

TARE

**Thumb Ag Research &
Education
2011 Field Trials**



**MICHIGAN STATE
UNIVERSITY**

Extension

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Introduction

2011 TARE Trial Report

This report represents the seventh year of a multi-county strategy for evaluating corn hybrids and soybean varieties as well as agronomic practices. The project is, and has been operated under the Thumb Ag Research and Education (TARE) organization. The TARE Committee, comprised of farmer and agribusiness representatives, serves as an advisory board, and provides oversight for the project’s direction, finances and equipment needs. We gratefully acknowledge the committee’s contributions and the support provided by our industry partners, listed on the back cover of this publication.

Each study is analyzed statistically to determine the Least Significant Difference (LSD) at the 0.05 (5%) level. The LSD represents the maximum difference between treatments (hybrid, variety, population, or evaluated input) for the difference to be attributed to the treatment rather than some external factor, like soil variability. An LSD at the 0.05, or 5% level means that statistically, we can be 95% confident with the results. Within studies any result that is **bolded** is statistically the same. Therefore, if a treatment is bolded, it yielded the same, statistically speaking, as the highest yielding treatment in that study. Any treatment result, within a study, that is not bolded yielded significantly less than the highest yielding treatment. We also include the Coefficient of Variation (CV). The CV is a measure of the variability of the data that cannot be explained by the statistics. The lower the CV, the more confident you can be that the data is good. Generally, a CV of less than 10% is good data. A CV of less than 5% is very good data.

Each of the trials contains a trait as well as a seed treatment index to assist growers. The following trait codes were used in the booklet.

Traits Code	Treatment
RR	Glyphosate Tolerant
RR2	Roundup Ready Corn 2
SS	SmartStax
CB	Corn Borer
LL	Liberty Link
HX1	Herculex 1
VT3	YieldGard VT Triple
RW	Rootworm
HXX	Herculex XTRA
GT	Agrisure GT

We hope you find these results useful to your operation. Ultimately it is you, the grower, whom we aim to serve with this project!

Bob Battel, Project Leader

2011 Greater Thumb Area Field Crops Team

Bob Battel, Huron County	battelro@anr.msu.edu
Phil Kaatz, Lapeer County	kaatz@msu.edu
Martin Nagelkirk, Sanilac County	nagelkir@anr.msu.edu
Jim Vincent, TARE Technician	vince115@msu.edu



Farm Cooperators:

Name	City	County	Planting Date	Harvesting Date
<u>Corn</u>				
LARACHA Farms	Reese	Saginaw	5-07-2011	11-14-2011
Jason Haag	Akron	Tuscola	5-10-2011	11-12-2011
Huron Corn Growers	Elkton	Huron	5-11-2011	11-11-2011
Tom Durand	Croswell	Sanilac	5-12-2011	11-04-2011
Don Koth	Filion	Huron	5-13-2011	11-05-2011
<u>Soybeans</u>				
Rob Foster	Fairgrove	Tuscola	5-24-2011	10-18-2011
Randy Sturm	Pigeon	Huron	6-01-2011	11-01-2011
Ron Gerstenberger	Sandusky	Sanilac	6-03-2011	09-30-2011
Gordon Spencer	Almont	Lapeer	6-06-2011	10-13-2011
Zwerk & Sons	Vassar	Tuscola		
<u>Alfalfa</u>				
Mike Lauwers	Capac	St. Clair	04/26/2010	
Lynn Island Farms	Capac	St. Clair	05/2011	
Howland Farms	North Branch	Lapeer	04/2008	
<u>Wheat</u>				
Stone Brothers Farm	Sandusky	Sanilac	10/07/2010	7/15/2011
Parrent Farms	Sandusky	Sanilac	10/07/2010	7/20/2011

TARE Committee Members:

Mike Houghtailing	Saginaw	Saginaw		
Tom VanSickle	Deckerville	Sanilac		
Jon Oakes	St. Charles	Saginaw		
Jay Ferguson	Brown City	St. Clair		
Tom Durand	Croswell	Sanilac		
Bill Hunt	Davison	Genesee		
Jeff Krohn	Elkton	Huron		
Dave Rupprecht	Vassar	Tuscola		
Randy Sturm	Pigeon	Huron		
<u>Agribusiness Reps.</u>		<u>Company</u>		
Jeff Leipprandt		Pioneer Hi-Bred, International		
Chuck Kunisch		MAC		
John Kohr		Monsanto		
Dale Kundinger		CPS		
Jeff Reinbold		Great Lakes Hybrids		
Amy Sweeney		Star of the West Milling Company		

**Summary of Precipitation and Growing Degree Days
May - September 2011**

Pigeon/Bad Axe

	Precipitation			GDD ¹		
	2011	2010	Normal ³	2011	2010	Normal ³
May	2.3	3.46	2.92	279	385	291
June	3.06	4.41	2.91	482	483	467
July	2.08	3.53	3.04	713	683	601
August	3.36	0.81	3.68	572	665	551
Sept	3.16	2.94	3.82	357	346	360
TOTAL	13.96	13.55	16.37	2403	2079	2,270

Sandusky

	Precipitation			GDD ¹		
	2011	2010	Normal ³	2011	2010	Normal ³
May	6.47	2.92	2.57	294	397	317
June	1.9	3.16	2.81	497	528	486
July	1.49	2.43	2.71	745	713	622
August	1.75	0.56	2.86	602	690	575
Sept	3.44	4.6	4.1	380	372	377
TOTAL	15.05	14.04	15.05	2518	2178	2,377

Fairgrove/Caro

	Precipitation			GDD ¹		
	2011	2010	Normal ³	2011	2010	Normal ³
May	3.5	3.68	2.86	325	404	353
June	1.79	3.4	3.3	526	539	519
July	1.84	1.65	2.75	730	714	644
August	4.74	1.68	3.26	594	697	594
Sept	2.68	3.94	4.22	380	376	402
TOTAL	14.55	12.56	16.39	2555	2266	2,512

¹GDD is the growing degree days based on 50°F and 86°F cutoff (corn method)

²2010 & 2011 data are based on the MAWN system in Pigeon, Fairgrove and Sandusky

³"Normal" is the average precipitation from 1971—2000 and is based on data collected at Bad Axe, Caro and Sandusky

Corn Studies Introduction

Corn is established in 100 foot long by 15 foot wide plots. A six row 7200 John Deere planter with 30 inch row spacing is used for establishment. Plots are planted perpendicular to the tile.

Corn is planted with a starter fertilizer using 15 gallons of 10-34-0 liquid. Note that in 2011 the Croswell site there was mechanical failure, and 10-34-0 was not applied to all rows. The failure was consistent throughout the plot, so the effect on results was minimal. Corn is harvested with a 2144 Case IH combine with an attached HarvestMaster weigh system that records grain weight, moisture, and test weight. The center 10 feet (four rows) are harvested for data.

The target population is 32,000 seeds per acre. Stand counts were taken in August, and it was determined that the average plant population was 31,500 throughout the plots. Plots are established in a randomized complete block design (RCBD) with four replications. At the beginning of the season, six corn sites were planned to be planted at : Reese, Akron, Elkton, Filion, Croswell, and Capac. Due to the extremely wet spring weather, the Capac site was not planted. As it turned out, four of the five sites were planted following sugar beets. The Elkton site followed dry beans.

Studies include 85-94 RM hybrids, 95-99 RM hybrids, 100-105 RM hybrids, refuge (no Bt) hybrids, corn population by ear type, corn nitrogen, fungicides, and accolade seed treatment. The 85-94 RM study was planted at all sites but the Elkton site. It was not planted at the Elkton site due to space limitations. The 100-105 RM study was not planted at the Croswell or Filion site because they are cooler weather sites. The 100-105 RM and refuge studies were planted at all sites.

Lodging was moderate at four sites, and severe at the Filion site. Results on the 85-94 RM hybrids were erratic at the Filion site, due to the severe lodging, and results were not included in analysis.

Corn nitrogen studies were established at the Akron and Filion sites, as well as a satellite location east of Sandusky. The Filion site nitrogen studies were not included in the analysis due to severe lodging. Corn population by ear type was established at the Reese and Elkton sites. The study was planned at the Capac site. The fungicide study was established at the Elkton site. The accolade seed treatment study was established at the Reese and Elkton sites.

Hybrid	RM [†]	Traits [‡]	Seed Treatment	Average of Location			
				Moisture (%)	Test Weight	Yield Bu/A	Lodging (0-3)
Pioneer P0463XR	104	HXX	P250	22.5	57.6	205.7	0.8
Garst 86T82-3000 GT Brand	105	GT/CB/LL/RW	Cruiser	22.4	57.6	204.3	0.7
NuTech 5N-001	101	Agrisure 3000GT	C250	20.9	58	199.5	0.7
G2 Genetics 5H-502	102	HX1/RR2	C250	21.5	58	199.0	0.8
Pioneer P0413 AMI	104	HXX	P250 & P1250	22.1	57.8	193.9	1.3
Mycogen 2A551	103	SmartStax	Cruiser Max	22.1	57.7	187.1	0.8
Croplan 5237	102	SS	Cruiser & Zinc	21.6	57.9	183.5	1.1
Pioneer P0115 AMI	101	HXX	P250 & P1250	20.6	58.4	183.2	1.4
Bayside 9100 3111GT	100	GT/CB/RW/VIP/LL	Cruiser Extreme	20.7	58.4	182.7	1.0
Dyna-Gro D 43 QV 30	105	Agrisure 3000 GT	Acceleron	21.3	58.1	179.8	1.1
Garst 87U28-3000GT Brand	100			20.6	58.4	178.7	0.7
Croplan 4338	100	SS	Cruiser & Zinc	21.6	57.9	177.1	0.8
Dekalb DKC 53-78	103	SS	AC 250	21.5	58	176.4	1.4
G2 Genetics 5H-0101	101	HX1/RR2	C250	20.5	58.4	175.4	0.8
GH H-7628-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	20.6	58.4	175.2	0.7
G2 Genetics 5H-902	102	HX1/RR2	C250	20.9	58.4	174.9	0.8
Croplan 5438 SS	104	SS	Cruiser & Zinc	21.1	58.2	174.6	0.8
Bayside 9100 GT	100	GT	Cruiser Extreme	21.4	58	174.1	1.1
Dekalb DKC 53-45	103	SS	AC 250	22.1	57.7	173.5	0.8
Specialty 8222GENSS	102	SmartStax	Acceleron	21.3	58	173.5	1.4
Dekalb DKC 52-59	102	VT3	AC 250	20.7	58.3	173.3	1.3
NK N46U-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	20.8	58.3	171.3	1.1
Hyland 8491	100	SmartStax	250 Poncho	21.7	58	171.1	1.3
Rupp XR 8088	101	GT 3000	Cruiser 250	21.1	58.2	170.2	1.1
G2 Genetics 5H-501	102	HX1/RR2	C250	21.1	58.2	167.7	1.0
Rupp XR 8239	103	VT3Pro	Acceleron 250	21.2	58.2	166.1	1.3
Great Lakes 5157VT3	101	VT3	P500 w/ Votivo	20.7	58.4	166.0	0.8
NuTech 5N-803	103	Agrisure 3000GT	C250	21.6	57.9	163.2	1.3
Dyna-Gro D 40 SS 09	100	SmartStax	Acceleron	20.6	58.4	162.4	1.1
Specialty 4294VT3	102	VT3	Acceleron	21.2	58.2	160.6	0.8
GH H-8211-3000GT Brand	105			22.2	57.7	160.4	0.8
Dyna-Gro D 44 SS 49	104	SmartStax	Acceleron	21.1	58.2	159.5	0.8
Specialty 8310GENSS	101	SmartStax	Acceleron	20.4	58.6	159.3	0.8
Mycogen 2P497	102	SmartStax	Cruiser Max	21	58.2	157.2	1.3
Mycogen 2D503	100			20.5	58.5	153.8	0.7
NuTech 5N-102	102	Agrisure 3000GT	C250	19.7	58.9	151.7	1.3
GH H-7949-3000 GT Brand	103	GT/CB/LL/RW	Cruiser + Avicta	21.1	58.1	150.6	1.3
Garst 86J49-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	21.2	58.1	147.9	0.8
NuTech 5B-0205	102	Agrisure GT/CB/LL	C250	19.9	58.9	146.6	0.7
Average				21.2	58.2	172.6	1.0
LSD @ 0.05						12.8	
C.V. %						9.2	

Lodging Scores Ratings: 0 = 0%, 1 = 5%, 2 = 10%, 3 = 20+ %

[†]Relative maturity

Bold yields are not significantly different from the highest yielding hybrid within that column

Corn Yields are adjusted to 15.5% moisture

[‡]See Page 1 for description of traits

Hybrid	RM [†]	Traits [‡]	Seed Treatment	Yield By Location Bu/A		
				Elkton	Akron	Reese
Pioneer P0463XR	104	HXX	P250	206.0	189.6	192.9
Garst 86T82-3000 GT Brand	105	GT/CB/LL/RW	Cruiser	192.9	193.8	197.1
NuTech 5N-001	101	Agrisure 3000GT	C250	176.0	193.2	200.4
G2 Genetics 5H-502	102	HX1/RR2	C250	195.1	183.0	191.4
Pioneer P0413 AMI	104	HXX	P250 & P1250	171.9	189.1	192.4
Mycogen 2A551	103	SmartStax	Cruiser Max	178.8	183.4	171.5
Croplan 5237	102	SS	Cruiser & Zinc	170.5	171.2	183.3
Pioneer P0115 AMI	101	HXX	P250 & P1250	171.6	172.6	179.5
Bayside 9100 3111GT	100	GT/CB/RW/VIP/LL	Cruiser Extreme	166.9	178.3	176.1
Dyna-Gro D 43 QV 30	105	Agrisure 3000 GT	Acceleron	175.4	158.4	181.6
Garst 87U28-3000GT Brand	100			175.1	162.8	173.8
Croplan 4338	100	SS	Cruiser & Zinc	177.1	158.8	171.6
Dekalb DKC 53-78	103	SS	AC 250	164.3	168.3	171.2
G2 Genetics 5H-0101	101	HX1/RR2	C250	163.0	155.3	184.8
GH H-7628-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	157.5	165.9	177.1
G2 Genetics 5H-902	102	HX1/RR2	C250	158.6	164.4	177.2
Croplan 5438 SS	104	SS	Cruiser & Zinc	176.7	153.1	171.0
Bayside 9100 GT	100	GT	Cruiser Extreme	152.8	187.9	153.4
Dekalb DKC 53-45	103	SS	AC 250	174.5	145.1	179.3
Specialty 8222GENSS	102	SmartStax	Acceleron	188.8	138.9	172.0
Dekalb DKC 52-59	102	VT3	AC 250	152.9	165.1	177.1
NK N46U-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	154.5	165.7	168.9
Hyland 8491	100	SmartStax	250 Poncho	164.8	150.2	175.7
Rupp XR 8088	101	GT 3000	Cruiser 250	168.7	147.9	171.8
G2 Genetics 5H-501	102	HX1/RR2	C250	156.9	167.0	154.2
Rupp XR 8239	103	VT3Pro	Acceleron 250	169.1	141.4	166.7
Great Lakes 5157VT3	101	VT3	P500 w/ Votivo	162.3	143.2	170.9
NuTech 5N-803	103	Agrisure 3000GT	C250	155.9	149.6	161.7
Dyna-Gro D 40 SS 09	100	SmartStax	Acceleron	145.1	153.5	165.6
Specialty 4294VT3	102	VT3	Acceleron	151.7	140.3	168.9
GH H-8211-3000GT Brand	105			149.5	160.0	147.8
Dyna-Gro D 44 SS 49	104	SmartStax	Acceleron	146.4	141.5	169.2
Specialty 8310GENSS	101	SmartStax	Acceleron	150.5	147.1	158.2
Mycogen 2P497	102	SmartStax	Cruiser Max	143.3	152.0	153.6
Mycogen 2D503	100			137.1	137.2	166.4
NuTech 5N-102	102	Agrisure 3000GT	C250	142.4	134.0	158.6
GH H-7949-3000 GT Brand	103	GT/CB/LL/RW	Cruiser + Avicta	144.7	135.4	151.5
Garst 86J49-3000 GT Brand	101	GT/CB/LL/RW	Cruiser	143.6	138.3	141.1
NuTech 5B-0205	102	Agrisure GT/CB/LL	C250	149.1	134.2	136.4
Average				163.6	159.4	170.8
High				206.0	193.8	200.4
Low				137.1	134.0	136.4
LSD @ 0.05				21.5	23.2	18.8
C.V. %				9.4	9.1	9.4

Bold yields are not significantly different from the highest yielding hybrid within that column

Hybrid	RM	Traits	Seed Treatment	Average of Locations			
				Moisture (%)	Test Weight	Yield Bu/A	Lodging
Dekalb DKC 48-12	98	SS	AC 250	20.8	58.3	186.6	0.8
Great Lakes 4727GS	97	SmartStax	P250	21.7	58.1	184.3	0.8
Dyna-Gro D 38 SS 83	98	SmartStax	Acceleron	21.3	58.3	182.3	0.8
Dekalb DKC 49-94	99	SS	AC 250	20.9	58.4	177.8	0.6
Dekalb DKC 46-07	96	SS	AC 250	21.4	58.3	176.2	1.2
Great Lakes 4646GS	96	SmartStax	P250	21.2	58.3	175.9	0.3
G2 Genetics 5X-895	95	HXT/RR2	C250	20.4	58.6	174.2	0.8
Pioneer P9855 HR	98	HXI	P250	20.9	58.5	171.9	1.1
Dairyland ST 9799	99	VT3	yes	20.9	58.5	171.6	1.3
NuTech 5N-197	97	Agrisure 3000GT	C250	21.0	58.4	170.6	1.1
Rupp XR 8414	99	Gen SSx	Acceleron 250	22.1	57.9	170.3	0.6
Stine 9417	98	VT3	Acceleron	20.8	58.6	169.9	1.3
Great Lakes 4689G3VT3	96	VT3	P500 w/ Votivo	20.8	58.5	169.2	0.3
Pioneer P9807 HR	98	HXI	P250	20.7	58.5	169.0	1.1
GH H-7044-3111 Brand	96	GT/CB/LL/RW/BL	Cruiser	20.8	58.4	168.5	0.8
Great Lakes 4689G3VT3	96	VT3	P250	20.7	58.4	166.5	1.0
Specialty 4272GENVT3P	96	VT3P	Acceleron	20.0	58.9	164.8	1.1
NK N38U-3000 GT Brand	97	GT/CB/LL/RW	Cruiser	21.5	58.1	164.4	1.0
Croplan 3514	95	VT3	Cruiser & Zinc	20.9	58.5	162.6	1.0
Hyland 8395 SS	96	SmartStax	250 Poncho	19.8	58.9	161.6	1.0
G2 Genetics 5H-797	97	HX1/RR2	C250	19.8	58.8	161.2	0.8
Hyland HL CVR68	98	VT3	250 Poncho	21.1	58.3	161.1	1.1
Rupp XR 8252	96	VT3Pro	Acceleron 250	20.5	58.6	160.6	1.1
Hyland 4424	98	SmartStax	250 Poncho	20.5	58.5	158.1	1.8
Great Lakes 4630GDP	95	Double Pro	P250	20.8	58.5	157.6	1.1
Mycogen 2A399	95	SmartStax	Cruiser Max	19.9	58.9	157.5	1.3
GH H-7162-3000 GT Brand	97	GT/CB/LL/RW	Cruiser	21.5	58.1	155.9	1.3
Croplan 3632 AS3/GT	96	AGS/GT	Cruiser & Zinc	19.8	59.1	155.1	1.4
Mycogen 2P486	97	SmartStax	Cruiser Max	19.6	59.0	155.0	1.3
Croplan 3737	96	VT2Pro	Cruiser & Zinc	20.0	58.8	154.9	0.8
Mycogen X12540GS	99	GT-3000	Cruiser Max	20.5	58.7	154.1	1.2
Croplan 3424 VT3	96	VT3	Cruiser & Zinc	20.1	58.9	153.1	0.8
Rupp XR 8495	95	Gen SSx	Acceleron 250	20.1	58.7	151.2	1.6
Dyna-Gro D 36 SS 39	96	SmartStax	Acceleron	20.6	58.6	151.1	1.3
NuTech 3A-9901	99	Agrisure 3000GT	C250	20.0	58.8	144.3	0.8
Bayside 9095 GT	95	GT	Cruiser Extreme	19.9	58.8	136.4	1.2
Average				20.6	58.5	164.0	1.0
LSD @ 0.05						7.3	
C.V. %						7.1	

Lodging Scores Ratings: 0 = 0%, 1 = 5 %, 2 = 10 %, 3 = 20+ %

†Relative maturity

Bold yields are not significantly different from the highest yielding hybrid within that column

Corn Yields are adjusted to 15.5% moisture

‡See Page 1 for description of traits

Hybrid	RM [†]	Traits [‡]	Seed Treatment	Yield By Location Bu/A @ 15.5% MS				
				Crowell	Filion	Elkton	Akron	Reese
Dekalb DKC 48-12	98	SS	AC 250	175.3	204.1	191.1	158.9	193.4
Great Lakes 4727GS	97	SmartStax	P250	184.8	189.2	182.5	171.9	179.3
Dyna-Gro D 38 SS 83	98	SmartStax	Acceleron	182.4	185.4	179.3	168.0	183.2
Dekalb DKC 49-94	99	SS	AC 250	171.7	172.1	178.6	175.4	175.0
Dekalb DKC 46-07	96	SS	AC 250	168.7	180.4	176.1	170.9	170.4
Great Lakes 4646GS	96	SmartStax	P250	173.3	175.0	178.4	161.8	177.6
G2 Genetics 5X-895	95	HXT/RR2	C250	162.7	182.4	178.4	155.4	180.9
Pioneer P9855 HR	98	HXI	P250	166.4	170.8	179.6	169.2	158.8
Dairyland ST 9799	99	VT3	yes	176.1	152.8	178.4	161.1	174.5
NuTech 5N-197	97	Agrisure 3000GT	C250	173.4	139.3	185.9	162.4	175.4
Rupp XR 8414	99	Gen SSx	Acceleron 250	161.8	197.0	173.0	142.8	169.0
Stine 9417	98	VT3	Acceleron	171.8	169.1	170.1	150.5	176.1
Great Lakes 4689G3VT3	96	VT3	P500 w/ Votivo	182.8	167.6	166.3	146.9	170.8
Pioneer P9807 HR	98	HXI	P250	170.8	156.4	166.2	160.6	176.4
GH H-7044-3111 Brand	96	GT/CB/LL/RW/BL	Cruiser	170.3	160.3	167.4	162.1	167.6
Great Lakes 4689G3VT3	96	VT3	P250	175.1	150.6	168.0	157.0	167.6
Specialty 4272GENVT3P	96	VT3P	Acceleron	163.6	171.3	169.3	146.6	162.6
NK N38U-3000 GT Brand	97	GT/CB/LL/RW	Cruiser	163.4	163.1	160.1	151.6	171.4
Croplan 3514	95	VT3	Cruiser & Zinc	169.9	155.7	176.4	137.2	163.3
Hyland 8395	96	SmartStax	250 Poncho	166.9	139.4	167.8	149.1	170.8
G2 Genetics 5H-797	97	HX1/RR2	C250	161.9	148.6	169.6	163.3	146.8
Hyland HL CVR68	98	VT3	250 Poncho	173.0	158.2	153.0	141.8	168.2
Rupp XR 8252	96	VT3Pro	Acceleron 250	171.4	171.0	166.5	128.4	158.2
Hyland 4424	98	3000GT	250 Poncho	169.8	140.6	159.7	143.2	164.2
Great Lakes 4630GDP	95	Double Pro	P250	169.1	147.1	171.4	124.9	166.1
Mycogen 2A399	95	SmartStax	Cruiser Max	159.3	143.0	160.3	148.0	163.5
GH H-7162-3000 GT Brand	97	GT/CB/LL/RW	Cruiser	167.0	128.9	156.8	146.3	165.7
Croplan 3632 AS3/GT	96	AGS/GT	Cruiser & Zinc	172.4	149.7	168.8	121.9	154.4
Mycogen 2P486	97	SmartStax	Cruiser Max	160.7	151.0	157.1	137.6	157.6
Croplan 3737	96	VT2Pro	Cruiser & Zinc	163.3	153.7	163.1	128.2	157.0
Mycogen X12540GS	99	GT-3000	Cruiser Max	168.0	121.6	169.0	129.5	170.3
Croplan 3424 VT3	96	VT3	Cruiser & Zinc	166.3	140.6	157.3	129.7	161.1
Rupp XR 8495	95	Gen SSx	Acceleron 250	163.8	126.6	149.1	157.9	141.7
Dyna-Gro D 36 SS 39	96	SmartStax	Acceleron	169.3	135.6	143.0	135.6	160.2
NuTech 3A-9901	99	Agrisure 3000GT	C250	154.0	131.8	156.1	124.7	144.4
Bayside 9095 GT	95	GT	Cruiser Extreme	154.3	104.7	142.7	108.2	156.3
Average	97			168.7	156.5	167.7	148.0	166.7
High				184.8	204.1	191.1	175.4	193.4
Low				154.0	104.7	142.7	108.2	141.7
LSD @ 0.05				11.8	15.7	20.4	16.5	10.6
C.V. %				5.9	7.9	8.3	7.1	5.6

Bold yields are not significantly different from the highest yielding hybrid within that column



Hybrid	RM†	Traits‡	Seed Treatment	Average of Location			
				Moisture (%)	Test Weight	Yield Bu/ A	Lodging (0-3)
Bayside 3090 GT CB LL	90	GT/CB/LL	Cruiser Extreme	19.1	59.3	185.6	1.1
Stine 9207	89	GT/CB/LL	Acceleron	19.2	59.2	182.1	1.0
Dekalb DKC 42-72	92	VT3	AC 250	19.4	59.2	181.7	1.0
Specialty 4210GENVT2P	94	VT2P	Acceleron	19.4	59.1	179.6	1.3
Stine 9311	94	VT3 Pro	Acceleron	19.9	59.0	178.8	0.8
Dekalb DKC 43-10	93	VT2P	AC 250	18.8	59.5	178.7	1.0
Great Lakes 4457VT3Pro	94	DP	P500 w/Votivo	19.7	59.1	177.4	0.8
Dyna-Gro D 32 VP 29	92	VT triple Pro	Acceleron	19.1	59.3	177.0	0.8
Dairyland ST 9594	94	VT3	yes	19.9	59.0	175.0	0.8
Croplan 3390 VT3P	92	VT3P	Cruiser & Zinc	19.3	59.2	172.4	0.8
Great Lakes 4282VT3Pro	92	VT3	P500 w/Votivo	19.3	59.3	170.5	1.3
Rupp XR 8267	92	VT3Pro	Acceleron 250	19.2	59.3	170.4	1.4
Mycogen 2J337	92			19.2	59.3	170.2	1.3
Masters Choice MCT-493	93	CB/RW/RR/LL	Poncho 250	19.5	59.1	168.9	1.4
Specialty 4121GENVT3P	92	VT3P	Acceleron	20.1	58.8	168.2	1.6
G2 Genetics 5X-9101	91	HXT/RR2	C250	18.3	59.6	166.7	1.5
Hyland 8454	93	SmartStax	250 Poncho	19.1	59.3	165.9	1.6
Dairyland ST 9395S SX	92	VT3	yes	19.0	59.3	165.5	1.1
Dyna-Gro D 27 GC 19	87	GT CB LL	Acceleron	18.8	59.5	164.9	1.6
Rupp xr 8002	94	VT3	Cruiser 250	18.9	59.4	164.5	1.3
Great Lakes 4041G3VT3	90	VT3	P250	19.3	59.2	164.4	1.1
NuTech 5B-290	90	Agrisure GT/CB/LL	C250	19.0	59.3	164.4	1.4
Hyland 8386	92	SmartStax	250 Poncho	18.5	59.7	163.0	1.3
NK N33R-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	18.8	59.5	161.5	1.1
Garst 88R16-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	18.7	59.5	160.7	1.0
NK N29T-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	18.5	59.6	160.3	1.3
Garst 89T43-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	18.5	59.6	159.2	1.3
GH H-6816-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	18.7	59.5	159.2	1.3
GH H-6629-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	18.7	59.5	156.8	1.0
G2 Genetics 5H-492	92	HX1/RR2	C250	19.0	59.4	147.5	1.6
Average				19.1	59.3	168.7	1.2
LSD @ 0.05						8.5	
C.V. %						6.3	

Lodging Scores Ratings: 0 = 0%, 1 = 5%, 2 = 10%, 3 = 20+ %

†Relative maturity

Bold yields are not significantly different from the highest yielding hybrid within that column

Corn Yields are adjusted to 15.5% moisture

‡See Page 1 for description of traits

Hybrid	RM [†]	Traits [‡]	Seed Treatment	Yield by Location Bu/A		
				Croswell	Akron	Reese
Bayside 3090 GT CB LL	90	GT/CB/LL	Cruiser Extreme	180.4	196.0	166.9
Stine 9207	89	GT/CB/LL	Accelaron	179.6	189.0	164.6
Dekalb DKC 42-72	92	VT3	AC 250	172.5	193.1	166.3
Specialty 4210GENVT2P	94	VT2P	Accelaron	167.0	198.3	160.8
Stine 9311	94	VT3 Pro	Accelaron	169.4	190.7	163.3
Dekalb DKC 43-10	93	VT2P	AC 250	168.8	197.9	156.9
Great Lakes 4457VT3Pro	94	DP	P500 w/Votivo	166.6	189.7	162.8
Dyna-Gro D 32 VP 29	92	VT triple Pro	Accelaron	163.2	189.5	165.0
Dairyland ST 9594	94	VT3	yes	173.4	192.0	147.8
Croplan 3390 VT3P	92	VT3P	Cruiser & Zinc	154.3	187.9	162.1
Great Lakes 4282VT3Pro	92	VT3	P500 w/Votivo	162.9	176.4	159.4
Rupp XR 8267	92	VT3Pro	Accelaron 250	165.3	180.4	153.3
Mycogen 2J337	92			163.3	180.7	154.3
Masters Choice MCT-493	93	CB/RW/RR/LL	Poncho 250	173.2	166.2	155.0
Specialty 4121GENVT3P	92	VT3P	Accelaron	163.8	192.5	137.2
G2 Genetics 5X-9101	91	HXT/RR2	C250	160.6	178.7	149.0
Hyland 8454	93	SmartStax	250 Poncho	162.5	168.7	154.2
Dairyland ST 9395S SX	92	VT3	yes	164.5	165.3	154.3
Dyna-Gro D 27 GC 19	87	GT CB LL	Accelaron	154.0	175.8	152.7
Rupp XR 8002	94	VT3	Cruiser 250	161.1	169.0	151.3
Great Lakes 4041G3VT3	90	VT3	P250	159.0	170.4	151.8
NuTech 5B-290	90	Agrisure GT/CB/LL	C250	155.1	182.7	144.0
Hyland 8386	92	SmartStax	250 Poncho	151.9	178.3	147.0
NK N33R-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	168.3	163.7	141.2
Garst 88R16-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	170.6	164.3	136.2
NK N29T-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	162.8	175.0	132.5
Garst 89T43-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	156.8	172.7	137.2
GH H-6816-3000 GT Brand	94	GT/CB/LL/RW	Cruiser	155.9	165.7	144.4
GH H-6629-3000 GT Brand	92	GT/CB/LL/RW	Cruiser	162.6	163.8	133.5
G2 Genetics 5H-492	92	HX1/RR2	C250	145.7	148.9	137.0
Average				163.8	178.8	151.4
High				180.4	198.3	166.9
Low				145.7	148.9	132.5
LSD @ 0.05				10.6	18.9	14.1
C.V. %				5.6	7.5	6.2

[†]Relative maturity

Bold yields are not significantly different from the highest yielding hybrid within that column

Corn Yields are adjusted to 15.5% moisture

[‡]See Page 1 for description of traits



Hybrid	RM	Traits	Seed Treatment	Average of Locations			
				Moisture (%)	Test Weight	Yield Bu/A	Lodging
Hyland HL R265	98	RR	P250	20.4	58.6	185.3	0.7
Great Lakes 5245RR	102	RR	P250	21.2	58.2	180.7	0.7
Great Lakes 4840RR	98	RR	P500 w/Votivo	20.9	58.5	174.5	0.8
Croplan 4022 RR	99	RR	Cruiser & Zinc	20.5	58.7	169.4	0.8
Croplan 3337 RR	93	RR	Cruiser & Zinc	19.9	58.9	165.3	1.0
Dyna-Gro D 35 RR 40	95	RR2	Accelaron	19.7	58.9	165.1	0.6
Rupp XR 8502	94	RR	Cruiser 250	19.3	59.1	155.8	1.4
Average				20.3	58.7	170.9	0.9
LSD @ 0.05						7.6	
C.V. %						7.0	

Lodging Scores Ratings: 0 = 0%, 1 = 5 %, 2 = 10 %, 3 = 20+ %

†Relative maturity

Bold yields are not significantly different from the highest yielding hybrid within that column

Corn Yields are adjusted to 15.5% moisture

‡See Page 1 for description of traits



Hybrid	RM [†]	Traits [£]	Seed Treatment	Yield by Location Bu/A				
				Croswell	Filion	Elkton	Akron	Reese
Hyland HL R265	98	RR	P250	186.5	171.9	186.0	207.9	163.1
Great Lakes 5245RR	102	RR	P250	183.1	165.6	174.4	203.7	165.0
Great Lakes 4840RR	98	RR	P500 w/Votivo	181.7	161.1	169.8	190.9	158.1
Croplan 4022 RR	99	RR	Cruiser & Zinc	177.7	156.0	158.5	185.2	158.5
Croplan 3337 RR	93	RR	Cruiser & Zinc	170.8	153.8	153.5	173.3	163.5
Dyna-Gro D 35 RR 40	95	RR2	Acceleron	185.3	147.4	153.5	184.8	144.5
Rupp XR 8502	94	RR	Cruiser 250	166.1	126.8	146.6	162.2	164.4
Average				178.7	154.7	163.2	186.8	159.6
High				186.5	171.9	186.0	207.9	165.0
Low				166.1	126.8	146.6	162.2	144.5
LSD @ 0.05				8.5	11.3	23.6	21.4	19.3
C.V. %				5.2	6.1	9.7	7.7	7.4

† Relative Maturity

Corn yields have been adjusted to 15.5% moisture

Bold yields are not significantly different from the highest yielding hybrid within that column

£ See Page 1 for description of traits

Corn Hybrid Study Population by Ear Type

The purpose of this study is to evaluate three corn hybrids with differing ear types, determinant vs. semi determinant vs. flex at various planting populations.

Methods:

Three corn hybrids were planted. The “determinant” hybrid was Great Lakes 5245. The “semi determinant” hybrid was Great Lakes 5306. The “flex” hybrid was Great Lakes 5339. Targeted populations ranged from 29,000 seeds per acre to 38,000 seeds per acre in increments of 3,000 seeds per acre.

Results:

There was a mechanical failure, and the intended 38,000 seeds per acre were actually planted at a population that resulted in 13,000 plants per acre (44.8% of the next lowest target population, 29,000 seeds per acre). The remaining treatments ranged from 94.2% of their target to 104.3% of their target, with an average of 98.3% of target.

There was no statistical difference in yield between the 29,000 and 35,000 target populations. Corn ear type also had no significant difference on yield.

There was, as would be expected, a significant decrease in yield in the mis-planted 38,000/13,000 population. Note that the yield, however, on the 13,000 plant per acre population was 79% of the average of the greater populations.

Ear Type	Target Population	Actual Population	Moisture (%)	Test Weight	Yield Bu/A	†
Determinant	35,000	34,750	20.4	58.6	176.8	a
Semi Determinant	35,00	34,750	21.6	58.1	176.4	a
Flex	35,000	33,000	22.2	57.9	174.6	a
Flex	32,000	32,250	22.5	57.8	171.9	a
Determinant	32,000	31,250	20.4	58.6	171.7	a
Semi Determinant	32,000	31,000	21.9	57.7	171.5	a
Semi Determinant	29,000	30,250	22.3	57.9	170.2	a
Flex	29,000	28,250	22.3	57.8	168.2	a
Determinant	29,000	27,500	20.5	58.6	167.8	a
Semi Determinant	38,000	13,000	22.2	57.9	140.6	b
Flex	38,000	13,000	21.6	58.3	136.0	b
Determinant	38,000	13,000	21.2	58.3	131.0	b
Average			21.6	58.1	163.1	
LSD @ 0.05					11.5	
C.V. %					7.2	

† Yields with the same letter are not significantly different from each other

Determinant—Great Lakes 5245

Semi Determinant—Great Lakes 5306

Flex—Great Lakes 5339

Corn Sidedress Nitrogen Rate Study

Michigan State University nitrogen fertilizer recommendations are based on applying economic optimum nitrogen rates rather than fertilizing to meet a yield goal. The purpose of this study is to further evaluate these recommendations due to the continued improvements to corn hybrids.

Methods:

Sidedress nitrogen application rates of 0, 40, 80, 120, 160, 200, and 240 lbs. per acre were applied using a randomized complete block design. Plots were 15 feet by 100 feet. Each plot is combined with a six row 2144 Case IH combine with an attached HarvestMaster weigh system that records grain weight, moisture, and test weight.

Results:

The following table details the results of the study. There was no statistical difference in yield above 200 lbs. of nitrogen per acre. Comparing results from previous years shows an increase in the amount of nitrogen needed to produce maximum yields in 2011.

Nitrogen Rate lbs/A	Yield Bu/A	Sig
0	131.4	d
40	150.2	c
80	164.1	c
120	185.3	b
160	189.9	b
200	206.6	a
240	198.7	ab
Average	175.2	
LSD @ 0.05	14.5	
C.V. %	5.6	
Sidedress nitrogen was applied on June 29, 2011		

County:	Tuscola
Cooperator:	Jason Haag
Nearest Town:	Akron
Previous Crop:	Sugarbeets
Planting Date:	5/10/2011
Row Width:	30 inch
Fertilizer:	No starter
Hybrid:	Croplan 388TS
Harvest Population:	31,500
Harvest Date:	11/12/2011
Experimental Design:	RCBD

Corn Hybrid Study Instinct Nitrogen Stabilizer Trial

The purpose of this study was to evaluate the use of Instinct (*nitrpyrin*) a nitrogen stabilizer to optimize the yield potential of corn by ensuring nitrogen (N) is available in the root zone during key stages of corn growth.

Methods

Nitrogen was surface applied as 28% UAN via streamers on May 10, 2011. Seven treatments were replicated in a randomized complete block design. Treatments included N/A rates of 0, 50lbs, 100 lbs, 150 lbs, 200 lbs, 100 lbs + Instinct, and 150 lbs + Instinct. Instinct was applied at the labeled rate of 35 oz/A. Plots were 15 feet by 100 feet and harvested using a Case IH 2144 equipped with a HarvestMaster weigh system that records grain weight, moisture % and test weight. The center 4 rows of each plot were harvested and weighed.

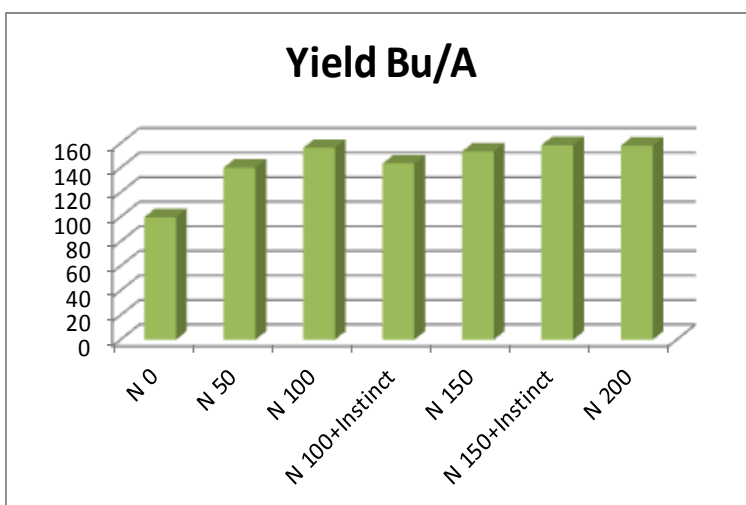
Cooperators:	Larry and Craig Miller Farm, Sandusky
Seeding Rate:	32,000 seeds per acre
Hybrid:	Dekalb DKC 4551
Soil Type:	Parkhill Loam
Planting Date:	8-May-11
Harvest Date:	3-Nov-11

Results

Within the seven days following the application of nitrogen, the Sandusky MSU weather station (approximately four miles away), recorded 4 inches of rain.

Yields with N rates of 100, 150, and 200 lbs/A were statistically similar. The nitrogen stabilizer had no statistical effect on yield at this site in 2011.

Treatment	Moisture (%)	Test Weight	Yield Bu/A
N 0	20.8	58.6	99.8 c
N 50	20.8	58.6	140.2 b
N 100	21.1	58.5	156.2 a
N 100+Instinct	21.1	58.5	143.5 ab
N 150	22.1	58.0	153.3 a
N 150+Instinct	22.0	58.1	158.5 a
N 200	22.1	58.1	158.1 a
Average	21.4	58.3	144.2
LSD @ 0.05			15.7
C.V. %			7.0



Corn Hybrid Study Accolade Seed Treatment

The product Accolade, a microbial rhizobacteria seed treatment, is labeled as a biological growth enhancer for corn, small grains, grain sorghum and other non-legume forage grasses. The purpose of this study is to evaluate the effectiveness of the seed treatment on corn yield.

Treatment	Moisture (%)	Test Weight	Yield Bu/A	sig
UTC	18.7	59.4	163.2	a
Accolade	18.9	59.3	162.9	a
Average	18.8	59.4	163.0	
LSD @ 0.05			2.8	
C. V. %			5.4	

Methods:

Accolade-P was applied to seed corn and applied evenly to the seed coat. Two treatments consisted of an untreated control (UTC) and the Accolade treated seed. Plots were 15 feet by 100 feet and replicated four times at the Huron County Corn Growers and at the LARACHA sites.

Results:

There was no significant difference between the treatments. This coincides with the studies conducted in 2010 at five different locations.

Corn Hybrid Study Fungicide Treatments on Corn Yield

A trial was conducted to observe and quantify the effect of fungicide treatments on corn yield. Growers have been observing varying degrees of success on the use of fungicides. The purpose of this study is to evaluate the effectiveness of fungicide treatments.

Treatment	Moisture (%)	Test Weight	Yield Bu/A	Sig
Quadris	18.2	59.7	166.8	a
Stratego	18.4	59.6	163.9	a
UTC	18.4	59.6	159.7	a
Average	18.3	59.7	163.5	
LSD @ 0.05			13.9	
C.V. %			5.9	

Methods:

Three different treatments were used in the study. Two different fungicides were used along with an untreated check (UTC) using four replications using a randomized complete block design. Plots were 15 feet by 100 feet and the location of the plots was at the Huron County Corn Growers site in Elkton. The corn hybrid used was Croplan 388TS. Fungicides were applied at the V-11 growth stage. Quadris was applied at a rate of 6 oz/A and Stratego was applied at a rate of 10 oz/A. The plots were combined with a Case IH 2144 equipped with a HarvestMaster weigh system that records grain weight, % moisture, and test weight.

Results:

Soybean Studies Introduction

Soybean studies are established in 100 foot long by 15 foot wide plots. A six row 7200 John Deere planter with 30 inch row spacing is used for establishment. Plots are planted perpendicular to the tile. Soybean is planted with HiStick inoculant. Soybean is harvested with a 2144 Case IH combine with an attached HarvestMaster weigh system that records grain weight, moisture, and test weight. The entire plot is harvested for data. The target population is 160,000 seeds per acre. Stand counts were taken in August, and it was determined that the average plant population was 132,000 throughout the plots.

Plots are established in a randomized complete block design with four replications. Four soybean sites were planted. Due to the extremely wet spring weather, planting took place over a full two weeks. Three of the four sites were planted following corn. The Pigeon site followed dry beans. Studies include conventional varieties, group 2.2 or less varieties, group 2.3 and greater varieties, population, inoculant, foliar fertilizer, and a ramp-up study.

Due to the nature of controlling weeds in conventional soybean, the conventional varieties study was planted only at the Sandusky site. Group 2.2 and less and group 2.3 and greater studies were planted at all four sites. The population study was not planted at the Fairgrove site due to space limitations. The inoculant study was not planted at the Fairgrove or Almont sites due to space limitations. The foliar fertilizer study was not planted at the Fairgrove site due to space limitations. The ramp-up study was not planted at the Fairgrove site due to space limitations.



Variety	Maturity Group	SCN Resist.	Trait#	Seed Trt	Hilum Type	Protein % DM	Oil % DM	Moisture (%)	Test Weight	Yield Bu/A
DF155F	2.5			CM+	Clear	37.50	19.03	17.5	57.8	47.7
ZF SELECT 728 LL	2.6		LL	Cruiser	Black	38.75	19.49	14.5	58.7	47.0
DF9231N	2.3	P88788	LB	CM+	Black	37.42	20.27	15.5	58.4	46.0
DF230N	2.3	P88788		CM+	Buff	40.07	20.09	14.5	58.6	44.4
ZF SELECT 1125	2.5	R3, MR14	HP	Cruiser	Buff	40.84	18.87	14.7	58.6	43.5
ZF SELECT 725LS	2.5		LL	Cruiser	Black	41.94	20.13	15.2	58.3	43.2
ZF SELECT 823 LL	2.3		LL	Cruiser	Black	40.16	20.02	14.4	58.8	41.3
ZF SELECT 1122 LS	2.2		LS		Buff	37.95	19.42	14.1	58.9	41.1
ZF SELECT 251 LS	2.5		LS	Cruiser	Black	35.74	20.42	14.3	58.8	41.0
ZF SELECT AQ 2020	2.0		LS	Cruiser	Black	36.23	19.93	16.6	58.0	40.7
ZF SELECT 923 LS	2.3		LS	Cruiser	Black	36.95	19.91	14.7	58.6	36.9
Average								15.1	58.5	43.0
LSD @ 0.05										4.6
C.V. %										8.6

Soybean yields are adjusted to 13% moisture

Bolded yields are not significantly different from the highest yielding variety

Specialty Quality Abbreviations: LS = Low Saturated Fat, LL = Low Linolenic, LB = Liberty Link, HP = High Protein

Percent DM protein and oil are from a single sample.



Variety	Maturity Group	Traits	Seed Treatment	SCN Source Resistance	Test Weight	Moisture %	Yield Bu/A	Lodging (0-3)
Great Lakes 2345	2.3	R2Y	Acceleron	none	58.6	16.3	56.7	0.7
Asgrow AG2632	2.6	RR2Y	Acceleron	PI88788	57.7	21.3	56.1	0.7
Hyland HS 24RY05	2.4	RR2Y	CM	no	58.8	15.8	56.0	1.0
DF Seeds DF 8244	2.4	RR-1	CM+	Tolerance	57.1	15.7	55.4	1.0
Specialty 2444R2	2.4	RR2Y	Acceleron	none	58.6	16.1	55.2	1.0
Asgrow AG2430	2.4	RR2Y	Acceleron	PI88788	58.7	15.7	54.8	1.0
Asgrow AG2431	2.4	RR2Y	Acceleron	no	58.5	16.9	54.6	0.3
Hyland HS 26RYS16	2.6	RR2Y	CM	PI88788	57.9	19.8	54.6	1.7
Rupp RS 4259	2.5	RR1	Cruiser Maxx	PI88788	58.6	16.0	54.2	1.3
Great Lakes 2729	2.6	N R2Y	Acceleron		57.9	19.3	53.7	1.7
DF Seeds DF 5242R2Y	2.4	R2Y	CM+		58.5	16.8	53.5	0.3
Dyna-Gro V25N9	2.5	RR	Amaxx	PI88788	58.8	15.4	53.2	1.0
Pioneer 92M61	2.6	RR	Trilex 6000	PI88788	58.3	17.1	53.0	1.0
Rupp RS 7240N	2.4	R2Y	Cruiser Maxx	PI88788	58.2	17.2	52.9	1.0
Mycogen 5N240R2	2.4	RR			58.1	18.4	52.5	1.0
Mycogen 5N241R2	2.4	RR			58.7	15.9	51.9	1.0
Hyland HS 24RYS15	2.4	RR2Y	CM	PI88788	58.4	16.9	51.9	1.3
Specialty 2621CR2	2.6	RR2Y	Acceleron	PI88788	58.3	17.6	51.7	0.7
NK Syngenta S24-M5	2.4	RR	Cruiser Maxx	none	58.4	16.8	51.6	0.3
Great Lakes 2555	2.5	RR	Acceleron	none	58.5	16.2	51.4	1.0
Stine 2420-4	2.4	RR1		PI88788	58.9	15.3	51.4	1.0
Great Lakes 2449	2.4	N R2Y	Acceleron	PI88788	58.3	16.8	51.2	0.7
Asgrow AG2330	2.3	RR2Y	Acceleron	PI88788	58.5	16.2	50.8	1.3
Croplan R2C 2360	2.3	RR2		PI88788	58.5	16.3	50.2	1.7
Croplan R2C 2550	2.5	RR2		PI88788	58.6	15.9	50.2	1.0
Pioneer 92Y53	2.5	RR	Trilex 6000	Peking	58.1	17.7	49.7	1.0
Dairyland DSR-2560RR	2.4	RR	CM		58.6	15.8	49.2	1.0
Pioneer 92Y51	2.5	RR	Trilex 6000	PI88788	58.6	16.2	48.6	1.0
Nk Syngenta S26-E9	2.6	RR	Cruiser Maxx	PI88788	57.9	20.0	47.6	1.0
Average					58.4	16.9	52.5	1.0
LSD @ 0.05							2.6	
C.V. %							7.1	

Soybean yields are adjusted to 13% moisture

Lodging scores: 0 = 0%, 1 = 5%, 2 = 10%, 3 = 20+ %

Bolded yields are not significantly different from the highest yielding variety

Variety	Maturity Group	Traits	Seed Treatment	SCN Source Resistance	Yield Bu/A			
					Sandusky	Almont	Fairgrove	Pigeon
Great Lakes 2345	2.3	R2Y	Acceleron		52.2	61.8	55.5	57.4
Asgrow AG2632	2.6	RR2Y	Acceleron	PI88788	56.4	58.8	56.9	52.2
Hyland HS 24RY05	2.4	RR2Y	CM		54.7	55.3	55.8	58.1
DF Seeds DF 8244	2.4	RR-1	CM+	Tolerance	52.0	56.0	55.0	58.7
Specialty 2444R2	2.4	RR2Y	Acceleron		51.1	60.2	54.9	54.6
Asgrow AG2430	2.4	RR2Y	Acceleron	PI88788	52.8	54.2	52.7	59.5
Asgrow AG2431	2.4	RR2Y	Acceleron		52.9	50.9	55.1	59.4
Hyland HS 26RYS16	2.6	RR2Y	CM	PI88788	57.0	53.1	51.6	56.6
Rupp RS 4259	2.5	RR1	Cruiser Maxx	PI88788	50.5	54.6	55.0	56.7
Great Lakes 2729	2.6	N R2Y	Acceleron		57.6	51.8	53.0	52.6
DF Seeds DF 5242R2Y	2.4	R2Y	CM+		53.6	56.7	47.0	56.7
Dyna-Gro V25N9	2.5	RR	Amaxx	PI88788	47.5	55.5	55.8	53.9
Pioneer 92M61	2.6	RR	Trilex 6000	PI88788	50.7	54.5	53.3	53.5
Rupp RS 7240N	2.4	R2Y	Cruiser Maxx	PI88788	50.6	55.1	52.6	53.3
Mycogen 5N240R2	2.4	RR			47.6	56.5	54.4	51.3
Mycogen 5N241R2	2.4	RR			48.6	52.7	54.0	52.1
Hyland HS 24RYS15	2.4	RR2Y	CM	PI88788	49.6	52.6	52.3	53.0
Specialty 2621CR2	2.6	RR2Y	Acceleron	PI88788	46.7	53.2	54.3	52.3
NK S24-M5	2.4	RR	Cruiser Maxx		51.9	51.1	51.3	52.4
Great Lakes 2555	2.5	RR	Acceleron		46.3	55.3	50.2	53.8
Stine 2420-4	2.4	RR1		PI88788	45.7	53.6	55.6	50.7
Great Lakes 2449	2.4	N R2Y	Acceleron	PI88788	49.7	50.5	52.6	51.9
Asgrow AG2330	2.3	RR2Y	Acceleron	PI88788	47.6	51.1	52.0	52.3
Croplan R2C 2360	2.3	RR2		PI88788	49.2	54.7	53.4	43.6
Croplan R2C 2550	2.5	RR2		PI88788	49.1	53.5	51.4	46.7
Pioneer 92Y53	2.5	RR	Trilex 6000	Peking	42.9	51.4	52.5	51.9
Dairyland DSR-2560RR	2.4	RR	CM		44.3	48.9	55.1	48.5
Pioneer 92Y51	2.5	RR	Trilex 6000	PI88788	43.2	51.0	52.0	48.1
NK S26-E9	2.6	RR	Cruiser Maxx	PI88788	50.3	49.6	46.7	43.9
Average					50.1	53.9	53.2	53.0
High					57.6	61.8	56.9	59.5
Low					42.9	48.6	46.7	43.6
LSD @ 0.05					4.0	5.9	5.1	5.8
C.V. %					5.7	7.8	6.9	7.8

Soybean yields adjusted to 13% moisture

Bolded yields are not significantly different from the highest yielding variety within each column



Variety	Maturity Group	Traits	Seed Treatment	SCN	Moisture (%)	Test Weight	Yield Bu/A	Lodging (0-3)
				Source Resistance				
Specialty 2033 CR2	2.0	RR2Y	Acceleron	PI88788	15.1	58.4	57.1	0.7
Dyna-Gro 34RY17	1.7	RR2Y	Acceleron	PI88788	16.0	58.2	55.9	0.7
Dyna-Gro 38B21	2.1	RR	Amaxx		16.5	58.0	55.8	0.7
Croplan R2C 2120	2.1	RR2		PI88788	15.9	58.1	55.6	0.7
Great Lakes 2019	2.0	N R2Y	Acceleron	PI88788	15.7	58.1	55.5	1.0
Croplan R2T 2221	2.2	RR2		PI88788	17.7	57.6	55.1	1.0
Specialty 2218 CR2	2.2	RR2Y	Acceleron	PI88788	15.1	58.5	54.9	1.0
Stine 16RA02	1.6	RR2		PI88788	14.9	58.5	54.7	0.3
Rupp RS 7201N	2.0	R2Y	Cruiser Maxx	PI88788	14.8	58.5	54.6	1.7
Great Lakes 1929	1.9	N R2Y	Acceleron		15.4	58.3	54.1	0.7
DF Seeds DF 8225	2.2	RR-1	CM+	Tolerance	15.8	58.1	54.1	0.7
Hyland HS 18RYS13	1.8	RR2Y	CM	PI88788	14.5	58.6	54.0	1.0
Hyland HS 18RY09	1.8	RR2Y	CM	no	15.4	58.3	53.9	1.0
Croplan R2C 1840	1.8	RR2		PI88788	16.8	57.9	53.8	1.3
NK S19-A6	1.9	RR	Cruiser Maxx	PI88788	16.1	58.1	53.5	1.3
DF Seeds DF 5221N	2.2	R2Y	CM+	P88788	19.2	57.5	53.5	1.0
NK S20-Y2	2.0	RR	Cruiser Maxx	PI88788	15.3	58.3	53.4	1.0
Hyland HS 22RYS03	2.2	RR2Y	CM	PI88788	16.5	57.9	53.4	0.3
Asgrow AG1931	1.9	RR2Y	Acceleron	PI88788	14.5	58.6	52.9	1.0
Asgrow AG1832	1.8	RR2Y	Acceleron	PI88788	15.1	58.4	52.7	1.3
Mycogen 5N180R2	1.8	RR			14.7	58.6	52.7	0.3
Asgrow AG2031	2.0	RR2Y	Acceleron	PI88788	15.3	58.4	52.6	1.0
NK S21-N6	2.1	RR	Cruiser Maxx	none	17.2	57.9	52.6	1.0
Mycogen 5N210R2	2.1	RR			16.4	58.0	52.6	0.0
Asgrow AG2232	2.2	RR2Y	Acceleron	PI88788	16.4	58.1	52.3	1.0
Croplan R2C 2070	2.0	RR2		PI88788	15.6	58.3	52.3	1.0
Specialty 1822 CR2	1.8	RR2Y	Acceleron	PI88788	16.3	58.0	52.3	1.0
Dyna-Gro 35RY21	2.1	RR2Y	Acceleron	PI88788	16.1	58.0	52.2	1.0
Great Lakes 1401	1.4	R2Y	Acceleron	None	14.8	58.6	51.5	0.7
DF Seeds DF 5191 STS	1.9	R2Y-STS	CM+	Tolerance	15.4	58.3	51.4	0.3
Dyna-Gro 36 RY19	1.9	RR2Y	Acceleron	PI88788	15.9	58.2	51.4	0.7
Dyna-Gro 31RY20	2.0	RR2Y	Acceleron	PI88788	15.6	58.2	51.3	0.7
Dairyland DSR-1807R24	1.8	R2	CM		15.2	58.3	50.8	1.0
Stine 19RA02	1.9	RR2		PI88788	14.6	58.6	50.6	1.0
Hyland HS 11RY07	1.1	RR2Y	CM	no	14.5	58.6	50.0	0.7
Dyna-Gro 37R17	1.7	RR	Amaxx		15.4	58.3	49.8	0.7
Hyland HX R2Y37	2.1	RR2Y		PI88788	16.6	58.0	49.8	0.7
Mycogen 5N205R2	2.0	RR			16.2	58.1	49.4	0.7
Great Lakes 1609	1.6	N R2Y	Acceleron	PI88788	15.2	58.3	48.4	1.0
Average					15.7	58.2	52.9	0.8
LSD @ 0.05							2.5	
C.V. %							6.9	

Lodging scores: 0 = 0%, 1 = 5 %, 2 = 10 %, 3 = 20+ %

Soybean yields are adjusted to 13% moisture

Bolded yields are not significantly different from the highest yielding variety

Variety	Maturity Group	Traits	Seed Treatment	SCN Source Resistance	Yield			
					Sandusky	Almont	Fairgrove	Pigeon
Specialty 2033 CR2	2.0	RR2Y	Acceleron	PI88788	51.2	56.8	55.4	62.0
Dyna-Gro 34RY17	1.7	RR2Y	Acceleron	PI88788	51.7	56.8	50.2	61.7
Dyna-Gro 38B21	2.1	RR	Amaxx		52.1	54.6	52.9	60.5
Croplan R2C 2120	2.1	RR2		PI88788	51.1	53.6	53.2	61.8
Great Lakes 2019	2.0	N R2Y	Acceleron	PI88788	51.2	53.7	53.1	61.0
Croplan R2T 2221	2.2	RR2		PI88788	49.9	52.1	57.2	58.6
Specialty 2218 CR2	2.2	RR2Y	Acceleron	PI88788	51.2	53.6	52.9	59.1
Stine 16RA02	1.6	RR2		PI88788	51.1	52.0	51.8	61.1
Rupp RS 7201N	2.0	R2Y	Cruiser Maxx	PI88788	50.9	47.7	57.4	60.1
Great Lakes 1929	1.9	N R2Y	Acceleron		47.9	54.4	50.4	60.7
DF Seeds DF 8225	2.2	RR-1	CM+	Tolerance	50.1	52.6	51.9	59.0
Hyland HS 18RYS13	1.8	RR2Y	CM	Yes	46.3	53.2	52.6	61.1
Hyland HS 18RY09	1.8	RR2Y	CM		48.0	52.0	50.3	62.4
Croplan R2C 1840	1.8	RR2		PI88788	48.1	54.4	53.9	55.8
NK S19-A6	1.9	RR	Cruiser Maxx	PI88788	44.8	52.7	54.2	59.7
DF Seeds DF 5221N	2.2	R2Y	CM+	P88788	46.4	52.2	53.9	58.7
NK S20-Y2	2.0	RR	Cruiser Maxx	PI88788	49.1	53.9	46.4	61.3
Hyland HS 22RYS03	2.2	RR2Y	CM	PI88788	47.1	51.5	52.8	59.5
Asgrow AG1931	1.9	RR2Y	Acceleron	PI88788	49.4	49.2	50.1	60.3
Asgrow AG1832	1.8	RR2Y	Acceleron	PI88788	46.1	49.9	50.4	61.7
Mycogen 5N180R2	1.8	RR			45.5	52.2	50.7	59.5
Asgrow AG2031	2.0	RR2Y	Acceleron	PI88788	44.7	52.8	49.2	61.0
NK S21-N6	2.1	RR	Cruiser Maxx		47.3	47.7	52.5	60.4
Mycogen 5N210R2	2.1	RR			49.4	51.6	50.3	56.4
Asgrow AG2232	2.2	RR2Y	Acceleron	PI88788	46.7	48.9	50.6	60.6
Croplan R2C 2070	2.0	RR2		PI88788	44.0	49.8	51.3	61.6
Specialty 1822 CR2	1.8	RR2Y	Acceleron	PI88788	44.2	52.9	51.8	57.4
Dyna-Gro 35RY21	2.1	RR2Y	Acceleron	PI88788	47.1	49.5	50.5	59.0
Great Lakes 1401	1.4	R2Y	Acceleron		47.1	50.1	46.5	59.5
DF Seeds DF 5191 STS	1.9	R2Y-STS	CM+	Tolerance	44.3	53.3	46.7	58.7
Dyna-Gro 36 RY19	1.9	RR2Y	Acceleron	PI88788	42.1	50.8	49.9	60.3
Dyna-Gro 31RY20	2.0	RR2Y	Acceleron	PI88788	46.7	49.3	48.0	58.4
Dairyland DSR-1807R24	1.8	R2	CM		45.1	50.7	49.1	55.5
Stine 19RA02	1.9	RR2		PI88788	41.5	49.9	50.9	57.5
Hyland HS 11RY07	1.1	RR2Y	CM		42.5	47.7	48.4	59.0
Dyna-Gro 37R17	1.7	RR	Amaxx		42.9	50.3	44.5	59.1
Hyland HX R2Y37	2.1	RR2Y		PI88788	47.4	49.7	41.0	58.7
Mycogen 5N205R2	2.0	RR			43.6	50.4	45.8	55.0
Great Lakes 1609	1.6	N R2Y	Acceleron	PI88788	40.8	45.5	47.1	57.9
Average					47.1	51.5	50.7	59.5
High					52.1	56.8	57.4	62.4
Low					40.8	45.5	41.0	55.0
LSD @ 0.05					6.2	6.2	5.3	4.1
C.V. %					9.5	9.4	7.5	4.2

Soybean yields are adjusted to 13% moisture

Bolded yields are not significantly different from the highest yielding variety

Soybean Ramp-Up Trials Average of Locations

The purpose of this study was to evaluate the effects of several input practices on soybean.

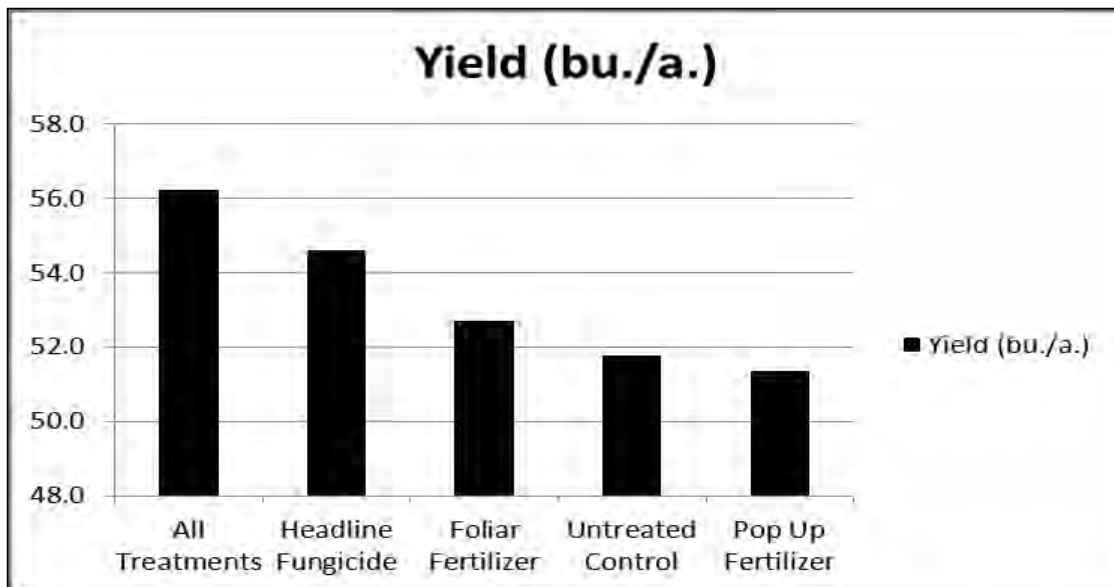
Methods:

Soybeans were planted at three sites. The variety NK S19-A6 was planted at one site and Pioneer 92Y51 was planted at three sites at a target population of 160,000 seeds per acre. Treatments included: an untreated check, a pop up fertilizer treatment of Alpine 2-20-18 applied at 2 gallons per acre in a 2X2 band, a foliar fertilizer treatment of Wilbur Ellis NDemand – HIGHEND at 1 gallon per acre at the R3 growth stage, a foliar fungicide treatment of Headline applied at 10 ounces per acre at the R3 growth stage, and a final treatment that received the same pop up fertilizer, foliar fertilizer at R3, and fungicide at R3 treatments.

Results:

Soybean yields with “All Treatments” and fungicide treatment yielded significantly higher than the untreated check. There was no significant difference between the fungicide treated soybeans and the foliar fertilizer treated soybeans. There was no significant difference between the foliar fertilizer and the untreated check, and there was no significant difference between the pop up fertilizer and the untreated check.

Treatment	Moisture (%)	Test Weight	Yield Bu/A	Sig
All Treatments	19.3	57.7	56.2	a
Headline Fungicide	18.5	57.9	54.6	ab
Foliar Fertilizer	18	58	52.7	bc
UTC	17.9	57.9	51.8	c
Pop Up Fertilizer	18.2	57.9	51.3	c
Average	18.4	57.9	53.3	
LSD @ 0.05			1.9	
C.V. %			4.3	





Soybean Fertility Trial Manganese Foliar Fertilizer Study

The purpose of this study is to evaluate different manganese foliar fertilizer solutions to soybeans in a high organic matter field for manganese deficiency symptoms.

Methods:

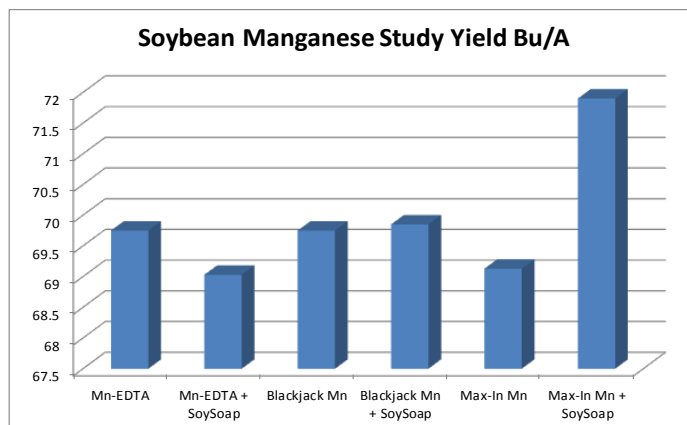
Three manganese foliar fertilizer products (Mn-EDTA, Blackjack Mn, and Max-In Mn) were used with and without SoySoap as an additive for a total of six treatments. Each treatment was replicated four times in a randomized complete block design (RCBD). Each treatment was sprayed in 30 feet by 2,500 feet strips with 15 gallons of water. The foliar products were sprayed at R3. Yield measurements were taken from the center 15 feet of each strip.

Results and Conclusions:

Each treatment contains the yield and % moisture. The results indicate a statistical yield response with the Max-In Mn + SoySoap treatment. The yield response of the soybeans in this field suggests that there was a slight manganese deficiency. No leaf tissue sampling was done to verify the level of manganese.

County:	St. Clair
Cooperator:	Don Koning
Nearest Town:	Capac
Soil Type:	Parkhill Loam
Tillage:	Conventional
Previous Crop:	Corn
Planting Date:	6/2/2011
Fertilizer:	200 # 0-0-60
Herbicide:	2 pt. Pursuit
Row Width:	20 inch
Variety:	Dyna-Gro
Harvest Population:	165,000
Harvest Date:	10/8/2011
Experimental Design:	RCBD

Treatment	Moisture %	Yield Bu/A	†
Mn-EDTA	13.54	69.75	AB
Mn-EDTA + SoySoap	13.73	69.03	A
Blackjack Mn	13.81	69.75	AB
Blackjack Mn + SoySoap	13.41	69.85	AB
Max-In Mn	13.76	69.13	AB
Max-In Mn + SoySoap	13.58	71.90	B
Average	13.64	69.90	
LSD @0.05		2.80	
CV %		2.66	
† Yields with the same letter are not significantly different from each other			





Soybean Fertility Trial Foliar Fertilizer Study

The purpose of this study was to evaluate the use of three foliar fertilizer products on soybean at the R3 growth stage.

Methods:

Three products, Max-In ZMB (containing Zinc, Manganese, and Boron), Max-In Mn (containing manganese), and Max-In S (containing sulfur) were applied to soybean at the R3 growth stage. An untreated check was also included. All products were applied at labeled rates, or 2 qt/A. The variety at one site was NK S19-A6, the variety at two sites was Pioneer 92Y51. Each treatment was in a RCBD and replicated four times in 15 feet by 100 feet plots.

Results:

Two products, Max-In ZMB and Max-In Mn resulted in yields statistically greater than the untreated check. The Max-In S treated soybeans yielded statistically similar to the untreated check, when all three sites were averaged together. Soybeans at the Sandusky site were showing signs of Manganese deficiency at the time of application.

	Sandusky	Almont	Pigeon	Average Yield Bu/A
Max-In ZMB	45.4	59.2	61.5	55.4 a
Max-In Mn	46.6	55.8	61.2	54.5 ab
Max-In S	40.5	58.4	60.1	53.0 bc
UTC	38.9	57.8	61.5	52.7 c
Average	42.8	57.8	61.1	53.9
LSD @ 0.05				1.5
C.V. %				3.4

Soybean Seed Trial Primo Seed Inoculant

Primo is a product labeled for as a growth promoter and liquid inoculant. The purpose is to evaluate the effect of Primo on soybean yield in comparison to an untreated control (UTC) and other similar products.

Methods:

Soybean seed was treated according to label instructions with Primo, Optimize, and Hi-Stick Inoculant. These treatments and the UTC were replicated four times in plots of 15 feet by 100 feet in a RCBD at the TARE locations sites in Pigeon and Sandusky.

Results:

The table shows the average yield of each treatment by location as well as the average yield, moisture % and test weights of the two locations.

There was no statistical yield differences between the UTC and the three seed treatments when averaged across locations. This data is consistent with the results in 2010.

Treatment	Average of Sites					
	Sturm	Gerstenberger	Moisture (%)	Test Weight	Yield Bu/A	
					2011	2010
UTC	56.7 a	48.4 a	17.9	57.7	52.5 a	48.4a
Primo	58.3 a	46.2 a	18.2	57.6	52.2a	48.5a
Optimize	55.7 a	46.9 a	18.1	57.6	51.3 a	46.7a
Hi Stick	57.1 a	43.4 b	18.4	57.6	50.3 a	47.8a
Average	57.6	46.2	18.1	57.6	51.6	47.8
LSD @ 0.05	3.5	4.8			2.8	2.9
C.V. %	3.9	6.5			5.1	5.8

Variety Planted at all 2011 sites - Hyland HS22RY503



Use of Contans for reducing white mold in soybeans

Sandusky MI, 2010 and 2011

Contans from SipcamAdvan is a biofungicide containing spores of a naturally occurring soil fungus (*Coniothyrium minitans*). Multiple observations were made in a two year trial where Contans was applied on the John Anton Farm near Sandusky, MI in an attempt to measure the product’s effect on white mold. The 14 acre trail area was divided into 4 separate studies, each having four replications.

The individual studies entailed the application of Contans at a rate of 3 lbs/ac. with 20 gal/ac. of water using a 70 foot boom section. The applications were applied by Crop Production Services of Sandusky and were made in the fall or spring prior to the 2010 and/or 2011 soybean crops. In study #1, Contans was applied during the fall of 2009 or in the spring of 2010, and sampled during the following August. Study #2 simply represents a retesting of study #1 in the subsequent year (August, 2011). In study #3, plots received a double application, i.e. they received a treatment in fall, 2009 and spring, 2010 and then retreated one year later. Finally, in study #4, the Contans was applied in the fall or spring prior to the 2011 crop.

During both the 2010 and 2011 seasons, the trial experienced little or no white mold. Therefore, the only data shown is the average number of live sclerotia found in soil samples taken from each plot (sampling and testing conducted by Dr. Jianjun Hao, MSU). The results show no statistically significant differences between treatments. Nevertheless, the use of Contans appears to have decreased the number of sclerotia to some extent. When averaged across all four trials, the Fall applied Contans had 23 percent fewer sclerotia and the spring application had 33 percent fewer sclerotia compared to the untreated plots.

Number of sclerotia per liter of soil				
Application timing of Contans @ 3 lbs/ac	Sample date	Fall application	Spring application	untreated control
#1: Fall, 09 or Spring '10	Aug, 2010	2.7	2.9	2.9
#2: Fall, 09 or Spring '10	Aug, 2011	2.0	1.4	2.8
#3: Fall, '10 & '11 or Spring '10 & '11	Aug, 2011	2.0	1.3	2.3
#4: Fall, '10 or Spring '11	Aug, 2011	2.0	1.4	2.8
average	---	2.2	1.8	2.7

We acknowledge with gratitude the assistance provided the MI Soybean Promotion Committee; John Anton, Sandusky, MI; SipcamAdvan; and Crop Production Services, Sandusky.

For additional information, contact Martin Nagelkirk (nagelkirk@msu.edu)



Soybean Study Population by Planting Date

The Michigan Soybean Promotion Committee supported a study to evaluate the effect of soybean planting date in addition to the effect of plant populations. Hyland Seeds supplied the seed for the study and Zwerk & Sons Farms provided the farm location for the study to be done. The purpose of the study was to determine the optimum yield due to population and planting date.

Methods:

The soybean variety Hyland 24RY05 was planted in population treatments of 80K, 120K, 160K, 200K and 240K seeds/A in 20 inch rows using a Monosem planter. Three plantings were established in the same field in a randomized complete block design (RCBD) at two week intervals (May 10, May 24, and June 7). Each plot was 18 feet by 100 feet and replicated three times. The center 15 feet was harvested for each plot using a 2144 Case IH combine with an attached HarvestMaster weigh system that records grain weight, moisture, and test weight.

County:	Tuscola
Cooperator:	Zwerk & Sons Farms
Nearest Town:	Richville
Soil Type:	Tappan-Londo loam
Tillage:	Conventional
Previous Crop:	Corn
Planting Date:	Various
Fertilizer:	None
Herbicide:	Roundup
Row Width:	20 inch
Variety:	Hyland 24RY05
Harvest Population:	Various
Harvest Date:	Nov. 2, 2011
Experimental Design:	RCBD

Results:

The next page lists the details for the study along with the data and statistical analysis for the study. For the population studies, each planting date was analyzed separately for evaluation. The harvest populations for the 240K ranged from 232K-225K and averaged 228K; the 200K harvest populations ranged from 231K-210K and averaged 217K; the 160K harvest populations ranged from 173K-159K and averaged 167K; the 120K harvest populations ranged from 135K-139K and averaged 136K; and the 80K harvest population ranged from 90-84K and averaged 87K. Test weight and moisture were consistent for the entire plot. Yields for the planting dates were significantly different with the mid and late plantings resulting in reductions of 8.4% and 15.2% in yield.



Soybean Study Population by Planting Date

Early Planting May 10, 2011

	Moisture %	Test Weight	Yield Bu/A	†
80K	13.8	59.4	66.5	a
120K	13.7	59.4	69.3	ab
160K	13.7	59.4	70.2	ab
200K	13.5	59.5	72.3	b
240K	13.5	59.6	72.1	b
Average			70.1	
LSD @ 0.05			4.50	
CV %			3.41	

† Yields with the same letter are not significantly different from each other.

Mid-season Planting May 24, 2011

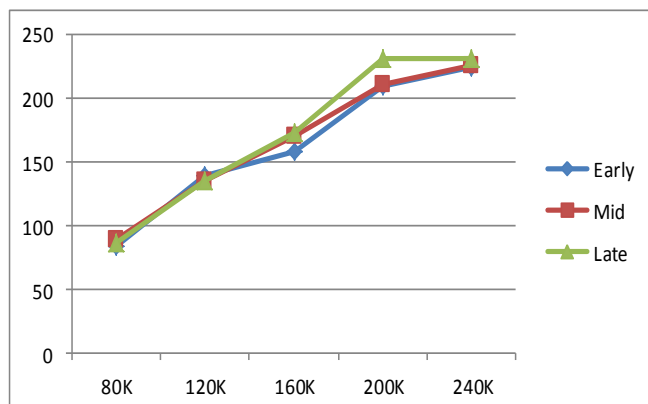
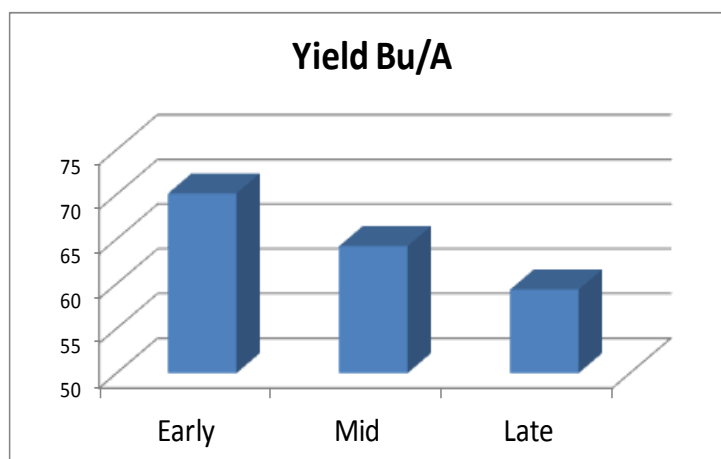
	Moisture %	Test Weight	Yield Bu/A	†
80K	13.3	59.6	62.2	a
120K	13.7	59.4	65.1	a
160K	13.4	59.6	64.9	a
200K	13.6	59.5	66.2	a
240K	13.3	59.6	62.5	a
Average	13.5	59.6	64.2	
LSD @ 0.05			5.03	
CV %			4.16	

† No statistical difference between treatments

Late Planting June 7, 2011

	Moisture %	Test Weight	Yield Bu/A	†
80K	13.4	59.6	58.7	a
120K	13.3	59.7	59.5	a
160K	13.2	59.7	59.5	a
200K	13.2	59.7	59.5	a
240K	13.3	59.7	59.6	a
Average	13.3	59.7	59.3	
LSD @ 0.05			3.13	
CV %			2.80	

† No statistical difference between treatments



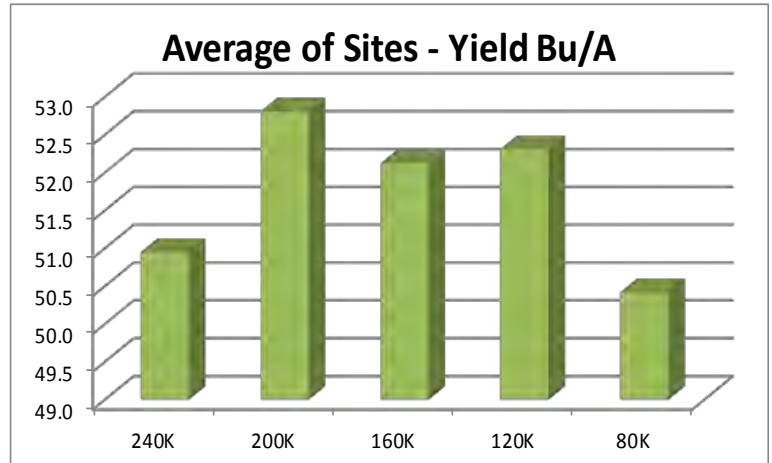
Final stand population (000's)

	80	120	160	200	240
Early May 10, 2011	84	139	159	210	225
Mid-season May 24, 2011	90	135	170	211	226
	87	135	173	231	232
Average	87	136	167	217	228

The purpose of this study is to evaluate the effect of planting populations in 30 inch rows.

Methods:

Soybeans were planted in five populations (80K, 120K, 160K, 200K, and 240K) in three locations. Plots were established in a RCBD with four replications at the Almont, Pigeon, and Sandusky sites. Population counts were also measured at each plot. The plots were 15 feet by 100 feet and planted across tile lines. The plots were harvested with a Case IH 2144 combine equipped with a HarvestMaster weigh system that records grain weight, moisture percent, and test weight.



Results:

The soybean populations were measured and reported as a % of the target planted population. The range was from a low of 83% for the 160K treatment to a high of 98% for the 200K treatment.

There was no significant yield increase over the 120K population when averaged across all sites. The results for this study were similar to the results from 2010.

Treatment	Almont	Sandusky	Pigeon	Average of Sites			
				% of Target Population	Moisture (%)	Test Weight	Yield Bu/A
240K	54.9 ^b	38.7 ^a	59.2 ^a	90	20.0	57.3	50.9 ^{ab}
200K	56.3 ^a	40.7 ^a	61.5 ^a	90	18.4	57.7	52.8 ^a
160K	55.1 ^b	40.4 ^a	60.9 ^a	83	19.1	57.5	52.1 ^{ab}
120K	55.3 ^b	40.5 ^a	61.1 ^a	98	18.9	57.6	52.3 ^{ab}
80K	51.0 ^b	39.8 ^a	60.5 ^a	91	19.3	57.5	50.4 ^b
Average	54.5	40.0	61.1		18.2	57.7	61.1
LSD @ 0.05	5.2	2.4	5.1				2.2
C.V. %	4.4	3.8	5.5				5.2
Variety Planted at Pigeon site - NK S19-A6							
Variety Planted at Almont and Sandusky sites - Pioneer 92Y51							

Michigan State University Alfalfa Variety Trial Yield North Branch, Lapeer County

North Branch, Lapeer Co.

Sown Apr 2008

Non-irrigated

Entry	2009	2010	6-Jun	30-Jun	2-Aug	30-Aug	2011	total
Pioneer 55V48	8.44	8.31	2.41	1.44	1.89	1.23	6.96	23.71
FSG505	8.16	8.22	2.60	1.49	1.93	1.28	7.30	23.67
Ameristand 407TQ	8.45	8.07	2.33	1.53	1.97	1.19	7.01	23.53
PGI 459	7.80	8.33	2.23	1.49	2.02	1.28	7.02	23.14
Garst 6552	7.95	8.12	2.18	1.52	1.94	1.21	6.84	22.91
WL343HQ	7.92	7.84	2.49	1.51	1.91	1.21	7.12	22.88
WL363HQ	7.96	8.03	2.31	1.50	1.87	1.20	6.88	22.86
Ascend	7.97	7.81	2.16	1.48	1.96	1.22	6.81	22.59
Genoa	7.57	7.91	2.33	1.54	1.91	1.15	6.93	22.41
FSG406	7.93	7.43	2.41	1.38	2.02	1.16	6.96	22.31
Garst 6417	7.76	7.53	2.23	1.42	1.81	1.11	6.56	21.85
FSG351	7.93	7.57	2.02	1.27	1.79	1.25	6.33	21.83
Velocity	7.73	7.43	2.18	1.45	1.78	1.14	6.55	21.72
DKA43-13	7.61	7.64	2.17	1.46	1.68	1.02	6.33	21.58
FSG528SF	7.86	7.52	2.08	1.32	1.68	1.10	6.17	21.55
DK140	7.95	7.24	2.21	1.29	1.70	1.09	6.29	21.47
FSG408DP	7.36	7.50	2.27	1.26	1.84	1.19	6.56	21.42
5312	7.53	7.07	2.14	1.10	1.45	1.07	5.76	20.36
PLH-resistant check	7.53	6.32	2.06	0.97	1.52	0.79	5.33	19.18
Vernal	6.90	6.66	2.02	0.83	1.31	0.97	5.13	18.69
Mean	7.81	6.95	2.24	1.36	1.80	1.14	6.54	21.98
CV%	8	8	11	12	12	15	10	8
LSD 5%	0.84	0.89	0.38	0.22	0.30	0.25	0.94	2.44

Location: Chris Howland Farm
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)
 Seeded: 4/24/2008
 Cuttings: Four cuttings in 2009, five in 2010
 Soil Type: Brookston Loam
 Fertility: 0-78-234 + 3 boron lbs/acre
 Insects: Dimethoate applied after cut 1



**Alfalfa/Grass Winter Hardiness & Heaving Trial
Mineral Clay Soils & Muck**

Capac, MI

Due to the soil structure of many farms in the Thumb, heaving and winterkill are frequently the cause of stand losses for alfalfa growers and graziers.

The research in these plots will help to identify if different grass species help keep alfalfa stands in rotation longer in non-tiled mineral and muck soils.

Methods and Purpose

- Educate growers about the potential opportunities for growing alfalfa and grass varieties together and the management for high quality stands.
- Identify types of alfalfa and grass combinations that will maintain forage stands in rotation.
- Provide an analysis on quality (Relative Feed Value (RFV)) for each treatment.

In the plots, there are two different types of alfalfa planted in combination with different species of grass. There is a laterally branched alfalfa and a predominantly tap rooted alfalfa planted alone and with the following grasses in replicated plots:

Seeding Rates lbs/A

- | | | | |
|----------------------|-------|---------|----|
| ▪ Orchard grass | 6 | Alfalfa | 10 |
| ▪ Meadow Fescue | 15 | Alfalfa | 10 |
| ▪ Perennial ryegrass | 15 | Alfalfa | 10 |
| ▪ Tall fescue | 15 | Alfalfa | 10 |
| ▪ Reed canary grass | 6 | Alfalfa | 10 |
| ▪ No grass | - - - | Alfalfa | 18 |

Results

There was no significant difference between the two alfalfa varieties without grass in the mineral soils, however, the muck soils did show a significant difference. There were significant yield differences in the grass/alfalfa variety mixes. This is year 1 of a 3 year study.

Location:	Mike Lauwers Capac, MI
County:	St. Clair
Soil Type:	Blount Loam
Soil pH:	5.9
Soil P & K:	64 & 169 ppm
Plot area:	3 X 25 ft.
Replications:	Four
Prev. Crop:	Soybeans
Planting Date:	4/23/2010
Lime Rate:	2.2 ton/A
Fert. Rate:	None
Herbicide:	none
Tillage:	Conventional
Exp. Design:	RCB, 4 reps

Location:	Mike Lauwers Capac, MI
County:	St. Clair
Soil Type:	Linwood Muck
Soil pH:	6.8
Soil P & K:	85 & 171 ppm
Plot area:	3 X 25 ft.
Replications:	Four
Prev. Crop:	Soybeans
Planting Date:	4/23/2010
Lime Rate:	None
Herbicide:	2, 4DB
Rate:	2 quart/A
Tillage:	Conventional
Exp. Design:	RCB, 4 reps



Alfalfa/Grass Winter Hardiness & Heaving Trial
Mineral Clay Soils & Muck
 Capac, MI

Mineral Soils			2010	6-Jun	30-Jun	2-Aug	30-Aug	2011	Total	Alf Cont.*
<i>Grass Variety</i>	<i>Grass Species</i>	<i>Alfalfa Variety</i>	<i>dry matter tons/acre</i>							1-5
Pradel	Meadow fescue	WL 348 AP	2.93	2.69	1.01	1.48	1.09	6.27	9.20	3
Pradel	Meadow fescue	Magnum VI WET	2.85	2.71	1.06	1.36	1.14	6.26	9.11	2.8
Intensiv	Orchardgrass	WL 348 AP	2.53	2.32	0.88	1.35	1.09	5.63	8.17	2.5
Intensiv	Orchardgrass	Magnum VI WET	2.86	2.62	1.09	1.19	1.03	5.93	8.79	2.5
Remington	Perennial ryegrass	WL 348 AP	2.47	2.36	0.84	1.19	1.19	5.58	8.05	2
Remington	Perennial ryegrass	Magnum VI WET	2.84	2.61	0.99	1.21	1.33	6.14	8.98	2
Palaton	Reed canarygrass	WL 348 AP	2.91	2.05	0.98	1.37	1.11	5.50	8.41	5
Palaton	Reed canarygrass	Magnum VI WET	2.95	2.26	1.16	1.43	1.03	5.88	8.83	5
STF43	Tall fescue	WL 348 AP	2.82	2.41	1.07	1.40	1.25	6.13	8.95	2.3
STF43	Tall fescue	Magnum VI WET	3.04	2.67	1.04	1.39	1.30	6.40	9.44	2.8
none		WL 348 AP	3.17	2.22	1.09	1.55	1.25	6.11	9.28	5
none		Magnum VI WET	3.25	2.46	1.16	1.54	1.26	6.42	9.67	5
Mean			2.88	2.45	1.03	1.37	1.17	6.02	8.91	3.33
LSD (0.05)			0.32	0.22	0.11	0.12	0.12	0.47	0.65	0.48
Muck Soils										
Pradel	Meadow fescue	WL 348 AP	2.93	2.53	1.00	1.17	0.95	5.65	8.58	2.5
Pradel	Meadow fescue	Magnum VI WET	2.85	2.56	1.12	1.27	1.20	6.14	8.99	3.3
Intensiv	Orchardgrass	WL 348 AP	2.92	2.40	0.99	1.34	1.05	5.78	8.70	3
Intensiv	Orchardgrass	Magnum VI WET	3.15	2.35	1.16	1.30	1.14	5.96	9.11	2.8
Remington	Perennial ryegrass	WL 348 AP	3.05	2.65	0.88	1.29	1.09	5.91	8.96	2.5
Remington	Perennial ryegrass	Magnum VI WET	3.06	2.40	1.04	1.31	1.09	5.84	8.91	2.5
Palaton	Reed canarygrass	WL 348 AP	2.98	2.08	1.12	1.42	1.24	5.86	8.84	5
Palaton	Reed canarygrass	Magnum VI WET	3.18	2.12	1.18	1.50	1.55	6.35	9.53	5
STF43	Tall fescue	WL 348 AP	2.96	2.55	1.04	1.27	1.15	6.01	8.96	1.5
STF43	Tall fescue	Magnum VI WET	3.34	3.06	1.11	1.52	1.28	6.97	10.31	1.8
none		WL 348 AP	3.28	1.83	1.10	1.55	1.31	5.79	9.06	5
none		Magnum VI WET	3.63	2.15	1.27	1.46	1.46	6.33	9.96	5
Mean			3.11	2.39	1.08	1.37	1.21	6.05	9.16	3.33
LSD (0.05)			0.31	0.25	0.14	0.15	0.12	0.50	0.7	0.58

* Visual rating of alfalfa content on 4/15/2011, 1 to 5, 5= 81-100% alfalfa, 4= 61-80%, 3= 41-60%, 2= 21-40, 1= 0-20%



**Michigan State University
Alfalfa Variety Trial Yield
Capac, St. Clair County**

Methods:

Plant breeders, developers, and marketers submit both commercial and experimental alfalfa varieties to MSU for testing. Varieties in these trials are evaluated for yield, persistence and forage quality for at least three years after the seeding year.

Results:

Yield is expressed in dry matter tons per acre as an average over years. A percentage of the check variety (Vernal) is presented in each table as a means for comparison. Vernal is an old variety with fall dormancy of 2 and has little disease resistance, but many producers are familiar with it, and it is often the lowest price seed available.

Sown May 2011
Non-irrigated

Entry	15-Jul	22-Aug	2011
5312	1.69	1.62	3.31
Pioneer 54Q32	1.61	1.39	3.00
PLH-resistant check	1.68	1.44	3.12
Pioneer 55V12	1.62	1.40	3.02
Pioneer 55v50	1.76	1.44	3.20
AmeriSta	1.77	1.51	3.28
DG4210	1.89	1.58	3.47
Gunner	1.75	1.40	3.16
HybriF	2.06	1.47	3.53
Legendar	1.92	1.42	3.33
Prolific	2.18	1.70	3.88
Rebound6	2.09	1.44	3.53
Sonic	2.09	1.50	3.59
Vernal	2.01	1.62	3.63
WL354HQ	1.71	1.45	3.16
WL363HQ	1.72	1.40	3.12
<hr/>			
Mean	1.85	1.49	3.33
CV%	13	15	12
LSD 5%	0.33	0.31	0.59

Location: Lynn Island Farm
 Design: RCB, plot size 3 x 25' (3 x 22' harvested)
 Seeded: 5/7/2011
 Soil Type: Miami-Dighton sandy loam
 Insects: Warrior applied prior to cut 1



Response of winter wheat varieties to fungicides use, 2011

With the support of MCIA, several varieties were planted to observe their response to selected fungicide treatments.

The varieties included three soft white winter varieties: Coral, D8006, and Jupiter; and three soft red varieties: Red Devil, Red Ruby and Hopewell. The fungicide treatments, including rates and timing, are listed in table 1. All applications included a nonionic surfactant.

The wheat did not exhibit extensive disease development until milk stage. By early senescence, diseases including Septoria leaf spot, powdery mildew, Stagonospora leaf blotch, leaf rust, and stem rust could be found.

There was considerable variability in the trial area due, in part, to excessive rains during April and May. One replication was considered lost. Therefore, the data only represents two replications and cannot be properly analyzed. Nevertheless, these results are consistent with those of past years.

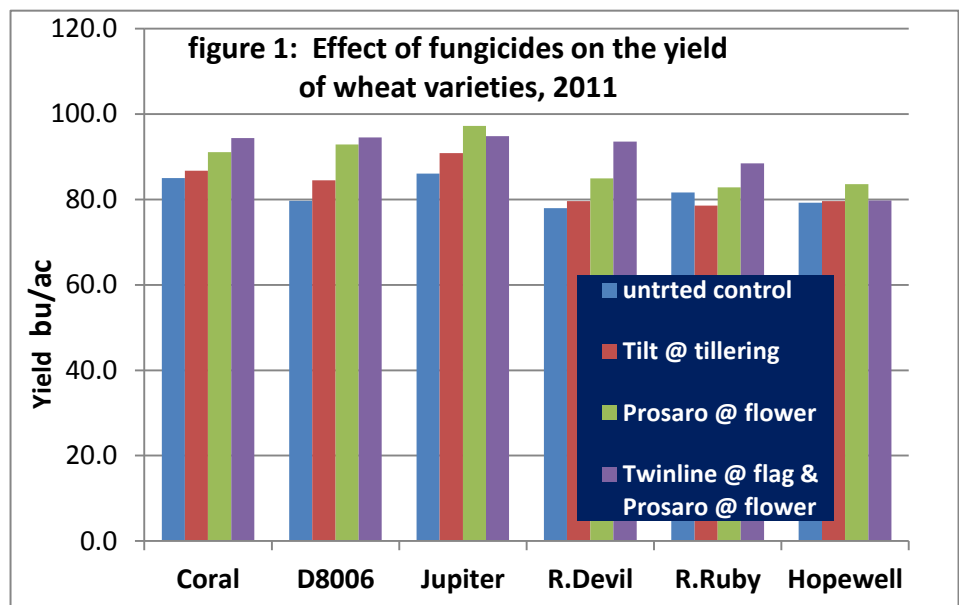
As summarized in table 1, the application of Prosaro at flowering boosted yields by 6 bushels and was the only cost effective treatment under the conditions of this trial. The addition of Twinline prior to the Prosaro application further improved yields, but by only a couple bushels. Applying Tilt at tillering was not effective. Test weights were unaffected by fungicides, while grain moistures tended to be higher in those plots that received the later applications.

Figure 1 illustrates each variety's yield response to the various fungicide treatments. The responses of the varieties are similar with the possible exception of Hopewell.

Trial Background	
Location:	Parrent Farms, Sandusky, MI
Collaborators:	MCIA
Soil type:	Capac silt loam
Tillage:	no-till
Replications:	3
Previous crop:	soybeans
Treatmt area:	15 x 70 ft.
Harvest area:	15 x 65 ft.
Planting date:	Oct 7, 2010
Harvest date:	July 20, 2011
Seeding rate:	1.4 mil/ac.
Fert N rate:	100 lbs/ac
Fungicide:	various
Herbicide:	Affinity Brdspec

treatment	tst wt (lbs/ac)	moist %	yield (bu/ac)	pow.* mildew	Leaf* spot
UTC	61.8	12.9	82.3	1.2	5.6
Tilt 4oz @ tillering	61.8	12.9	83.3	0.5	4.6
Prosaro (6.5 oz) @ flower	61.5	13.4	88.7	0.0	1.5
Twinline (9oz) @ flag & Prosaro @ flower	61.5	13.5	90.9	0.0	0.8

*Disease ratings represent the percent of disease on the flag leaf at early dough



Effect of fungicides and nitrogen rates on the performance of winter wheat

A field trial was conducted to measure the effect of selected fungicides and two rates of fertilizer nitrogen (N) on wheat performance.

Fungicide products were applied to plots that received 100 and 150 lbs/ac of fertilizer N. The fungicide treatments were:

- 1) Untreated control;
- 2) Caramba (13.5 oz/ac) applied at flowering; and
- 3) Priaxor (2 oz/ac), Twinline (9 oz/ac.), and Caramba (13.5 oz/ac.) applied at first node, early boot, and flowering, respectively.

Despite excessive rainfall during April and May, development

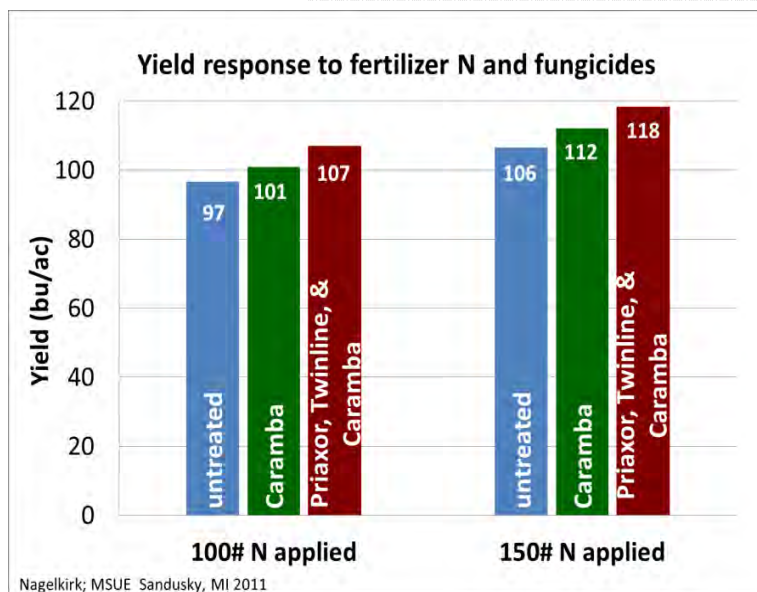
of foliar diseases was limited prior to heading. Leaf spot (*Septoria tritici*) was the most significant disease, but it not did develop significantly on the flag leaves until the third week of June. There were trace amounts of leaf rust and *Fusarium* head blight found just prior to senescence. Tests for DON levels revealed no differences.

Increasing the rate of fertilizer N from 100 to 150 lbs/ac improved yields by over 10 bushels when averaged across fungicide treatments. At the elevated rate of N, both the Caramba and the Caramba with the Priaxor and Twinline treatments significantly improved yields over the untreated control. The use of fungicides tended to be slightly more advantageous at the higher rate of N than at the lower rate, but these differences were not statistically significant. Test weights were higher in wheat where no fungicide was used.

Martin Nagelkirk
MSU Extension Educator
nagelkir@msu.edu

Trial Background

Location: Stone Brothers Farm Sandusky, MI
Collaborator: BASF
Soil Type: Parkhill silt loam
Soil pH: 6.5
Previous crop: soybeans
Variety: Pioneer 25R47
Plot area: 20 x 45 ft
Treatment area: 18 x 45 ft
Harvest area: 17 x 40 ft
Planting date: Oct 7
Harvest date: July 15
Seeding rate: 1.8 m/ac
Herbicide: none
Insecticide: none



Nagelkirk; MSUE Sandusky, MI 2011

Table 1: The effect of fungicides and fertilizer N winter wheat performance, Sandusky, MI, 2011

treatment	yield ¹ 13% M (bu/ac)	harv. ¹ moist (%)	test ¹ weight (lbs)
untreated control w/ 100 lbs. N /ac.	96.7 c	16.0 c	60.2 a
untreated control w/ 150 lbs N /ac.	106.5 b	16.0 c	60.3 a
Caramba w/ 100 lbs. N /ac.	100.9 bc	16.6 bc	59.9 a
Caramba w/ 150 lbs. N /ac.	112.1 a	19.7 a	58.5 b
Priaxor, Twinline, & Caramba w/ 100 lbs. N /ac	107.0 ab	18.6 ab	59.0 b
Priaxor, Twinline, Caramba w/ 150 lbs. N /ac	118.3 a	21.4 a	57.9 b

¹ Values within a column followed by the same letter are not significantly different (P=0.05)



Response of wheat varieties to nitrogen fertilizer, 2011

As in past years, the response of selected winter wheat varieties to increasing rates of fertilizer nitrogen (N) was measured. The soft winter wheat varieties are listed in table 1. The N was applied as 28 % UAN in mid-April using streamer nozzles at rates of: 0, 50, 100, and 150 lbs N/ac.

The grain yields of the six varieties were relatively similar (table 1). There were no significant differences in test weights or harvest moistures when compared against varieties or N rate. Grain yields of all varieties responded significantly and similarly to the incremental increases in N. Consequently, the yield response to N rate is presented as an average in figure 1.

There was an average increase of 10 bu/ac when N rates were increased from 50 to 100 lbs/ac and 7 bushels increased when the N rates were increased from 100 to 150 lbs/ac. In this trial, lodging did not occur due, in part, to poor N use efficiency under excessive soil moisture conditions during April and May.

Results from this trial suggest that wheat can respond favorably to N rates in excesses of 100 lbs/ac. This response is consistent with the results of trials conducted during past years (figure 2). However, the rate of 150 lbs of N is not recommended, as it would likely lead to plant lodging.

Martin Nagelkirk,
MSU Extension Educator

Trial Background

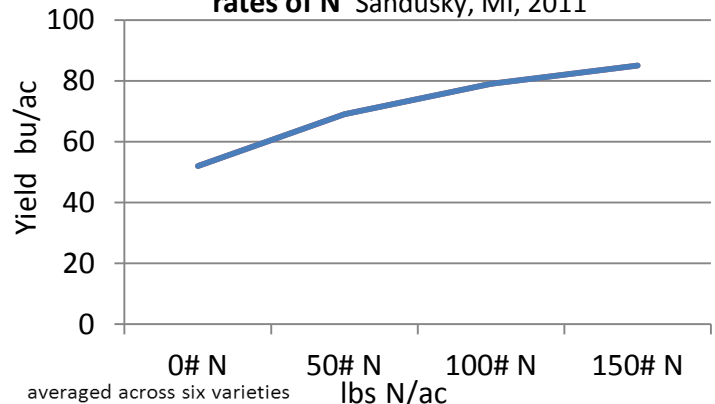
Location: Parrent Farms, Sandusky, MI
 Collaborators: MClA
 Soil type: Capac silt loam
 Tillage: no-till
 Replications: 3
 Previous crop: soybeans
 Treatmt area: 15 x 65 ft.
 Harvest area: 15 x 60 ft.
 Planting date: Oct 7, 2010
 Harvest date: July 20, 2011
 Seeding rate: 1.4 mil/ac.
 Fert N rate: various
 Fungicide: Tilt @ tillering
 Herbicide: Affinity Brdspec

Table 1: The test weight, grain moisture and grain yield of six varieties of winter wheat

variety	tst wt (lbs)	moisture %	yield (bu/ac)
Coral	61.7	12.9	72
D8006	62.1	12.3	70
Jupiter	62.0	12.4	71
Hopewell	61.8	12.8	69
Red Devil	62.0	12.4	71
Red Ruby	61.9	12.6	70

*averaged across four rates of fertilizer N

Figure 1: Response of wheat to increasing rates of N Sandusky, MI, 2011



Effect of Accolade on the performance of winter wheat,

A trial was conducted to observe the effect of Accolade P, an INTX Microbials formulation of rhizobacteria (*Azospirillum brasilense*), as a seed treatment on soft red winter wheat. The trial was established on G.Burgess Farms, Brown City, Michigan. On October 13, cv. DynaGro V9723A soft red winter wheat was planted using a Great Plains no-till drill. The planting crossed areas having either conventional tillage, minimum tillage or no-till. The individual plots measured 15 by 75 feet. There were four replications in the conventional zone, and two replications in the minimum tillage and no-till zones.

Effect of Accolade seed treatment on the performance of soft red winter wheat, Brown City, MI 2011

tillage	test wt (lbs)	moisture (%)	yield (bu/ac)
conventional			
with Accolade	60.1	16.3	75.7
without Accolade	60.4	15.7	76.4
min. tillage			
with Accolade	60.4	15.6	78.7
without Accolade	60.7	15.2	79.5

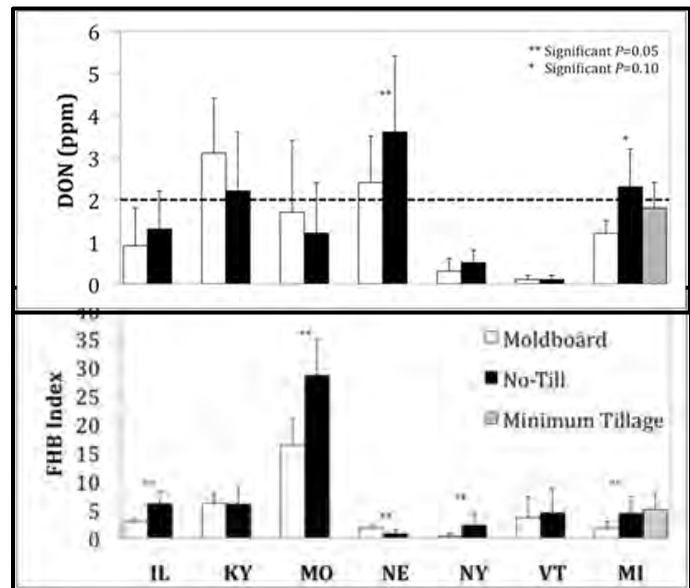
There were no apparent differences between treatments relative to seedling emergence or populations. The trial was harvested on July 22 using an International 2144 combine equipped with a Juniper HarvestMaster system that provided grain yield, test weight, and moisture. The results are summarized in the table below. The data from the no-till area was discarded as poor weed control resulted in erratic yields.

M. Nagelkirk, MSU Extension

Effect of corn residue on Fusarium head blight and DON of wheat, Brown City, MI 2011

A multi-state study, under the U.S. Wheat and Barley Scab Initiative, was initiated to measure the effect of corn residue on Fusarium head blight (scab). This two-year project involves planting wheat in a field that was harvested for corn grain. The trial site included areas that were moldboard plowed, minimum tilled (chiseled) or undisturbed (no-till). The individual plots measured 60 by 75 feet. There were four replications.

The results were inconsistent across states. At Michigan’s site in Brown City, the visual evidence of scab expressed as FHB Index was significantly higher where corn stalks were not incorporated (no-till). The DON levels were 1.2 ppm for the plowed areas; 1.8 ppm for minimum till; and 2.3 for no-till.



M. Nagelkirk, MSU Extension

Edited by: Dennis Stein, Extension Educator, District Farm Business Management, Michigan State University Extension
 362 Green Street, Caro MI 48723 ♦ 989-672-3870 ♦ email: steind@msu.edu ♦ webpage: http://www.msu.edu/user/steind

2011- 2012 Production Season Costs

Updated 11.08.11

Farm Labor Unskilled ⁷ = \$ per hour	\$12.48	\$3.24 per gallon of fuel				
Farm Labor skilled ⁷ = \$ per hour	\$16.13	\$3.60 per gallon lube & fuel cost				
TRACTORS ONLY:		Custom Rate \$/ Hour	Machine Cost \$/Hour	Est. Fuel Gal. / Hour	Est. Fuel Cost per Hour	
No driver or fuel cost	4WD - 260 hp.	\$ 47.10	\$97.84	9.95	\$35.82	
	MFWD - 200 hp.	\$ 42.32	\$56.51	7.04	\$25.34	
	MFWD - 130 hp.	\$ 35.59	\$49.12	5.72	\$20.59	
Est. Tractor Cost \$0.24/hp/hr.	2- WD - 75 hp.	\$ 32.76	\$22.55	3.3	\$11.88	
Est. Fuel use .044 gal. diesel/PTO hp / hour	2- WD - 40 hp.	\$ 20.00	\$11.41	1.76	\$6.34	
Auto Steer systems charge per acre		\$ 2.29				
TILLAGE OPERATIONS:		Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Plowing: Moldboard (6 bottom)		\$17.85	\$20.54	\$85.65	4.17	1.32
Chisel Plow (23 ft.)		\$14.84	\$10.34	\$134.73	13.03	0.60
Chisel – front disk (16.3 ft.)		\$14.88	\$12.84	\$118.26	9.21	0.97
Disk-V.Ripper combo (17.6 ft. +15" deep)		\$18.90	\$19.16	\$172.82	9.02	1.47
Subsoiler 30" - 10ft (12-15")		\$18.63				
Discing - tandem (21 ft)		\$12.86	\$9.27	\$113.28	12.22	0.58
Field Cultivator (23 ft.) + incorp.		\$11.50	\$7.35	\$121.94	16.59	0.38
Field Cultivator (23 ft.)		\$10.39	\$5.93	\$98.38	16.59	0.32
Harrow		\$10.32				
Soil Finisher		\$11.14				
Strip tillage		\$15.54				
Row Cultivate (12 rows)		\$10.76	\$6.64	\$102.59	15.45	0.46
Row Cultivate-high residue (12rows)		\$13.35				
Stalk Shredder (20 ft.)		\$12.11	\$12.55	\$97.39	7.76	0.74
Rotary Hoe (21 ft.)		\$7.53	\$2.53	\$65.68	25.96	0.18
Land Rolling		\$6.55				
Highboy spraying		\$7.00				
Boom Sprayer-self-Prop.80ft.		\$7.55	\$7.30	\$322.08	44.12	0.14
Boom Sprayer-pull type 50ft.		\$5.46	\$2.55	\$65.31	25.61	0.10
Spraying- road ditches / hr		52.04 /hr.				
PLANTING:		Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Planter - conventional (12row) w/fert 30" corn-soys		\$15.03	\$10.28	\$143.92	14.00	0.32
Planter - soybean 15" rows		\$16.45				
Planter - No Till w/fert (12 row)		\$16.60				
Planter - Min Till (12 row)		\$16.83	\$13.80	\$175.67	12.73	0.53
GPS mapping addition to planting		\$2.25				
Air Seeder Drill w/cart 52ft			\$19.96	\$440.32	22.06	0.45
Drill Soybeans Conventional		\$16.73				
Drill - No Till (15 ft.)		\$15.72	\$18.30	\$116.39	6.36	0.81
Drill - No Till - drill only no tractor		\$10.28				
Drill press wheels - (20 ft)		\$15.05	\$11.88	\$100.74	8.48	0.61
Grain drill - only		\$9.80				
Pest Control - scouting		\$5.00				

SUGAR BEETS:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
<i>Sugar Beets - Planting (12 row)</i>	\$21.37	\$27.91	\$130.34	4.67	0.99
<i>Sugar Beet Cultivation</i>	\$13.00	\$14.19	\$79.46	5.60	0.81
<i>Sugar Beet Topper (8 rows)</i>	\$12.50	\$15.55	\$110.87	7.13	0.56
<i>Sugar Beet Harvester (6 rows)</i>	\$75.00	\$78.86	\$238.95	3.03	2.22
<i>Sugar Beet Cart (20 ton)</i>	\$25.00	\$31.27	\$162.60	5.20	1.80
HARVESTING:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
<i>Combine - (Corn -8 row head)</i>	\$29.73	\$39.07	\$265.29	6.79	2.35
<i>Combine - stalk chopper head</i>	\$33.45				
<i>Combine Small grains (20 ft head)</i>	\$25.29	\$29.02	\$197.05	6.79	1.49
<i>Combine Soybeans (25 ft. head)</i>	\$28.46	\$29.35	\$217.78	7.42	1.95
<i>Combine Soybeans - air reel</i>	\$32.10				
<i>Combine & Cart, haul to storage - Corn</i>	\$48.97				
<i>Combine & Cart, haul to storage - Soybeans</i>	\$38.15				
<i>GPS mapping addition to harvesting</i>	\$2.25				
<i>Picker 2 row- Ear Corn + 3 wagons</i>	\$26.72				
<i>Combine Field Beans (belt pickup)</i>	\$29.80	\$31.96	\$213.81	6.69	1.81
<i>Pulling Dry Beans (knife 6 row)</i>	\$9.00	\$10.29	\$89.83	8.73	0.66
<i>Pulling Dry Beans (rod 6 row)</i>	\$8.00	\$9.04	\$78.92	8.73	0.66
<i>Dry Bean – windrowing (6 row)</i>	\$9.50	\$13.88	\$121.17	8.73	0.66
<i>Grain Cart - corn / acre</i>	\$6.33	\$19.97	\$137.19	6.87	1.44
<i>Chopping Forage - Pull type (2R corn hd)/ton</i>	\$4.83 per Ton	\$55.21	\$76.19	1.38	3.35
<i>Chopping Forage - w/kernel processor</i>	\$4.50-\$5.75 per Ton				
<i>Chopping Forage - Pull type Pickup head-12ft</i>	\$5.50 -\$7.13 per Ton	\$25.53	\$103.91	4.07	1.40
<i>Chopping Forage - Self-propelled (6 row corn head)</i>	\$6.97 per Ton	\$47.00	\$64.86	1.38	2.35
<i>Silo Filling -Tower silo: 1Tractor, 1Chopper & Driver, 2 Wagons</i>	\$9.60 per Ton				
<i>Bunker: Chopper and 3 forage wagons or 2 trucks & packer</i>	\$8.07 per Ton				
<i>Silage Bagging per ft. (9 ft diameter)</i>	\$4.65-\$6.95 per ft.				
<i>Mowing</i>	\$12.57				
<i>Raking – Hay 9ft.</i>	\$6.35	\$5.83	\$20.35	3.49	0.50
<i>Tedding</i>	\$5.90				
<i>Windrowing - hay or straw</i>	\$12.25				
<i>Mower -Conditioner Pull - type (9 ft.)</i>	\$13.49	\$12.73	\$55.88	4.39	0.40
<i>Mower -Conditioner - Self Propelled (16ft)</i>	\$16.00	\$21.46	\$166.53	7.76	0.64
<i>Mower - Conditioner - Rotary (12ft)</i>	\$10.50	\$8.85	\$68.68	7.76	0.38
<i>Small Square Baling - Hay</i>	\$0.66 per bale	\$12.92	\$45.22	3.50	0.40
<i>Small Square Baling - Straw</i>	\$0.63 per bale				
<i>Mow, Rake, Baler & Handle - small sqr.</i>	\$1.76 per bale				
<i>Baler, Rake & Handle: Lrg Round</i>	\$10.50-\$13.50/bale				
<i>Complete Hay Harvesting per ton</i>	\$36.61				
<i>Baling Round - 600 to 800 # per bale</i>	\$8.99 per bale				
<i>Baling Round - 1200 to 1500 # per bale</i>	\$10.94 per bale				
<i>Baler 1000# Round/ with wrapper</i>	\$10-\$12.50 per bale	\$8.52	\$25.65	3.01	0.35
<i>Baling - 1500 # - Lrg. Round-stalks/straw</i>	\$11.20 per bale				
<i>Baling - 1500 # - Lrg. Round-stalks/straw- with wrap</i>	\$13.48 per bale	\$13.35	\$40.58	3.04	0.49
<i>Baling - Lrg Sqr. Hay 4x3x6</i>	\$10.50-\$12.75/bale	\$12.03	\$140.03	11.64	0.49
<i>Baling - Lrg Sqr. Hay 4x3x8</i>	\$12-\$13.50 per bale				

FERTILIZER:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Fertilizer Dry Bulk: Spreading	\$6.21				
Lime application	\$10.29				
Fertilizer - Liquid-Knifed In	\$10.90				
Liquid-Sprayed:	\$6.80				
Fertilizer - Anhydrous: 21 ft.	\$11.25				
Fertilizer - Anhydrous: NoTill 32 ft.	\$11.48				
Manure Hauling - semi solid - Load & Spread / hr.	61.10 per hr	\$38.89	\$77.78	2.00	2.31
Liquid Manure Injected Spreader/ 1000 gal.	11.00 per 1000 gal.	\$62.12	\$124.24	2.00	2.86
Manure Pump, Hauling, Spreading - liquid (9500 gallon cap.) per hour	\$82 / hour				
Manure Pump, Hauling, Injecting - 1000 gal. liquid (9500 gallon cap.)	\$12.50 per 1000 gal.				
Bobcat / Skid Loader / day	\$75 to \$130 per day				
Ditch Mowing	\$58.35 per hour				
Brush Hogging	\$22.08				
Grain Drying - continuous flow / point / bu.	\$0.05/pt./bu.				
Grain Drying - inbin dryer / point / bu.	\$0.056/pt./bu.				
Grain Auger / bu.	\$0.050 per bu.				
Grain Storage / mo.	\$0.04/bu./mo.				
Grain Storage / yr	\$ 0.158 per bu.				
Grain Haul - per bu. - field to farmstead	\$0.098/ up to 10 miles				
Rock picking	\$12.40				
Custom Farming - Corn	\$108.95	(all machine operations for growing & harvest)			
Custom Farming - Soybeans	\$96.40	(all machine operations for growing & harvest)			
Custom Farming - Sm Grains	\$81.45	(all machine operations for growing & harvest)			

Fuel cost is calculated by adding fuel, oil and lube, calculated by adding 10% to the power fuel cost.

\$3.24 Diesel Price ==>

\$3.600

** base fuel & lube price used

1 **Custom \$ per acre:** Represents the rate obtained from surveys of actual farm data surveys for 2010 & 2011 from Universities listed below to do this type of machine work for another farm on a general basis. Higher or lower rates apply in each situation depending on crop conditions, soil conditions, size of fields and there locations. These numbers include the machine, power unit & operator where needed. Values have been adjusted higher to reflect the change in power fuel costs noted above.

3 **Total Machine Cost/Acre:** Includes tractor, fuel cost, lubricants, repairs, maintenance, labor and overhead costs including depreciation. This could be considered as an estimate of the ownership cost and operation of this machine on a per acre basis. No profit or return to management, which would be necessary for on going enterprises were included in this number. Values are based on "Farm Machinery Economic Cost Estimates for 2010", from the University of Minnesota.

4 **Machine Rate per Hour:** This number takes the Total Machine Cost per Acre and factors in the estimated Acres per Hour to give a value of represents an estimate of the hourly operational and ownership cost of machinery supported by ©University of Minnesota, Machinery Economic cost estimates for 2010. If the machine is run at full capacity (or engine clock hours) this per acre rate should be in the custom work value generated.

5 **Acres/ Hour:** This is an estimate of the acres this machine should average on a per hour basis with normal down time.

6 **Gal./ Acre:** This is an estimated machine use of fuel consumed to do this activity and is based on a factor of 0.044 gallons of diesel fuel per PTO horsepower-hour on an average. Your individual machine's fuel use may vary from this number.

7 **Labor cost :** Charged for this table at a rate of \$14.00 per hour unskilled tasks and \$17.50 per hour for skilled labor (planter, sprayer, harvester).

Costs were developed as an adjusted estimate of common rates being used by farms in this area to cover their cost of operation. The references listed below were used collectively to build the summary information listed above:

- Michigan State University Extension: *E-2131 Custom Work Rates in Michigan*. 10/2002 at <http://www.aec.msu.edu/agecon/aecreports/aec613.pdf>
- University of Minnesota: *Machinery Economic cost estimates for 2010* © --2010 at <http://www.apec.umn.edu/faculty/wlazarus/documents/machdata.pdf>
- Iowa State University: *2011 Iowa Farm Custom Rate Survey - Ag Decision Maker* at <http://www.extension.iastate.edu/Publications/FM1698.pdf>
- Kansas State University: *2009 Kansas Farm Custom Rates* at http://www.nass.usda.gov/Statistics_by_State/Kansas/Publications/Custom_Rates/custom09.pdf
- Texas A&M University: *Texas Agricultural Custom Rates* at <http://agecoext.tamu.edu/resources/library/publications/2011-texas-agricultural-custom-rates.html>
- NASS- USDA & Pennsylvania Department of Ag: *2011 Machinery Custom Rates*; Adam Pike, March 2011 at <http://www.nass.usda.gov>
- The Ohio State University: *2010 Ohio Farm Custom Rates*© at <http://ross.osu.edu/topics/agriculture-and-natural-resources/news/ohio-farm-custom-rates-2010>
- University of Illinois: *Machinery Cost Estimates*© 4-2010, at <http://www.farmdoc.illinois.edu/manage/machinery/machinery%20summary%202010.pdf>
- University of Nebraska Lincoln: *2010 Nebraska Farm Custom Rates* at <http://www.agecon.unl.edu/resource/2010PartI.pdf>

* This report is a summary of information extracted from various sources. Your actual cost may vary greatly from the numbers presented. It is recommended that you calculate your own cost and economic returns necessary for the operation of machinery and equipment on your individual farm. This document was compiled by: Dennis Stein, District Farm Business Management, Extension Educator, Michigan State University Extension. revised 11/2011 362 Green Street, Caro, Michigan 48723-1998 email: steind@msu.edu or web page: <http://www.msu.edu/user/steind/> Major shifts in power fuel cost during the past few year has had an impact on and has changed the cost of machine operational cost. As a thumb rule it is estimated that each \$1.00 increase in fuel cost, will increase most machine operations by an additional 15%.

HOW TO FIGURE YOUR MACHINE WORK RATES

If you are hiring or doing custom work, the following will help you determine the custom rate. Custom rates are based on tradition or usual rates set in the community, the bargaining positions of both parties (i.e., availability of machinery services and demand for machinery services in your local area) and cost of operating the machines on your farm.

Cost of ownership and operation can be determined as follows:

Ownership cost per unit (e.g., acre, bushel, ton, hour) using the DIRT 5:

1. D epreciation: $\frac{\text{original cost} - \text{salvage value}}{\text{years of use}}$		\$ _____
2. I nterest: $\text{interest rat} \times \text{AIV}^a$		\$ _____
3. R epairs: estimated 2 to 5 % of original cost		\$ _____
4. T axes: (0 in Michigan -i.e., no taxes on personal property used in agriculture)		\$ _____
5. I nsurance: (estimated 0.5% x AIV for insurance premium)		\$ _____
6. T otal ownership cost per year (add lines 1 thru 5)		\$ _____
A. O wnership cost per unit: $\text{total ownership cost} \div \text{estimated annual use (acre, hour, bushel, ton)}$	(A)	\$ _____

Operating Cost per (acre, hour, bushel, ton)

1. T ractor: fuel (gallon fuel per unit x price/gallon) x 1.15 ^b		\$ _____
2. M achine: gas or fuel gallons per unit x 1.15 ^b		\$ _____
3. L abor: hours per unit x wage rate (if labor wage unit is per acre, bushel or ton multiply this wage by acres bushels or tons per hour to determine wage/hour)		\$ _____
B. T otal operating cost per unit	(B)	\$ _____
C. T otal ownership and o perating cost per unit	(A+B)	\$ _____
D. D esired profit margin and / or risk premium	%	_____
E. C ustom Rate (per acre, hour, bushel, ton) $\text{Line C} \times [1 + (\text{Line D}/100)]$		\$ _____

a Average investment value (AIV) = (original cost basis - salvage value) ÷ 2.

b The addition of 15 percent above fuel cost is for oil & lube maintenance.

A Custom Machine rate calculator is available online on The Ohio State University web site located at:
<http://aede.osu.edu/Programs/FarmManagement/Budgets/download.htm#MachFin>

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BAYSIDE

Bayside Seeds, LLC
259 Bowker Rd
Munger, MI 48747
www.baysideseeds.com

ASGROW / DEKALB

Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63167
www.monsanto.com

CROPLAN

Croplan Genetics
P.O. Box 64281
St. Paul, MN 55164-5324
www.croplangenetics.com

D.F. SEEDS

D.F. Seeds, Inc.
905 S. Jackson St.
Dansville, MI 48819
www.dfseeds.com

DAIRYLAND

Dairyland Seed Company
P.O. Box 958
West Bend, WI 53095
www.dairylandseed.com

DYNA-GRO

Crop Production Services
443 Allenby Drive
Marysville, OH 43040
www.dyna-groseed.com

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Syngenta
11055 Wayzata Blvd
Minnetonka, MN 55305
www.syngentaseeds.com

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www.yieldleader.com

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www.greatlakeshybrids.com

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Grand Forks, ND 58203
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www.seedcorn.com

MYCOGEN

Mycogen Seeds
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www.mycogen.com

NU TECH

NuTech Seed, LLC
36131 Highway 69
Forest City, IA 50436
www.yieldleader.com

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Pioneer Hi-Bred
International, Inc.
151 St Andrews Court,
Suite 910
Mankato, MN 56001
www.pioneer.com

RUPP

Rupp Seeds, Inc.
17919 Co. Rd. B
Wauseon, OH 43567
www.ruppseeds.com

STINE

Stine Seed Co.
22555 Laredo Trl.
Adel, IA 50003
www.stinseed.com

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