qt/A + Aatrex 90 @ 1.55#/A on 5/15/03	Kernel Guard @ 6 oz/A on 5/10/03
Lochner Dairy, LLC	Mt. Carroll		38		Field cultivator								
Dave Cole, ITAC of Wisconsin, Inc.			32000		1x					1.8 Zn			Maxim XL @ 0.167 oz/cwt on 5/16/03
Soil was very hard with about 1/4 to 1/2 inch crust at emergence…perhaps a 6% toll…1900-2000 seeds lost due to crusting. Still missing about 3000 dropped seeds .. Wireworms?													
Palmyra, WI	2445	Pumpkins	5/4/03	10/29/03	Chisel plow	7.5	57	142	135	0	0	Dual II Magnum @ 1.25 pt/A + Atrazine 4L @ 0.75 qt/A on Pre Distinct @ 2 oz/A on Post	
Tom Novak	Yahara		30		Field cultivator								
Tom Novak, Total Crop Management, LLC	fsl				1x								
Last rain of the season was 7/3/03.													
Sauk City, WI	2457	corn	5/16/03	10/31/03		6.2	134	139	187	57	153	Lumax @ 3 qt/A on 5/16/03	Regent @ 4.2 oz/A on 5/16/03
Maize n Bacon	Billett		30		Chisel plow + Field cultivate				Hog 5,500 gal/A				
Soil Solutions			36000		1x								Maxim XL @ 0.167 oz/cwt on 5/16/03
Severe stalk rots due to hail on 10 August. No bruising of ear, but stalks went south - Gibberella.													

WAPAC Corn Hybrid Trial Results (110 day RM)

Entry	Plant stand	Lodging	Test Weight	Grain Moisture	Grain Yield	Grower Return	Palmyra 2445	Elkhorn 2446	Sauk City 2457	Lodi 2459
	no./A	%	lb/bu	%	bu/A	$/A	bu/A	bu/A	bu/A	bu/A
Renk RK772YGCB	27150	23	55	19.6	180	380	188	144	199	190
Pioneer 34N44	25333	23	55	22.4	176	361	186	148	185	185
NK Brand N58D1	25221	23	54	22.6	168	344	182	151	180	158
Dairyland Stealth 1609	25992	8	54	23.2	159	323	160	144	170	160
Garst 8566	29983	23	53	23.4	168	340	180	136	181	174
Golden Harvest H8618Bt	26450	23	51	23.7	162	327	171	136	175	165
AgriGold A6395Bt	28371	8	52	23.7	179	363	188	157	195	177
Mean	27054	18	53	22.3	171	351	179	145	184	173
LSD (0.10)	1086	--	1	1.0	8	17	19	NS	NS	12
CV (%)					6		6	8	6	4

Grower return = (Yield * Price) - [Yield * (Handling + Hauling + Storage + Drying + Trucking)]

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Printing for Spine of Book

2003 Annual Research Report – Lauer, Kohn, and Flannery