

2013

MICHIGAN CORN HYBRIDS COMPARED

MICHIGAN STATE UNIVERSITY | Extension

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BRAND AGRIGOLD	CONTACT AgriGold Hybrids 5381 Akin Rd St. Francisville, IL 62460 www.agrigold.com	BRAND GOLDEN HARVEST	CONTACT Syngenta Seed 11055 Wayzata Blvd. Minnetonka, MN 55440 www.syngenta.com	BRAND PIONEER	CONTACT DuPont Pioneer 6900 W. 62nd Ave. Johnston, IA 50131 www.pioneer.com
AGVENTURE	AgVenture of Michigan P.O. Box 36 Chesaning, MI 48616 www.AgVenture.com	GREAT LAKES	Great Lakes Hybrids 9915 West M21 Ovid, MI 48866 www.greatlakeshybrids.com	RENK	Renk Seed Company 6809 Wilburn Road Sun Prairie, WI 53590 www.renkseed.com
BECK	Beck's Hybrids 6767 E. 276th Street Atlanta, IN 46031 www.beckshybrids.com	HYLAND SEEDS	Hyland Seeds #5 Hyland Drive P.O. Box 1090 Blenheim, ON N0P 1A0 www.hylandseeds.com	RUPP	Rupp Seeds, Inc. 17919 Co. Rd. B Wauseon, OH 43567 www.ruppseeds.com
BLUE RIVER	Blue River Seed 27087 Timber Road Kelly, IA 50134 www.blueriverorgseed.com	INTEGRA SEED	Wilbur-Ellis Company 2219-229 th Place Ames, IA 50014 www.wilbur-ellis.com	SEED CONSULTANTS	Seed Consultants, Inc. 648 Miami Trace Rd. SW Washington C. H., OH 43160 www.seedconsultants.com
CB SEEDS	Brownseed Genetics, LLC P.O. Box 7 Bay City, WI 54723 www.cbseeds.com	KEY	AGRA Solutions, LLC 23778 Delphos Jennings Road Delphos, OH 45833 www.agrasolutions.com	SELECT	Select Seed 277 West State Rd. 218 Camden, IN 46917 www.selectseed.com
CHANNEL	Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167 www.channelbio.com	LEGACY SEEDS	Legacy Seeds, Inc. P.O. Box 68 - 290 Depot St. Scandinavia, WI 54977 www.legacyseeds.com	SPECIALTY	Specialty Hybrids 371 N. Diener Road Reynolds, IN 47980 www.specialtyhybrids.com
CROPLAN	Croplan Genetics P.O. Box 64281, MS 5735 St Paul, MN 55164 www.croplan.com	LEGEND/ LEMKE	Legend/Lemke Seed 10220 North Granville Rd. Mequon, WI 53097 www.lemkeseed.com	SPECTRUM	Spectrum Seed Solutions 220 S. Main St. P.O. Box 7 Linden, IN 47955 www.spectrumseed.com
DAIRYLAND	Dairyland Seed P.O. Box 958 West Bend, WI 53095 www.dairylandseed.com	MASTERS CHOICE	Masters Choice, Inc. 3010 State Route 146 E. Anna, IL 62906 www.Seedcorn.com	STEYER	Steyer Seeds 6145 N. County Road 33 Tiffin, OH 44883 www.steyerseeds.com
DEKALB	Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167 www.asgrowanddekalb.com	MYCOGEN	Mycogen Seeds 9330 Zionsville Road Indianapolis, IN 46268 www.mycogen.com	T.A. SEEDS	T.A. Seeds 39 Seeds Lane Jersey Shore, PA 17740 www.taseeds.com
DOEBLER'S	Doebler's PA Hybrids Inc. 202 Tiadaghton Ave. Jersey Shore, PA 17740 www.doeblers.com	NK Brand	Syngenta Seeds, Inc. 11055 Wayzata Blvd. Minnetonka, MN 55440 www.syngenta.com	WELLMAN	Wellman Seeds, Inc. 23778 Delphos Jennings Rd. Delphos, OH 45833 www.wellmanseeds.com
DYNA-GRO	Dyna-Gro Seed 4648 S. Garfield Road Auburn, MI 48611 www.dyna-groseed.com	NuTech	NuTech Seed, LLC 2321 N. Loop Dr., Suite 230 Ames, IA 50010 www.nutechseed.com	UNITY	Unity Seeds 3589 Sagamore Pkwy Layfayette, IN 47904 www.unityseeds.com
GEI	Genetic Enterprises Intl. 6165 Crabapple Lane Johnston, IA 50131 www.paezgei@mchsi.com	NuTech/ G2 GENETICS	NuTech Seed, LLC 2321 N. Loop Dr., Suite 230 Ames, IA 50010 www.nutechseed.com		

2013

MICHIGAN CORN PERFORMANCE TRIALS

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Introduction

The Michigan State University Department of Crop, Soil and Microbial Sciences conducts hybrid corn trials each year in cooperation with Michigan State University AgBio Research stations, seed corn companies, and farmers to determine performance.

Entries

Seed companies are invited to enter hybrids in the trials; a fee is charged to cover expenses incurred while conducting the trials. Separate indices for grain and silage provide a list of all hybrids entered in the 2013 trials (pg. 23 and 31, respectively). Fourteen grain and eleven silage locations were planted. A total of 364 hybrids from 31 seed companies (34 brand names) make up the 606 entries; that translates into 7,192 separate county plots planted. Company names used in association with hybrid numbers refer to the brand. The hybrid numbers are the companies' designations.

Hybrids that have a seed-applied insecticide that may enhance yield are listed in the table column TRT (Treatment). The "TRAIT" column uses code numbers, listing the hybrid traits provided by the company. Treatment and Trait codes are listed in the tables on page 21.

How to Use This Bulletin

Tables list hybrids alphabetically and contain yield results for each location, plus zone averages. Complete one and two-year yield results are listed in tables for each zone where data is available. One-year single-site results are less reliable than multiple year and multiple location averages, and should be interpreted with more caution. Confidence in corn performance data increases as the number of years and the number of testing locations increase. Results for corn grain and corn silage trials are also listed on our Web site:

<http://www.css.msu.edu/varietytrials/>

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The results shown are the average of four replications grown in close proximity to one another. Two or more

plots of the same hybrid in the same field may produce somewhat different results because of uncontrolled variability in the soil and other environmental factors. Replication and randomization of the entries were two methods employed to reduce this variation. Because these methods do not eliminate all variables, the magnitude of difference necessary for statistical significance has been calculated for yield, moisture content, and test weight. The value calculated as the least significant difference (LSD) is the amount an individual hybrid would have to differ from another hybrid in the same test to be considered significantly different from that hybrid. The coefficient of variability, (CV) is indicative of a trials precision. Trials with low levels of error variation have lower CV values.

The highest yielding hybrid in each trial is indicated with a double asterisk (**) in each table, hybrids that are not significantly different from the highest yielding hybrid are indicated with an asterisk (*). Other agronomic information relative to each trial is given in tables B and C (pg.23 and 30). Fertilizer amounts are shown as total pounds per acre of nitrogen, P₂O₅, and K₂O applied during the season.

Season in Summary: 2013

We had a pretty good spring and summer this year, fall left a little to be desired and we will get to that. Entry forms for participating companies were due March 15th. By the end of March we began receiving the seeds that made up our trials. After a lot of paper work, printing of labels and placing labels on packets, our students began counting the seeds and filling the packets. The counting process was made easier with an Agriculex ESC-1 seed counter. Packets were sorted by trial and location and placed in a computer generated random planting order. Some of our seed comes from winter production in South America. We usually receive seed up to the morning we leave the barn for the first day of planting. Planting began in Cass County on Sunday May 5th, 2013 and over the next four weeks planting went along fine. We planted Grand Traverse County on the morning of May 20th, the afternoon of the 20th we proceeded to Iosco County. After planting 10 of 28 passes in Iosco County the weather forced us out of the field. Because of wet conditions we were not able to return to Iosco County until May 28th. To ensure the equality of all plots, we re-planted the first 10 passes. Delta County was the last plot planted on May 30th.

Weed control went pretty smoothly with one exception. A problem occurred at our Allegan County silage site. Weed control was almost non-existent so the plot was dropped due to extensive weed pressure.

- Season Continued On Page 6.

2013

GROWING SEASON WEATHER SUMMARY

Jeff Andresen, Extension Agricultural Meteorologist

*Department of Geography
Michigan State University*

With a prolonged period of predominantly west to east, zonal upper air flow across the Midwest, milder than normal mean temperatures persisted across the Great Lakes region during much of the late fall of 2012 through early February 2013. The development of an upper air troughing pattern across the region during the last half of February into March finally led to a prolonged period of cooler than normal temperatures and below normal mean temperatures for February, the first cooler than normal month in Michigan since last Fall. Still, given a milder than normal December and January, mean temperatures for the December through February meteorological winter period generally ranged from 1-2°F above the long term normals. A relatively active storm track continued through the region during much of the winter. Precipitation totals during the December through February period were generally above normal (from near normal across western Upper Michigan to more than 150% of normal across central Lower Michigan), which reduced or eliminated long term soil moisture deficits in most areas following last year's drought. By mid March, only southeastern sections of Lower Michigan were still categorized by the U.S. Drought Monitor as 'Abnormally Dry', while much of Lower and eastern Upper Michigan was classified by the Palmer Drought Index as 'Very' or 'Extremely' moist.

An upper air troughing pattern persisted across the Upper Midwest during late March and much of April, resulting in colder than normal temperatures over much of Michigan. On average, it was the coldest April in Michigan in at least 10 years. A series of low pressure systems moved from southwest to northeast across the region during the period, bringing much above normal precipitation totals. Total precipitation from mid March through mid April ranged from less than 2.0 inches across some northern sections of the state to more than 6.00 inches with additional heavy rain and snow fell during the third week of April. The precipitation led to widespread flooding in some areas of the state, particularly west central sections. In northern sections of the state, much of the heavy precipitation fell in the form of snow, with more than 2 feet of snow cover still on the ground across portions of western Upper Michigan as of late April. Given the persistent colder than normal temperatures, overwintering crop phenology lagged behind long term climatological normals by 1.5-2.5 weeks (and more than 4 weeks behind last year's record early growing season) and the pace of spring fieldwork progress fell well behind normal.

During the last week of April, the upper air troughing feature responsible for the earlier inclement weather shifted south of the region, allowing a return of high pressure and an extended warm, dry spell across the

state that persisted into mid May. The break finally allowed spring fieldwork and planting to progress in earnest, although delays continued across western sections of the state impacted by earlier heavy rains and in areas with heavier soils. An active storm track across the central U.S. brought highly variable rates of precipitation to Michigan and the Great Lakes region during late May and the first half of June. The pattern led to several rounds of severe weather during the last week of May accompanied by high winds, hail, and several tornadoes. Overall, cooler and wetter than normal weather early in the 2013 season led to waterlogged soils, extensive fieldwork delays and in some cases, flooding and the need for replanting. At the end of June, the NOAA Palmer Drought Index continued to categorize much of central and southern Lower Michigan as 'Unusually Moist' to 'Extremely Moist'.

The return of an upper air troughing pattern across the region brought cooler than normal weather to much of Michigan once again during late June and early July. A drier than normal trend began across central and northern sections of the Lower Peninsula that would persist through much of the remainder of the growing season. The temporary establishment of a broad upper air ridge across central North America led to heat wave conditions across the Midwestern and Eastern USA during the third week of July, but was followed again by a deep troughing feature that brought cooler than normal temperatures to the Great Lakes region during late July through late August. As of early August, seasonal rainfall totals were highly variable across the state, with some western and southern sections recording less than 75% of normal values (generally 7-8" or less) while portions of the Upper and eastern Lower Peninsulas observed more than 15" (150% of normal or greater). The drier than normal weather in central sections resulted in crop moisture stress, especially on lighter soils.

The upper air troughing feature that led to abnormally cool, dry weather during late July and the first 3 weeks of August was replaced by a broad upper air ridge during the last week of the month which led to a period of hot, humid weather and to locally heavy rains. As of early September, soil moisture levels vary widely across the state, ranging from much above normal in the east to unfavorably dry in the west. Moisture stress continued to be an increasing issue for some crops, especially across western and central sections of the Lower Peninsula where prolonged dryness likely pushed some of the corn crop into early senescence.

- Weather Continued On Page 6.

- Weather Continued From Page 4

As of the beginning of September, the U.S. Drought Monitor categorized west central and northern sections of Lower Michigan as 'Abnormally Dry'. Seasonal base 50°F growing degree day accumulations varied widely across the state, ranging from 1-2 calendar weeks behind normal across western sections to 1 week or more ahead of normal in the northeastern Lower Peninsula.

One persistent feature of the upper air flow across North America (and most of the Northern Hemisphere) during much of the spring and summer of 2013 was the tendency for a highly amplified or meridional (more north/south than west/east) pattern. This was especially true for the mid summer months, when the jet stream typically contracts northward into Canada. The unusually meridional flow was responsible for the high number of weather extremes observed throughout the USA and Europe during the late spring and summer.

With an upper air trough across western sections of the USA and broad ridging across the east, weather across the Great Lakes region during September was generally warmer and drier than normal. Mean temperatures for September ranged from slightly below normal levels (1-2°F below normal) across eastern sections of the state to slightly above normal (1-2°F above normal) across western sections. Precipitation totals for the month were generally less than normal, ranging from less than 50% of normal across central and southern sections of Lower Michigan to much above normal levels across eastern sections of Upper Michigan. For many areas in the state, the relatively warm, dry weather was ideal for maturation, grain drydown, and early harvest of crops. With the exception of eastern Upper Michigan and a few scattered sections of southeastern Lower Michigan, precipitation totals during the middle and late summer months remained well below normal (2-6 inches below the 9-11 inch normals), and as of October 1st, southwestern, central, and northeastern sections of Lower Michigan were included in an expanding area of 'Abnormally Dry' conditions by the U.S. Drought Monitor.

Following a persistent upper air ridging pattern across the Midwest during late September and early October that led to a prolonged period of mild weather and mostly favorable harvest conditions, a large troughing feature developed across the Great Lakes once again region during mid-October. The trough led to northwesterly flow aloft and the passage of several Canadian-origin air masses into the central and eastern USA resulting in a prolonged period of cool, unsettled weather including the first killing freeze of the season across some interior northern sections of the state and the first frozen precipitation of the season. The wet conditions, combined with the lack of an earlier hard freeze across central and southern sections of the state led to slow crop and grain drydown rates and in many areas to prolonged harvest delays.

In summary, the 2013 growing season was characterized by a prolonged cool, wet spring which delayed spring fieldwork but replenished soil moisture following last year's drought. Mean temperatures during the summer ranged from warmer than normal across northern

sections to cooler than normal across central and southern sections. Total rainfall was also variable by location, ranging from below normal over northern and central portions of the Lower Peninsula to above normal over much of the Upper and southeastern Lower Peninsulas. A relatively mild early fall season helped crops delayed by late planting and/or cool growing season temperatures to reach maturity prior to the first killing freeze of the season, which was 1-2 weeks later than normal in most locations.

- Season Continued From Page 3

Stand counts went off without a hitch, all plots were counted and thinned at knee high. All locations, except Cass County and Wood County, OH were thinned back to a population of 35,244. Cass County was left with a higher population of 36,828 and Wood County, OH was in between at 36,300.

We began harvesting silage plots on September 4th in Wood County, Ohio and finished on September 24th with our Ingham County late silage. Between September 9th and September 18th we moved along at a good pace. However, after that date, harvesting came to a standstill until October 8th due to soggy weather conditions. Sub-samples were brought back to Michigan State University for further analysis. Two of our students, Emily DeVoeught and Casey Reagan, were very instrumental in the quick processing of our sub-samples.

Grain harvest began on November 4th in Branch County. We moved along O.K. until November 14th. Due to mechanical failure and poor weather conditions in some areas, the last two sites, (Mason & Montcalm Counties), were not harvested until December 2nd. Delta County grain was inadvertently gleaned for silage. Montcalm County early grain was not harvested due to extensive spring flooding. Montcalm County late grain was harvested, however, data analysis revealed more extensive damage than we anticipated so the late grain trial had to be dropped as well.

Table A (pg. 5) presents 2013 accumulations of temperature, rainfall, and heat units, plus their deviation from 30 year norms. Data is obtained from Michigan State University weather stations located closest to each location. Actual accumulation at each location may vary slightly. The weather summary is provided by Dr. Jeff Andresen from the Department of Geography using data from the Michigan State University Agricultural Weather Office.

2013 GRAIN PERFORMANCE TRIALS

Introduction

The grain index (pg.26) contains a list of all hybrids planted in the 2013 grain trials.

County results are reported in the following tables:

Tables 1E/1L Zone 1 - Branch, Cass and Washtenaw

Tables 2E/2L Zone 2 - Allegan, Ingham and Saginaw

Tables 3E/3L Zone 3 - Huron, Mason and Montcalm (dropped 2013)

Table 4 Zone 4 - Grand Traverse, Iosco and Menominee (Late)

Table 5 Zone 5 - Delta and Menominee (Early)

Tables 6E/6L Conventional Trial - Huron (Zone 3), Montcalm (Zone 3, dropped 2013), and Saginaw (Zone 2)

The map of Michigan (page 7) shows each zone and the locations where the trials were located.

Methods

Three trial locations were planted in each of four maturity zones, zone 5 had two locations. These zones were based on available growing degree-day units established from long-term weather records. Hybrids entered in a zone were tested in each of the three designated locations. Entries for zone 1, zone 2, and zone 3 were divided into two maturity groups, (early and late), on the basis of relative maturity (RM) provided by the seed companies. In zone 4 and zone 5, all hybrids were tested in one group.

Four-row plots were used at all grain locations. The two center rows were harvested for yield. Plots were 22 feet long with 30-inch row spacing.

Experimental design, data acquisition, analysis of variance and data summarization were facilitated in part by AGROBASE Generation II™ SQL (Agronomix Software, Inc., Winnipeg, Canada). The experimental layout was a four-replication, randomized complete block design. Hybrid performance is reported as the adjusted mean averaged together from four replicated plots.

Variety trials were conducted on farmers' fields and Michigan State University AgBio Research Stations. All hybrids in a location were managed uniformly with the same fertilizers, population, date of planting, and other management practices. In the field, hybrids were identified only by a plot number to assure unbiased comparisons. Trials in Allegan (silage, dropped 2013), Branch, Cass, Mason, and Montcalm (dropped 2013), counties were irrigated.

Stand counts were recorded in June. Plots with stand counts higher than the desired population were thinned at that time. Average trial population plus the desired population rates are listed with other important agronomic information in Table B (pg. 23). Lodging measurements

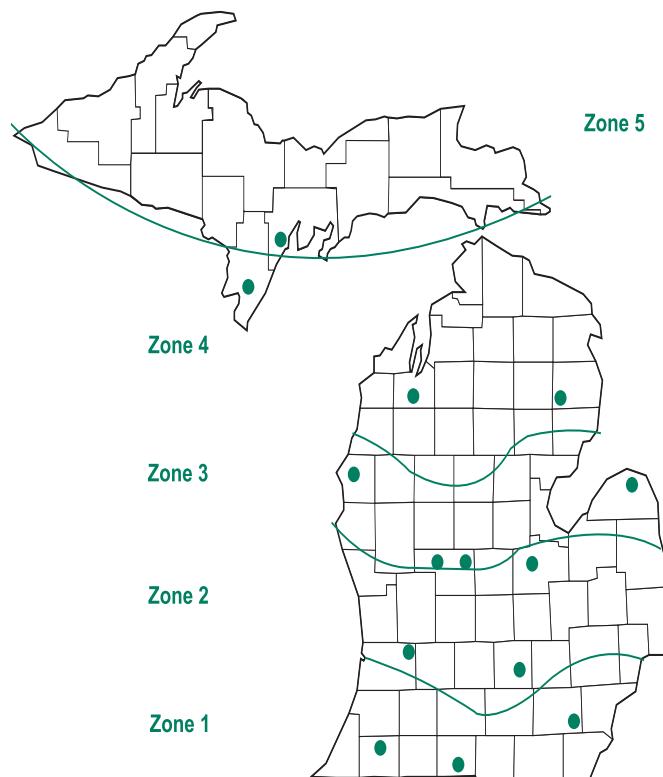
were made during harvest. All plants broken below the ear and/or leaning more than 45 degrees were counted. Plots were harvested mechanically. Moisture content and field weight were measured by a Harvest Master™ single plot high capacity GrainGage™ System mounted on a Massey Ferguson 8XP plot combine. Grain yield is reported at the standard 15.5 percent moisture. Grain test weight is reported at harvest moisture. Automated test weight equipment loses some accuracy as harvest moistures increase. Test weight values should be used to determine relative rank and not as a precise weight.

Results

The tables report the following information about the hybrids tested:

1. Moisture content at harvest (%H₂O).
2. Yield (in bushels per acre) of shelled corn corrected to 15.5 percent moisture (Bu/A)
3. Test weight at harvest moisture (Twt).
4. Percent of stalk lodging (plants broken below the ear and/or 45 degrees off vertical at harvest) (%SL).
5. Percent stand of target population (%Std).

2013 Grain Trial Locations



STEYER 10803 GENSSRBC	108	C250	1,2,3,4,6	21.8	222.5	59.4	1.3	93	24.1	215.8	57.7	2.0	96	19.5	229.1	61.1	0.6	91
STEYER 11004 GENSSRBC	110	C250	1,2,3,4,6	22.0	242.4	58.1	0.4	98	23.6	238.2	56.9	0.3	100	20.5	246.7	59.3	0.6	96
WELLMAN W2310DP	110	ENC	1,2	22.6	253.8	59.4	0.0	99	24.7	233.6	57.4	0.0	100	20.5	274.0*	61.4	0.0	98
WELLMAN W2409S	109	ENC	1,2,3	21.5	249.8	57.6	0.3	93	23.7	239.6	56.7	0.0	95	19.3	260.0*	58.6	0.6	92
AVERAGE																		
HIGHEST																		
LOWEST																		
CV (%)																		
LSD (5%)																		

2 Year Averages 2013 - 2012																		
BRAND / HYBRID			RM TRT TRAIT			Late-Trial Average			Branch-Late			Cass-Late			Washtenaw-Late			
%H2O	BU/A	Twt	%H2O	BU/A	Twt	%H2O	BU/A	Twt	%H2O	BU/A	Twt	%H2O	BU/A	Twt	%H2O	BU/A	Twt	%H2O
NK Brand N63R-3000GT Brand	109	C250	1,2,3,4	20.9	237.6	60.3	0.1	98	22.3	216.0	58.6	0.0	99	19.6	259.2*	62.1	0.2	98
PIONEER P0993HR	109	P1250	1,2,4,6	21.3	244.6*	56.8	0.4	97	22.9	232.2*	55.8	0.7	99	19.7	257.0	57.8	0.1	95
RENK RK880SSTX	112	P500	1,2,3,4,6	21.1	236.2	58.7	0.1	97	22.3	213.8	57.5	0.0	99	19.9	258.6*	59.8	0.3	95
SEED CONSULTANTS SC 11AQ03™	110	C250	1,2,3,4	21.8	231.6	56.7	0.2	99	23.3	217.9	55.9	0.4	100	20.3	245.3	57.6	0.0	98
SEED CONSULTANTS SCS 11HR02™	110	P1250	1,2,4	21.8	245.5*	58.3	0.7	99	23.2	235.1**	57.2	0.6	99	20.4	255.9	59.3	0.8	99
WELLMAN W2310DP	110		1,2	21.8	247.6**	59.4	0.0	99	23.0	223.9*	58.4	0.0	99	20.7	271.2**	60.5	0.0	99
AVERAGE																		
HIGHEST																		
LOWEST																		
CV (%)																		
LSD (5%)																		

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

RENK RK568VT3P	95	P250	1,2,3	20.8	245.0	58.4	0.3	100	18.9	247.6	59.6	0.0	100	22.7	242.4*	57.2	0.6	100
RUPP XRD90-64	90	C250	1,2	20.0	242.4	57.7	1.0	100	18.1	242.0	57.9	1.4	100	22.0	242.8*	57.5	0.6	99
RUPP XRD97-56	97	C250	1,2	20.6	245.3	57.4	1.5	100	18.7	248.9	57.5	0.6	100	22.4	241.8*	57.2	2.5	99
RUPP XRT97-17	97	C250	1,2,3,4,6	23.1	231.1	56.8	1.6	97	21.1	250.1	57.4	2.3	100	25.2	212.1	56.2	0.9	94
RUPP XRT94-06	94	P250	1,2,3,4	23.0	228.6	57.5	1.1	99	19.1	233.6	59.2	0.8	100	27.0	223.7	55.8	1.4	99
STEYER 9503 VIP3111	95	C250	1,2,3,4,6	21.9	227.4	57.2	3.4	100	19.3	218.4	57.9	2.0	100	24.5	236.3*	56.5	4.8	99
STEYER 9603 VT2PRORBC	96	C250	1,2	20.7	233.8	58.8	1.8	99	18.0	241.8	60.9	2.8	100	23.5	225.9	56.8	0.9	99
STEYER 9208 VT2PRORBC	92	C250	1,2	21.2	237.1	57.8	0.1	100	18.8	240.8	58.8	0.0	100	23.6	233.5*	56.8	0.3	100
AVERAGE																		
HIGHEST																		
LOWEST																		
CV (%)																		
LSD (5%)																		

2 Year Averages 2013 - 2012																		
BRAND / HYBRID	RM	TRT	TRAIT	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd
DYNAGRO D31VP31	91	P500	1,2,3	20.7	215.9	57.6	2.4	99	18.7	215.1*	58.4	2.8	99	22.7	216.6	56.9	2.0	98
DYNAGRO D34VP52	94	P500	1,2,3	20.8	226.2*	57.9	1.5	96	20.5	208.2*	57.8	1.8	100	21.1	244.2*	58.0	1.3	92
DYNAGRO D35VP40	95	P500	1,2,3	19.6	225.3*	57.3	2.0	96	18.7	210.9*	57.3	2.8	98	20.6	239.7*	57.3	1.2	94
GOLDEN HARVEST G92T43-3111	92	C250	1,2,3,4,6	18.2	218.1	57.1	6.2	98	17.3	183.4	56.4	11.4	100	19.2	252.9**	57.9	1.1	97
LEGACY SEEDS L-3712 VT3PRO	96	P250	1,2,3	22.2	227.3*	57.5	2.0	98	21.0	214.5*	57.5	1.7	100	23.3	240.2*	57.5	2.3	96
NK Brand N29T-3111 Brand	92	C250	1,2,3,4,6	19.0	206.6	56.9	14.1	100	17.3	184.3	56.2	25.3	100	20.8	229.0	57.6	2.8	99
NuTech 5N-19™	97	C250	1,2,3,4	21.0	220.7	58.3	6.3	100	20.1	195.8	57.0	6.6	100	21.8	245.7*	59.6	6.1	100
RENK RK568VT3P	95	P250	1,2,3	20.8	229.3**	57.9	1.5	99	20.8	218.7**	58.0	0.8	98	20.9	239.9*	57.8	2.1	100
RUPP XRT94-06	94	P250	1,2,3,4	22.1	225.9*	57.7	1.8	99	20.8	212.6*	57.4	1.7	100	23.4	239.1*	58.1	1.8	98
AVERAGE																		
HIGHEST																		
LOWEST																		
CV (%)																		
LSD (5%)																		

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

PIONEER P0210YXR	102	C250	1,2,3,4,6	22.0	250.6 *	57.7	1.8	99	20.2	245.9 *	58.6	0.9	100	23.9	255.2 *	56.8	2.8	97
PIONEER P0216AM	102	P1250	1,2,4,6	23.6	252.1 **	56.3	3.1	100	21.9	250.3 *	56.8	0.0	100	25.3	254.0 *	55.8	6.2	100
PIONEER P0255AMXT	102	C250	1,2,3,4,6	22.0	236.5	58.0	3.9	100	19.0	229.5	59.7	1.4	100	24.9	243.6 *	56.3	6.5	100
PIONEER P0993HR	109	P1250	1,2,4,6	26.1	234.7	54.8	4.1	101	23.4	211.9	54.8	4.5	103	28.8	257.6 *	54.9	3.7	100
RENK RK581SSTX	100	P500	1,2,3,4,6	23.7	209.2	56.5	2.1	100	22.2	196.9	56.9	1.7	99	25.1	221.4	56.1	2.5	100
RENK RK598SSSTX	100	P500	1,2,3,4,6	22.0	219.5	57.7	1.0	99	19.7	217.1	58.8	0.9	99	24.3	221.9	56.6	1.1	99
RENK RK629VT3P	102	P250	1,2,3	23.7	233.8	57.3	3.8	100	21.5	235.2	58.7	0.9	100	25.9	232.4	55.8	6.7	100
RENK RK666SSTX	102	P500	1,2,3,4,6	24.6	235.7	56.0	1.4	100	22.2	230.8	56.6	1.7	100	27.0	240.6	55.4	1.1	100
STEYER 10004 GENSSRIBC	100	C250	1,2,3,4,6	23.3	227.9	56.9	0.0	100	21.6	226.0	57.6	0.0	100	24.9	229.8	56.1	0.0	100
STEYER 10102 GENSSRIBC	101	C250	1,2,3,4,6	21.7	231.5	57.3	2.9	99	19.5	242.2 *	58.0	0.0	99	24.0	220.8	56.6	5.7	98
STEYER X3987BA VIP3111	98	C250	1,2,3,4,6	24.4	217.2	56.2	4.9	100	21.0	214.7	57.3	2.8	100	27.8	219.7	55.0	7.0	100
AVERAGE				23.0	233.5	56.6	2.8	99	21.0	229.4	57.2	1.2	99	25.1	237.7	56.1	4.3	99
HIGHEST				26.1	252.1	58.7	20.9	101	23.7	254.3	61.1	8.2	103	28.8	260.4	56.9	35.4	100
LOWEST				20.3	209.2	54.6	0.0	93	18.1	194.8	54.1	0.0	91	22.0	214.6	54.9	0.0	91
CV (%)				6.1	6.3	1.3	325.6	2.0	4.9	6.4	1.5	194.9	3.0	6.8	6.1	1.0	288.0	2.0
LSD (5%)				1.2	12.1	0.6	7.4	2.0	1.2	17.1	1.0	2.7	3.0	2.0	16.8	0.7	14.6	2.0

2 Year Averages 2013 - 2012				Late - TRIAL AVERAGE				Huron - Late				Mason - Late				Montcalm - Late			
BRAND / HYBRID	RM	TRT	TRAIT	%H2O	Bu/A	Twt	%SL	%SD	%H2O	Bu/A	Twt	%SL	%SD	%H2O	Bu/A	Twt	%SL	%SD	
DYNAGRO D39/P14	99	P500	1,2,3	21.5	227.4 *	57.3	1.2	96	21.3	211.7 **	57.0	2.5	97	21.7	243.1	57.5	0.0	94	
NuTech 5N-001™	101	C250	1,2,3,4	23.3	215.3	54.3	2.7	96	22.3	175.7	53.0	2.9	97	24.4	254.8 *	55.6	2.6	94	
NuTech/G2 GENETICS 5H-202™	102	C250	1,2,4	21.7	223.6	59.3	3.3	98	21.1	190.7	59.7	3.7	100	22.2	256.5 *	58.8	2.9	97	
NuTech/G2 GENETICS 5H-399™	99	C250	1,2,4	22.3	221.8	55.3	2.7	98	21.9	184.5	54.7	1.7	100	22.8	259.1 *	55.8	3.7	97	
NuTech/G2 GENETICS 5H-502™	102	C250	1,2,4	23.1	234.4 **	56.6	1.4	94	21.9	208.9 *	57.0	0.8	96	24.3	260.0 **	56.2	2.0	92	
RENK RK629VT3P	102	P250	1,2,3	22.8	223.8	60.2	3.6	96	21.9	199.0	63.5	3.5	99	23.7	248.6 *	57.0	3.8	94	
AVERAGE				22.5	224.4	57.2	2.5	96	21.7	195.1	57.5	2.5	98	23.2	253.7	56.8	2.5	95	
HIGHEST				23.3	234.4	60.2	3.6	98	22.3	211.7	63.5	3.7	100	24.4	260.0	58.8	3.8	97	
LOWEST				21.5	215.3	54.3	1.2	94	21.1	175.7	53.0	0.8	96	21.7	243.1	55.6	0.0	92	
CV (%)				4.7	6.7	2.9	263.6	6.0	4.6	6.7	3.5	419.8	3.0	5.4	7.3	1.6	228.4	9.0	
LSD (5%)				0.6	8.3	0.9	3.7	3.0	0.8	12.2	1.7	5.2	2.0	1.1	14.5	0.7	14.6	7.0	

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

2 Year Averages 2013 - 2012				TRIAL AVERAGE										Grand Traverse - Early										Iosco - Early									
BRAND / HYBRID	RM	TRT	TRAIT	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd					
DYNAGRO D31VP31	91	P500	12.3	26.4	176.2	54.6	0.8	99	31.8	162.3	52.7	0.3	99	21.7	202.2*	56.1	0.8	100	25.7	163.9*	55.0	1.2	98										
DYNAGRO D34VP52	94	P500	12.3	29.5	161.9	54.0	1.4	98	34.3	134.5	53.5	2.4	100	25.1	189.0	55.3	0.6	99	29.0	162.3*	53.3	1.3	95										
DYNAGRO D35VP40	95	P500	12.3	25.8	184.8 **	53.5	0.3	98	30.0	186.7 **	52.5	0.0	100	21.8	210.3 **	54.4	0.3	96	25.7	157.6 *	53.8	0.6	97										
NuTech/G2 GENETICS 5X-795™	94	C250	1.2,23.4	26.5	167.6	53.9	0.5	100	31.7	140.7	52.4	0.6	100	21.2	198.1	54.5	0.4	100	26.7	164.1 **	54.7	0.4	100										
AVERAGE				27.0	172.6	54.0	0.7	99	31.9	156.1	52.8	0.8	100	22.5	199.9	55.1	0.5	99	26.8	162.0	54.2	0.9	98										
HIGHEST				29.5	184.8	54.6	1.4	100	34.3	186.7	53.5	2.4	100	25.1	210.3	56.1	0.8	100	29.0	164.1	55.0	1.3	100										
LOWEST				25.8	161.9	53.5	0.3	98	30.0	134.5	52.4	0.0	99	21.2	189.0	54.4	0.3	96	25.7	157.6	53.3	0.4	95										
CV (%)				4.1	6.9	1.8	516.1	4.0	4.1	11.0	1.7	1224.0	2.0	4.3	6.2	1.5	286.4	4.0	3.1	6.0	1.4	849.5	5.0										
LSD (5%)				0.7	6.6	0.5	0.9	2.0	1.3	15.3	0.7	2.1	2.0	0.8	10.0	0.7	1.3	3.0	0.8	9.0	0.6	1.7	4.0										

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

CODES NUMBERS FOR HYBRID TRAITS

Code Num.	Traits & Resistant Events
1	Glyphosate
2	European Corn Borer
3	Corn Rootworm
4	Liberty Link
5	Clearfield, IMI, IT, IR
6	Western Bean Cutworm
7	Brown Mid Rib
8	Leafy
9	High Oil
10	Waxy
11	HTF High Total Fermentable
12	HAE High Available Energy
13	HES High Extractable Starch
14	Other

TREATMENT CODES FOR SEED APPLIED INSECTICIDES

TRT	Seed Treatment	Chemical Rate
	No Seed Insecticide Applied	
C125	Cruiser® 125	0.125 mg Thiamethoxan per kernel
C250	Cruiser® 250	0.250 mg Thiamethoxan per kernel
C1250	Cruiser® 1250	1.25 mg Thiamethoxan per kernel
P250	Poncho® 250	0.25 mg Clothianidin per kernel
P1250	Poncho® 1250	1.25 mg Clothianidin per kernel
	Cruiser® is a registered trademark of Syngenta Group Company	
	Poncho® is a registered trademark of Gustafson LLC	

TABLE 5.

DELTA & MENOMINEE (EARLY) COUNTY GRAIN TRIALS (93 Day and Earlier)

ZONE 5

2013										2013										
BRAND/HYBRID	RM	TRT	TRIAL AVERAGE			Delta			Menominee - Early											
			%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd			
CHANNEL 192-09VT3PRIB	92	PV500	1.2,3										32.3	187.8*	53.9	0.0	100			
DEKALB DKC38-04 GENSSRIB	88	P500	1.2,3,4,6	One Location no trial average			Location inadvertently gleaned for silage			32.4	184.7*	54.0	0.6	99						
DYNAGRO D29SS30	90	P500	1.2,3,4,6						30.8	182.5	54.1	0.3	96							
GREAT LAKES 3591RR	91	P500	1,2,3						30.7	180.6	54.2	0.0	100							
GREAT LAKES 3827VT3PRIB	85	P500	1						24.9	170.2	55.9	0.0	100							
GREAT LAKES 4006VT2RIB	90	P500	1,2						29.9	165.9	54.6	0.8	100							
GREAT LAKES 4282VT3PRIB	92	P500	1,2,3						31.7	188.6*	54.1	1.1	100							
HYLAND SEEDS 8201RA	84	P250	1,2,3,4,6						29.2	168.8	54.7	3.1	98							
HYLAND SEEDS 8202RA	85	P250	1,2,3,4,6						31.1	178.4	54.3	0.0	100							
HYLAND SEEDS 8295RA	88	P250	1,2,3,4,6						32.0	193.9*	54.0	0.3	99							
LEGEND LR9386 VT2P	86	P500	1,2						32.7	175.0	53.9	0.0	100							
MYCOGEN 2G192	85	C250	1,2,4						29.3	182.6	54.7	0.0	98							
MYCOGEN 2J238	86	C250	1,2,3,4,6						27.7	158.9	55.3	1.1	100							
NuTech 5B-290™	90	C250	1,2,4						32.2	194.2*	54.0	0.0	100							
NuTech 5B-888™	88	C250	1,2,4						31.6	189.1*	54.1	1.4	99							
NuTech/G2 GENETICS 5X-193™	93	C250	1,2,3,4						29.6	181.1	54.6	0.0	99							
NuTech/G2 GENETICS 5X-890™	90	C250	1,2,3,4						32.0	192.4*	54.1	0.0	100							
NuTech/G2 GENETICS 5Z-091™	91	P1250	1,2,4						32.4	179.7	53.8	0.3	99							
PIONEER P329YHR	93	P1250	1,2,4,6						31.7	196.4**	54.2	0.3	99							
AVERAGE									30.9	182.8	54.5	0.0	99							
HIGHEST									30.8	181.7	54.3	0.5	99							
LOWEST									32.7	196.4	55.9	3.1	100							
CV (%)									24.9	158.9	53.8	0.0	96							
LSD (5%)									4.5	5.8	0.7	235.7	2.0							
2 Year Averages 2013-2012																				
BRAND/HYBRID	RM	TRT	TRIAL AVERAGE			Delta			Menominee - Early											
			%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd			
DYNAGRO D31VP31	91	P500	1,2,3						25.3	151.5	54.9	2.3	97							
NuTech 5B-290™	90	C250	1,2,4						26.5	163.8**	53.0	0.9	94							
NuTech 5B-888™	88	C250	1,2,4						24.6	150.0	56.0	2.5	89							
NuTech/G2 GENETICS 5X-193™	93	C250	1,2,3,4						26.1	152.6	54.6	1.5	96							
AVERAGE									25.7	154.5	54.6	1.8	94							
HIGHEST									26.5	163.8	56.0	2.5	97							
LOWEST									24.6	150.0	53.0	0.9	89							
CV (%)									3.9	5.3	1.6	420.3	4.0							
LSD (5%)									0.9	7.5	0.7	3.2	3.0							

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

TABLE B.

AGRONOMIC TABLE FOR GRAIN TRIAL LOCATIONS

COUNTY		PLANTING DATES	HARVEST DATES	PREVIOUS CROP	100 % STAND	AVERAGE STAND	FERTILIZER N - P - K
Zone 1	WASHTENAW	May 7	Nov 5	Soybeans	35,244	34,891	178 - 9 - 3
	BRANCH	May 9	Nov 4	Corn	35,244	34,539	201 - 9 - 3
	CASS	May 5	Nov 10	Corn	36,828	35,354	271 - 9 - 3
Zone 2	ALLEGAN	May 8	Oct 23 & 25	Corn	35,244	34,539	141 - 9 - 3
	INGHAM	May 6	Nov 8	Soybeans	35,244	34,891	190 - 9 - 3
	INGHAM CONV.	May 19	Nov 24	Soybeans	35,244	33,481	155 - 9 - 3
	SAGINAW & CONV.	May 14	Nov 3	Soybeans	35,244	34,891	155 - 9 - 3
Zone 3	HURON & Conv.	May 16	Nov 13	Corn	35,244	34,891	120 - 9 - 3
	MONTCALM & CONV.	May 15	Dec 2	-----	-----	-----	Dropped
	MASON	May 17	Dec 2	Carrots	35,244	34,891	21 - 9 - 3 + Pig manure
	IOSCO	May 28	Nov 12	Corn	35,244	34,186	170 - 9 - 3
Zone 4	GRAND TRAVERSE	May 20	Nov 14	Corn Red Clover	35,244	34,539	190 - 9 - 3 + manure
	MENOMINEE	May 29	Nov 26	Corn	35,244	34,539	119 - 9 - 3 + manure
Z5	DELTA	May 30	-----	-----	-----	-----	119 - 9 - 3

COUNTY		SOIL TYPE	SOIL TEST	FARM COOPERATOR	LOCATION
Zone 1	WASHTENAW	Kibbie fine sandy loam 0-4% Slopes	pH 6.9 P 22, K 193.5	Mathew Talladay	Milan
	BRANCH	Fox Sandy Loam 0-2% Slopes	pH 5.9 P 43,K 100.5	Kyle Huff	Coldwater
	CASS	Kalamazoo Loam 0-6% Slopes	pH 6.4 P 29.5,K 142	George Grossman	Vandalia
Zone 2	ALLEGAN	Ockley Loam 1-6% Slopes	pH 5.9 P 77,K 303	Jim & John Schipper	Martin
	INGHAM	Capac Loam 0-3% Slopes	pH 6.15 P 49, K 173.5	Jorgensen Farms Jerry Jorgensen & Mike Turner	Williamston
	SAGINAW & Conv.	Brookston Loam 0-3% Slopes	pH 6.7 P 42.5, K 112	Fred Gross Farms Peggy Gross & Dick Birchmeier	New Lothrop
Zone 3	HURON & Conv.	Kilmanagh Loam	pH 6.7 P 119, K 241	Wil-Le Farms Ron & Ed McCrea	Bad Axe
	MONTCALM	Montcalm & McBride Loamy Sands 0-6% Slopes	pH 6 P 152, K 174	Sackett Farms Larry Sackett	Stanton
	MONTCALM Conv.	Montcalm & McBride Sandy Loam 0-6%	pH 6 P 152, K 174	AgBio Research Center, MSU Bruce Sackett	Entrican
	MASON	Fern-Marlette Complex 0-6% Slopes	pH 6.5 P 128, K 205	Robert Oshe Jacob Zwagerman	Scottville
Zone 4	IOSCO	Kawkawlin sandy Loam 0-6% Slopes	pH 7 P 48, K 172	Jeremy Beebe	Whittemore
	GRAND TRAVERSE	Karlin Sandy Loam 2-12% Slopes	pH 6.15 P 62, K 230	Ed Breitmeyer	Buckley
	MENOMINEE	Onaway fine Sandy Loam 3-9% Slopes	pH 7.4 P 14, K 75.5	Johnson Dairy Farm Dave Johnson	Daggett
Z5	DELTA	Karlin Sandy Loam 0-6 % Slopes	pH 5.65 P 43, K 99.5	VanDrese Farms	Gladstone

TABLE 6E. INGHAM, MONTCALM & SAGINAW COUNTY CONVENTIONAL GRAIN TRIALS - EARLY (101 Day and Earlier)

BRAND/HYBRID	RM	TRT	TRAIT	Early - TRIAL AVERAGE				Ingham - Early				Montcalm - Early				Saginaw - Early			
				%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	%H2O	BU/A	Twt	%SL	%Sd	
BLUE RIVER 22A10	85	Conv.	18.2	190.7	61.2	4.8	99	19.3	182.1	58.7	9.5	98		17.1	199.2	63.6	0.0	100	
BLUE RIVER 42A32	96	Conv.	19.1	204.6	59.5	14.3	97	19.7	195.9	58.7	28.6	95		18.5	213.2	60.2	0.0	100	
CB SEEDS CBX41302	90	Conv.	20.4	179.2	60.1	7.5	86	21.0	177.3	58.2	14.9	78		19.7	181.1	61.9	0.0	95	
CB SEEDS CBX52111	98	Conv.	23.4	196.5	58.6	8.7	100	23.6	184.7	57.0	17.3	99		23.2	208.2	60.2	0.0	100	
CB SEEDS CBX55291	101	Conv.	24.2	203.2	57.4	14.3	100	23.8	204.7	56.7	28.5	99		24.5	201.6	58.1	0.0	100	
GFI 101lys	104	Conv.	27.8	164.0	53.9	34.5	98	25.9	173.8	55.9	65.8	96		29.6	154.2	51.8	3.1	100	
GREAT LAKES 4918	98	P500 Conv.	20.2	217.0	57.6	23.6	100	19.6	198.7	58.5	47.2	100		20.7	235.3	56.6	0.0	100	
KEY 401	101	Conv.	19.6	243.1 **	59.2	3.7	92	20.7	241.6 **	58.3	7.3	83		18.5	244.6 **	60.0	0.0	100	
RUPP XR1464	90	C250 Conv.	18.5	208.3	59.0	32.9	100	18.8	190.2	59.0	65.4	100		18.1	226.4	59.0	0.3	100	
RUPP XRA98-58	98	C250 Conv.	21.2	234.4 *	58.0	22.7	98	22.1	238.2 *	57.5	45.4	96		20.3	230.5	58.4	0.0	100	
SPECTRUM 4660	96	C250 Conv.	18.4	228.8	61.1	0.6	100	18.8	228.5 *	58.8	1.1	100		18.0	229.1	63.4	0.0	100	
SPECTRUM 4832	98	C250 Conv.	20.1	237.2 *	59.3	1.9	96	21.0	237.5 *	58.2	3.7	92		19.1	236.9 *	60.3	0.0	100	
STEYER 9802	98	C250 Conv.	20.3	229.4	57.9	4.2	97	20.4	230.5 *	58.4	8.3	95		20.1	228.3	57.4	0.0	100	
STEYER 10102	101	C250 Conv.	19.7	225.3	59.6	2.3	96	20.7	218.9	58.3	4.2	92		18.7	231.7	60.8	0.3	100	
AVERAGE			20.8	211.5	58.7	12.5	97	21.1	207.3	58.0	24.8	94		20.4	215.7	59.4	0.3	100	
HIGHEST			27.8	243.1	61.2	34.5	100	25.9	241.6	59.0	65.8	100		29.6	244.6	63.6	3.1	100	
LOWEST			18.2	164.0	53.9	0.6	86	18.8	173.8	55.9	1.1	78		17.1	154.2	51.8	0.0	95	
CV (%)			4.6	6.7	1.4	129.0	7.0	3.8	8.4	1.0	92.1	10.0		5.2	4.3	1.7	299.4	2.0	
LSD (5%)			0.8	11.8	0.7	13.5	6.0	1.0	20.9	0.7	27.2	12.0		1.3	10.9	1.2	0.9	2.0	

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

TABLE 6L. INGHAM, MONTCALM & SAGINAW COUNTY CONVENTIONAL GRAIN TRIALS - LATE (102 Day and Later) ZONE 2 - 3

BRAND / HYBRID	RM	TRT	TRAIT	Late - TRIAL AVERAGE				Ingham - Late				Montcalm - Late				Saginaw - Late				
				%H2O	Bu/A	Twt	%SL %Sd	%H2O	Bu/A	Twt	%SL %Sd	%H2O	Bu/A	Twt	%SL %Sd	%H2O	Bu/A	Twt	%SL %Sd	
CB SEEDS CBSK6A4433	104	Conv.	22.6	196.6	58.3	3.2	94	23.8	207.4	56.7	5.4	93	21.4	185.7	59.9	0.9	96			
GREAT LAKES 5283	102 P500	Conv.	21.2	236.3	**	60.8	1.2	100	22.4	239.1	*	57.2	2.3	100	19.9	233.5	*	64.3	0.0	100
KEY 909	109	Conv.	23.8	222.8	57.8	6.2	93	25.2	239.3	*	56.2	12.4	90	22.4	206.3	59.4	0.0	95		
RUPP XRA04-11	104 C250	Conv.	21.4	213.5	57.3	10.1	100	23.1	229.3	*	56.8	20.1	100	19.7	197.7	57.8	0.0	100		
SPECTRUM 5250	102 C250	Conv.	22.7	227.9	*	58.6	11.3	98	23.9	239.9	*	56.7	22.0	97	21.5	215.9	60.5	0.6	99	
SPECTRUM 5648	106 C250	Conv.	22.5	228.0	*	57.1	3.2	95	23.4	234.4	*	56.7	6.4	94	21.6	221.6	*	57.4	0.0	97
STEYER 10301	105 C250	Conv.	20.6	199.6	57.8	11.4	98	22.9	210.1	56.9	22.7	95	18.2	189.0	58.7	0.0	100			
STEYER X31081TC	108 C250	Conv.	24.0	218.8	57.8	5.3	99	24.3	217.0	56.7	10.5	99	23.7	220.6	*	58.9	0.0	100		
WELLMAN W2408	108	Conv.	23.0	233.9	*	58.2	0.0	100	23.9	243.1	**	56.6	0.0	100	22.0	224.7	*	59.8	0.0	100
AVERAGE			22.4	219.7	58.2	5.7	97	23.6	228.8	56.7	12.7	96		21.2	210.6	59.6	0.2	98		
HIGHEST			24.0	236.3	60.8	11.4	100	25.2	243.1	57.2	25.4	100		23.7	233.5	64.3	0.9	100		
LOWEST			20.6	196.6	57.1	0.0	93	22.4	207.4	56.2	0.0	90		18.2	185.7	57.4	0.0	95		
CV (%)			5.0	6.5	2.6	136.3	3.0	3.2	7.3	0.6	89.8	3.0		6.6	5.5	3.5	290.3	2.0		
LSD (5%)			0.9	12.0	1.3	6.5	2.0	0.9	20.2	0.4	13.7	4.0		1.7	14.0	2.5	0.5	2.0		

** Highest Yielding Hybrid

* Not Significantly Different from Highest Yielding Hybrid

HYBRID INDEX FOR GRAIN TRIALS

ZONE 1 Tables 1E/1L	ZONE 2 Tables 2E/2L	ZONE 3 Tables 3E/3L	ZONE 4 Table 4	ZONE 5 Table 5	CONVENTIONAL TRIAL Tables 6E/6L
Branch Cass Trial Average	Allegan Ingham Saginaw Trial Average	Huron Mason Montcalm Trial Average	Iosco Menominee - Late Trial Average	Delta Menominee - Early Trial Average	Ingham - Zone 2 Montcalm - Zone 3 Saginaw - Zone 2 Trial Average
BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE
AGRIGOLD		DAIRYLAND SEED		GOLDEN HARVEST	
A6252STXRIB A6257STXRIB A6267STX A6319VT3PRIB ~A6358VT3Pro A6389VT3PRIB ~A6408VT3PRIB ~A6472VT3Pro	100 2E 100 2E 102 2L 103 2L 105 1E 106 1E 107 1E 110 1L	DS-9487RA DS-9791RA DS-9694SSX DS-9898RA DS-9501SSX DS-9604SSX ~ Hi DF-3702-9 DS-9306 DS-9809RA DS-9210SSX DS-9610	87 3E,4 91 3E 94 3E 98 2E,3L 101 1E,2E,3L 104 1E,2L,3L 104 1E,2L,3L 106 1E 109 1L 110 1L	G88M78-3110A ~G92T43-3111 G97S12-3000GT G99Z33-3011A ~G01P52-3011A G01U28-3111 ~G05T82-3122 G07V88-3000GT G07F23-3111 ~G09E98-3000GT	88 3E 92 3E 97 3E 99 2E 101 2E 101 2E 105 2L 107 1E 107 1E 109 1L
AgVenture/VPMAXX RL5811HBW	102 1E,2L,3L				
BECK		DEKALB		GREAT LAKES	
4321HXR™* 5131AM™* 5140HR™* 5475AM™* 5828AM™*	99 1E 105 1E 105 1E 108 1L 110 1L	DKC38-04 GENSSRIB DKC41-32 GENSSRIB DKC43-10 GENVT2PRIB DKC46-20 GENVT3PRIB DKC48-12 GENSSRIB DKC49-29 GENSSRIB DKC50-83 GENVT3PRIB DKC52-04 GENVT3PRIB DKC52-61 GENVT2PRIB DKC53-56 GENSSRIB DKC53-78 GENSSRIB DKC54-38 GENSSRIB DKC55-09 GENSSRIB DKC57-75 GENSSRIB DKC58-87 GENSSRIB DKC60-67 GENSSRIB DKC61-16 GENSSRIB	88 3E,5 91 3E 93 3E 96 2E,3E 98 2E,3L 100 2E,3L 102 1E,2L,3L 102 1E,2L,3L 103 1E,2L 103 1E,2L 104 1E,2L 105 1E 107 1E 108 1L 110 1L 111 1L	3591RR 3827VT3PRIB 4006VT2RIB ~4282VT3PRIB 4206STXRIB ~4457VT3PRIB 4567VT3PRIB ~4879STXRIB 4918 ~5015STXRIB ~5283STXRIB 5283 ~5368VT3PRIB 5525VT3PRO ~5785VT3PRIB ~5939VT3PRIB 6087VT3PRIB	85 5 88 5 90 5 92 5 92 3E 94 3E 95 3E 98 2E,3L 98 6E 100 2E,3L 102 1E,2L,3L 102 6L 103 1E,2L 105 1E,2L 107 1E,2L 109 1L 110 1L
BLUE RIVER	85 6E 96 6E				
CB SEEDS		DYNAGRO		HYLAND SEEDS	
CBX41302 CBX52111 CBX55291 CBSK6A4433	90 6E 98 6E 101 6E 104 6L	D29SS30 ~D31VP31 D34VP52 D35VP40 ~D38SS50 D39VP14 D41SS71 D42SS42 D46SS46 D47SS23 D52SS91	90 3E,5 91 3E,5 94 2E,3E 95 2E,3E 97 2E,3E 99 2E,3L 101 2E,3L 102 1E,2L,3L 106 1E,2L 107 1E,2L 112 1L	8201RA 8202RA 8295RA 8300RA 8315RA 4398 HLCVR68 8450RA 8505RA 8515RA 8552RA 8521RA ~8575RA 8598RA 8636RA ~4687 ~8695RA	84 5 85 5 88 5 91 3E 92 3E 96 2E,3E 98 2E,3L 98 2E,3L 101 2E,3L 101 2E,3L 104 1E,2L,3L 104 1E,2L 106 1E,2L 107 1E,2L 110 1L,2L 110 1L
CHANNEL	92 3E,5 97 2E,3E 97 2E,3E 99 1E,2E,3L 103 1E,2L				
192-09VT3PRIB 197-33STXRIB 197-68STXRIB 199-54VT2PRIB 203-44STXRIB 202-32STXRIB 206-78STXRIB ~207-13VT3PRIB 211-99VT3PRIB	97 1E 104 1E 106 1E 107 1E 111 1L	~D31VP31 D34VP52 D35VP40 ~D38SS50 D39VP14	91 3E,5 94 2E,3E 95 2E,3E 97 2E,3E 99 2E,3L 101 2E,3L 102 1E,2L,3L 106 1E,2L 107 1E,2L 112 1L		
CROPLAN		GEI		KEY	
2845SS/RIB 3055VT2P 3399SS 3899VT2P/RIB 3733VT2P/RIB 3737SS 3913AS4111 4099SS/RIB ~4199SS ~4975VT3P 5398VT3P	92 3E 92 3E 93 3E 96 2E,3E 97 2E,3E 97 3E 99 2E,3L 99 2E,3L 101 2E,3L 102 2L,3L 103 2L,3L	~ GEI 101lys	101 6E	401 909	101 6E 109 6L

BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE
LEGACY SEEDS		PIONEER		SELECT	
L-3043 VT2PRO	92 3E	P9329YHR	93 3E,5	4277SM	104 1E
L-3712 VT3PRO	96 2E,3E	~P9675AMXT	96 2E,3E	4314AQ	105 1E
L-3813 GENSS	96 2E,3E	P9690AM	96 2E,3E	4633VP	107 1E
L-4113 GENSS	100 2E,3L	~P9754YHR	97 2E,3E		
L-4343 VT3PRO	101 2E,3L	P0094AMX	100 2E,3L	SPECIALTY	
L-4513 GENSS	102 2L,3L	~P0210YXR	102 1E,2L,3L	25A113	95 2E
L-5522 VT3PRO	104 2L	~P0216AM	102 1E,2L,3L	42R32GENVT3P	96 2E
L-5943 GENSS	106 2L	~P0255AMXT	102 1E,2L,3L	82R08GENSS	97 2E
		P0496AMX	104 1E,2L	29A263	99 2E
		P0604YHR	106 1E,2L	32V323	102 1E,2L
LEGEND		P0858AMX	108 1L,2L	33A403	103 1E,2L
LR9386 VT2P	86 5	~P0993HR	109 1L,2L,3L	~34A413	104 1E,2L
LR9495 VT3P	95 3E	~P0945YXR	109 1L,2L	~43R83GENVT3P	105 1E,2L
LR9497 GENSS	97 2E,3E	~P0970AMX	109 1L,2L	38A573	108 1L
LR9308 GENSSRIB	108 1E				
LEMKE		RENK		SPECTRUM	
4048 VIP3111	100 1E,2L,3L	~RK492SSTX	92 4	4660	96 6E
		RK522SSTX	94 4	4832	98 6E
		RK568VT3P	95 3E	5250	102 6L
MYCOGEN		RK557SSTX	95 3E	~5648	106 6L
2G192	85 5	RK581SSTX	100 3L		
2J238	86 5	RK598SSTX	100 3L	STEYER	
2Y479	98 2E,3L	~RK629VT3P	102 2L,3L	9203 VT2PRORIBC	92 2E,3E
2A509	101 2E,3L	RK666SSTX	102 2L,3L	9503 VIP3111	95 2E,3E
2C674	108 1L	RK699SSTX	105 2L	9603 VT2PRORIBC	96 2E,3E
2V709	110 1L	RK752SSTX	105 1E,2L	9801 VIP3111	98 2E,3L
		RK776VT3P	108 1L	9802	98 6E
NK Brand		RK791SSTX	108 1L	10004 GENSSRIBC	100 1E,2E,3L
N23M-3110A	88 3E	RK866SSTX	111 1L	10102 GENSSRIBC	101 1E,2E,3L
~N29T-3111 Brand	92 3E	RK860VT3P	111 1L	10102	101 6E
N37S-3000GT	97 3E	RK880SSTX	112 1L	10403 VT2PRORIBC	104 1E,2L
N42Z-3011A	99 2E			10501	105 6L
N46U-3111	101 2E	RUPP		10603 GENSSRIBC	106 1E
~N45P-3011A	101 2E	XRD90-64	90 2E,3E	10803 GENSSRIBC	108 1L
~N53W-3122	105 2L	XR1464	90 6E	X31081TC	108 6L
N61P-3000GT	107 1E	XRT94-06	94 2E,3E	11004 GENSSRIBC	110 1L
N60F-3111	107 1E	XRD97-56	97 3E		
~N63R-3000GT	109 1L	XRJ97-17	97 2E,3E	UNITY SEEDS	
		XRJ98-11	98 2E	7700 3000gt	100 2E
NuTech		XRA98-58	98 6E	4602 VT3P	102 2L
5B-888™	88 5	XRD00-27	100 2E	7603 3000GT	103 2L
~5B-290™	90 5	XRJ03-31	103 2L	7505 3122	105 2L
~5N-197™	97 3E	XRD04-04	104 1E,2L	7606 3000GT	106 2L
5N-9802™	98 3L	XRA04-11	104 6L	5507 SS-RIB	107 2L
~5N-803™	101 2E,3L	XR8034	105 1E		
~5N-001™	101 2E,3L	XRD07-19	107 1E	WELLMAN	
		XRJ07-20	107 1E	W2401DP	101 1E
NuTech/G2 GENETICS		XRT09-22	109 1L	W2404DP	104 1E
~5X-890™	90 5	XRJ10-91	110 1L	W2307DP	107 1E
5Z-091™	91 5			W2408	108 6L
5X-193™	93 5	SEED CONSULTANTS		W2409S	109 1L
5X-894™	94 3E	SCS 924YHR™	92 2E	W2310DP	110 1L
5X-795™	94 4	SCS 10HQ02™	100 2E		
5Z-9605™	96 3E	SCS 1032AM1™	101 1E,2E	~ Denotes hybrids that were entered into the Grain and Silage Trials.	
~3F-198™	98 2E,3L	SCS 10HR43™	104 1E,2L		
5X-698™	98 3L	SCS 1062AHQ™	106 1E,2L		
~5H-399™	99 2E,3L	~ SCS 10HR62™	106 1E,2L		
5Z-200™	100 2E,3L	SCS 10HQ72™	107 1E,2L		
5Z-0105™	101 3L	SCS 10RR70™	108 1L,2L		
~5H-502™	102 2L,3L	SCS 1074AM-R™	108 1L,2L		
~5H-202™	102 2L,3L	SCS 1093AAHQ™	109 1L,2L		
~3D-802™	102 2L,3L	SCS 10HR94™	109 1L,2L		
5H-905™	105 1E,2L	SCS 11HR02™	110 1L		
5H-805™	105 1E,2L	SCS 11AQ03™	110 1L		
~5H-806™	106 1E,2L	SCS 1114AM-R™	111 1L		
5H-707™	107 1E	~ SCS 11HR21™	113 1L		
5F-008™	108 1L	~ SCS 1133AM-R™	113 1L		
5Z-709™	109 1L				
~5Z-109™	109 1L				

2013

SILAGE PERFORMANCE TRIALS

Introduction

The silage index (pg.31) contains a list of all hybrids planted in the 2013 silage trials.

County results are reported in the following tables:

Tables 7E/7L Zone 1 - Branch, Lenawee and Wood (OH)

Tables 8E/8L Zone 2/3 - Allegan (dropped 2013), Huron (Zone 3) and Ingham

Table 9 Zone 4 - Iosco, Menominee (Late), and Osceola

Table 10 Zone 5 - Alger, Delta and Menominee (Early)

The map of Michigan (page 29) shows each zone and the locations where the trials were located.

Methods

Testing procedures (randomization, replication, planting rates, etc.) for silage evaluation are the same as those utilized for the grain trials. For silage agronomic information refer to Table C (pg. 30)

Zones 1 and zone 2/3 were divided into two maturity groups (designated early and late) on the basis of the relative maturity (RM) submitted by the companies with results listed in separate tables. Zones 1 and zone 2/3 have two maturity groups "E" or "L" based on company RM. In cooperation with The Ohio State University, the Wood County, OH location is planted and managed by OSU while MSU handles harvest, plus quality and data analysis.

Silage plots were harvested with a two-row self-propelled forage harvester. Electronic scales mounted on the chopper measured plot weights. Total plot weight was applied to calculate green tons per acre (**GT/A**). Sub samples of fodder including grain were collected, weighed, oven dried until weight loss was zero, then weighed again to determine the percent dry matter (**%DM**). Dry tons per acre (**DT/A**) is calculated mathematically by multiplying **GT/A** by **%DM**. The samples were ground using a 1.0 mm screen before conducting quality analysis using Near Infrared Reflectance (NIR) to predict quality components.

Silage Analysis

Tables 7E, 7L, 8E, 8L, 9 and 10 provide silage quality data as determined by NIR analysis on freshly dried & ground samples. Data is provided for individual locations and also averaged over multiple locations. Near infrared spectral analysis involves irradiating the sample with light in the near infrared spectrum (1,100 to 2,500 nm). The illuminated sample absorbs light proportional to specific chemical and physical properties. The reflected energy is measured and was correlated statistically with the updated 2013 Near-infrared Spectroscopy (NIRS), equation established for silage quality levels. Results of the five quality traits analyzed are presented in the quality tables. The six quality traits are:

1. **IVD= (in vitro) digestible dry matter-48hr.** IVD is a measure of forage digestibility. Higher IVD is desirable.
2. **ADF=acid detergent fiber.** ADF represents the less digestible portion of the corn forage, containing cellulose, lignin, and heat damaged protein. ADF is closely related to the digestibility of forages. Lower ADF implies the forage is more digestible. More mature plant material will contain higher ADF concentrations. A low concentration of ADF is desirable.
3. **NDF=neutral detergent fiber.** NDF is a measure of the fiber content of the corn forage. It is less digestible than non-fiber constituents of the forage. Forages with high NDF levels have lower energy. NDF is also a measure of potential forage intake. High NDF levels decrease the potential forage intake. Low NDF content is desirable.
4. **NDFD=neutral detergent fiber digestibility-48hr.** NDFD is the portion of neutral detergent fiber digested by animals at a specified level of feed intake. High NDFD is desirable.
5. **CP=crude protein.** Forages are generally supplemented with high protein concentrates such as soybean meal to increase the protein content of ruminant diets. Corn hybrids with high protein levels require less supplementation and therefore result in lower feed costs. High protein content is desirable.
6. **STRCH=starch.** Starch from the grain, along with the digestible component of the fiber, accounts for the majority of the energy in corn silage.

Silage quality traits are reported on a dry matter basis (100 percent DM). Quality traits in these tables are intended for use in hybrid selection only. Analysis for the balancing of feed rations should be analyzed from hybrids grown on each individual farm.

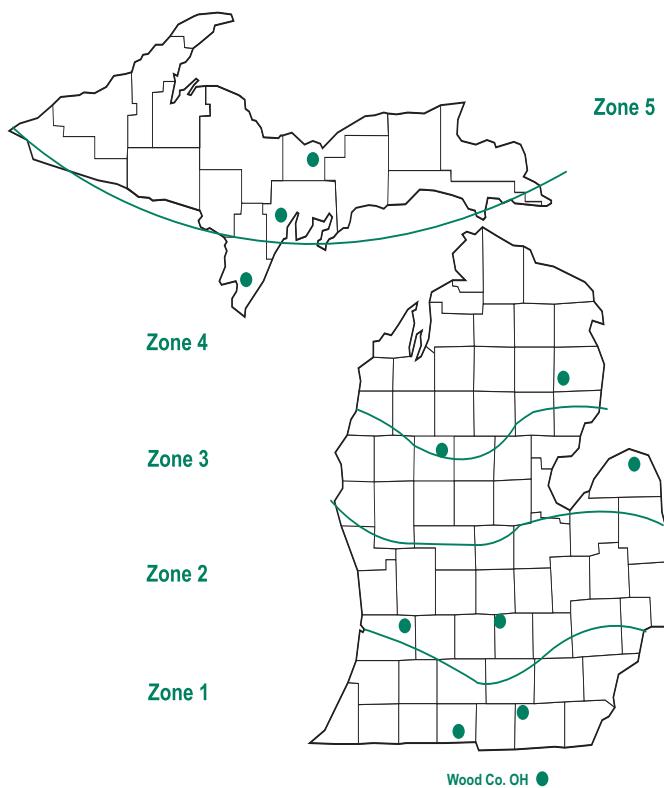


2013 Silage Trial Locations

MILK2006

An updated calculation using the MILK2006 equation (UW-Madison Dairy Science Department) was used to estimate MK/T (milk per ton) and MK/A (milk per acre). MILK2006 estimates the dry matter intake using the NDF and CWD (cell wall digestibility) parameters of the sample. The updated equation utilizes CP, fat, and sugar as well as the organic acid fractions along with their total-tract digestibility coefficients to estimate energy. Whole plant dry matter was calculated to 34% for all hybrids and digestibility coefficients used for the fat and sugars as well as the organic acid fractions were held constant. MILK2006 also assumes the weight of the cow is 1,350 lbs. and that it consumes a 30 percent NDF diet. Using National Research Council (NRC, 2001) energy requirements, the estimated intake of energy from corn silage is converted to milk per ton. Milk per acre is then calculated using the estimated values for milk per ton and dry matter yield per acre. For more information on the utility of MILK2006 please see:

www.uwex.edu/ces/crops/uwforage/Milk2006silage.html



Notes

TABLE C.

AGRONOMIC TABLE FOR SILAGE TRIAL LOCATIONS

COUNTY		PLANTING DATES	HARVEST DATES	PREVIOUS CROP	100 % STAND	AVERAGE STAND	FERTILIZER N - P - K
Zone 1	BRANCH	May 9	Sept 12	Corn	35,244	33,834	201 - 9 - 3
	LENAWEE	May 7	Sept 13	Soybeans	35,244	34,891	127 - 9 - 3 + manure
	WOOD (OHIO)	May 6	Sept 4	Soybeans	36,300	35,574	210 - 40 - 40
Zone 2	ALLEGAN	May 13	-----	-----	-----	-----	Dropped
	INGHAM	May 19	Sep 23 &24	Soybeans	35,244	34,891	155 - 9 - 3
	HURON	May 16	Sep 18	Corn	35,244	34,891	120 - 9 - 3
Zone 4	IOSCO	May 28	Oct 17	Corn	35,244	33,834	170 - 9 - 3
	OSCEOLA	May 15	Oct 8	Corn	35,244	34,186	170 - 9 - 3 + manure
	MENOMINEE	May 29	Sep 10	Corn	35,244	34,186	119 - 9 - 3 + manure
Z5	ALGER	May 29	Sep 9 & 11	Peas/Oats	35,244	33,129	119 - 9 - 3
	DELTA	May 30	Sep 9	Sod	35,244	34,186	119 - 9 - 3

COUNTY		SOIL TYPE	SOIL TEST	FARM COOPERATOR	LOCATION
Zone 1	BRANCH	Fox Sandy Loam 0-2% Slopes	pH 5.9 P 43, K 100.5	Kyle Huff	Coldwater
	LENAWEE	Blount Loam 0-7% Slopes	pH 7.1 P 140 K 300	Bakerland Farms Blaine Baker	Clayton
	WOOD (OHIO)	Hoytville Clay loam	pH 5.8 P 114, K 435	OARDC Matt Davis	Hoytville, Ohio
Zone 2	ALLEGAN	Chelsea Loamy Fine Sands 0-6% Slopes	pH 6.5 P 71, K 275	Lettinga Farms Paul Lettinga	Wayland
	INGHAM	Early: Colwood-Brookston Late: Capac Loam	pH7, P44, K217 pH6, P55, K197	Crop & Soil Sciences Research Facility, MSU	East Lansing
	HURON	Kilmanagh Loam	pH 6.7 P 119, K 241	Wil-Le Farms Ron & Ed McCrea	Bad Axe
Zone 4	IOSCO	Kawkawlin Sandy Loam 0-4% Slopes	pH 7 P 48, K 172	Jeremy Beebe	Whittemore
	OSCEOLA	Isabella Sandy Loam 0-6% Slopes	pH 6.2 P 146, K 211	Robert E. Lee	Marion
	MENOMINEE	Onaway Fine Sandy Loam 3-9% Slopes	pH 7.4 P 14, K 75.5	Johnson Dairy Farm Dave Johnson	Daggett
Zone 5	ALGER	Eben Very Cobbly Sandy Loam 1-6% Slopes	pH 7.4 P 63.5, K 86.5	AgBio Research Station Chris Kapp	Chatham
	DELTA	Karlin Sandy Loam 0-6% Slopes	pH 5.65 P 43, K 99.5	VanDrese Farms	Gladstone

SILAGE HYBRID INDEX

ZONE 1 - Tables 7E/7L		ZONE 2 - Tables 8E/8L		ZONE 4 - Table 9		ZONE 5 - Table 10	
BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE	BRAND / HYBRID	RM TABLE
AGRIGOLD		GREAT LAKES		NuTech/G2 GENETICS		Alger	
~A6358VT3Pro	105 8L	~4282VT3PRIB	92 10	~5X-890™	90 10	Wood (Ohio)	
~A6408VT3PRIB	107 8L	~4457VT3PRIB	94 10	~3F-198™	98 10	Trial Average	
~A6472VT3Pro	110 7E	~4879STXRIB	98 9,10	~5H-399™	99 10		
A6517VT3PRIB	113 7L	~5015STXRIB	100 8E,9,10	~5H-502™	102 9		
		~5283STXRIB	102 8E,9	~5H-202™	102 9		
CHANNEL		~5368VT3PRIB	103 8E,9	~3D-802™	102 9		
202-64STXRIB	102 8E	~5785VT3PRIB	107 7E,8L	~5H-806™	106 8L		
~207-13VT3PRIB	107 8L	~5939VT3PRIB	109 7E	3D-909™	109 8L		
210-95STXRIB	110 7E	6232VT3PRIB	112 7L	~5Z-109™	109 8L		
214-14VT3PRIB	114 7L	6354VT3PRIB	113 7L	5F-811™	111 7L		
				5Z-612™	112 7L		
CROPLAN		GREAT LAKES		5Z-113™	113 7L		
~4199SS	101 8E	HLSR35	98 9	3F-513™	115 7L		
~4975VT3P	102 8E	HLS8477	98 9	3F-515™	115 7L		
4819AS3000/GT	103 8E	HLSR59	102 8E	5H-216™	116 7L		
5415SS/RIB	104 8E	~8575RA	104 8E				
5887VT3P	107 8L	~4687	110 7E,8L				
		~8695RA	110 7E,8L				
DAIRYLAND SEED		LEGACY SEEDS		PIONEER			
Hi DF-3290-9	90 9	L-5350 3000GT	104 8E	~P9675AMXT	96 9,10		
Hi DF-3396SSX	96 8E,9	L-5810 3000GT	106 8L	~P9754YHR	97 9,10		
Hi DF-3197-7	97 8E,9	L-7253 3000GT	112 8L	~P0210YXR	102 7E,8E,9		
~Hi DF-3702-9	104 8E,9			~P0216AM	102 7E,8E,9		
Hi DF-3108RA	108 7E,8L			~P0255AMXT	102 8E,9		
DS-9311SSX	110 7E,8L			~P0993HR	109 7E,8L		
Hi DF-3510SSX	110 7E,L	MASTERS CHOICE		~P0945YXR	109 7E,8L		
DS-9614Q	111 7L	MC-4880	98 8E	~P0970AMX	109 7E,8L		
		MC-5370	103 8E	RENK			
DOEBLERS®		MCT-5663	106 8L	RK302GTCBLLBL	88 9		
554GRQ	105 7E	MC-6060	110 7E	~RK492SSTX	92 9		
RPM® 604HRQ™	108 7E	MCT-6153	111 7L	RK565GTCBLLRWBL	99 8E,9		
RPM® 647AM1™	110 7E			~RK629VT3P	102 8E		
RPM® 657AM™	112 7L	MYCOGEN		RK858VT3P	112 8L		
RPM® 689AMXT™	113 7L	TMF2Q308	91 10				
698GRQ	114 7L	TMF2L418	94 9	SEED CONSULTANTS			
RPM® 743HXR™	116 7L	TMF2Q413	96 9,10	~SCS 10HR62™	106 7E		
		TMF2L538	101 8E	SCS 11HR12™	112 7L		
DYNAGRO		TMF2R720	109 7E	~SCS 11HR21™	113 7L		
~D31VP31	91 9	TMF2H747	113 7L	~SCS 1133AM-R™	113 7L		
~D38SS50	97 8E			SCS 1131AM-R™	114 7L		
D45Q50	105 8L	NK Brand		SCS 11HQ39™	114 7L		
D50SS43	110 7E,8L	~N29T-3111 Brand	92 9	SCS 1154AM-R™	116 7L		
GEI		~N45P-3011A	101 9				
~101lys	101 9,10	~N53W-3122	105 8L	SPECIALTY			
		N61X-3110	108 8L	~34A413	104 8E		
GOLDEN HARVEST		~N63R-3000GT	109 8L	83R90GENSS	105 8L		
~G92T43-3111	92 9	N68B-3122	111 7L	~43R83GENVT3P	105 8L		
~G01P52-3011A	101 9	N70J-3011A	112 7L	46R02GENVT3P	109 8L		
~G05T82-3122	105 8L	NuTech					
G08X83-3110	108 8L	~5B-290™	90 10	SPECTRUM			
~G09E98-3000GT	109 8L	3A-496™	96 9,10	4130	90 9,10		
G11U58-3122	111 7L	~5N-197™	97 9	5045	100 8E		
G12J11-3011A	112 7L	~5N-803™	101 9	~5648	106 7E		
		~5N-001™	101 9	T. A. SEEDS			
		5N-406™	106 8L	TA583-28	108 7E		
		3A-306™	106 8L	TA615-16ND	110 7E		
~ Denotes hybrids that were entered into the Grain and Silage Trials.				TA657-13VP	111 7L		
				TA683-13VP	112 7L		
				TA765-30	115 7L		

HANDY Bt TRAIT TABLE

Bt Trait Table November 1, 2013	Bt protein(s)	Insects controlled (bold) or suppressed (<i>italics</i>) Above-ground ----- In soil	Herbicide tolerance	Refuge %, location in the MIDWEST	
Agrisure Trait Family					
Agrisure CB/LL	Cry1Ab	ECB <i>CEW FAW SB</i>	---	LL	
Agrisure GT/CB/LL	Cry1Ab	ECB <i>CEW FAW SB</i>	---	GT LL	
Agrisure RW	mCry3A	---	CRW	--	
Agrisure GT/RW	mCry3A	---	CRW	GT	
Agrisure CB/LL/RW	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	LL	
Agrisure 3000GT	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	GT LL	
Agrisure Artesian 3011A	Cry1Ab mCry3A	ECB <i>CEW FAW SB</i>	CRW	GT LL	
Agrisure Viptera 3110	Cry1Ab Vip3A	BCW <i>CEW ECB</i> <i>FAW WBC SB</i>	---	GT LL	
Agrisure Viptera 3111	Cry1Ab Vip3A mCry3A	BCW <i>CEW ECB</i> <i>FAW WBC SB</i>	CRW	GT LL	
Agrisure 3122 E-Z Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	GT	
Agrisure Viptera 3220 E-Z Refuge	Cry1Ab Cry1F Vip3A	BCW <i>CEW ECB FAW</i> <i>WBC SB</i>	---	GT	
Agrisure Duracade 5122 E-Z Refuge	Cry1Ab Cry1F mCry3A eCry3.1Ab	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	GT	
Agrisure Duracade 5222 E-Z Refuge	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	BCW <i>CEW ECB FAW</i> <i>WBC SB</i>	CRW	GT	
Herculex Trait Family					
Herculex I (HX1)	Cry1F	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	---	LL RR2 (most)	
Herculex RW (HXRW)	Cry34/35Ab1	---	CRW		20% in field/adjacent
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW		20% in field/adjacent
Optimum Trait Family					
Optimum AcreMax (AM-R)	Cry1F Cry1Ab	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	---	RR2	
Optimum AcreMax1 (AM1)	Cry1F Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW</i>	CRW	LL RR2	
Optimum AcreMax Rootworm (AMRW-R)	Cry34/35Ab1	---	CRW	RR2	
Optimum AcreMax Xtra (AMX-R)	Cry1F Cry1Ab Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	RR2	
Optimum AcreMax Xtreme (AMXT-R)	Cry1F Cry1Ab mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	RR2	
Optimum Inrasect	Cry1F Cry1Ab	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	---	LL RR2	
Optimum Inrasect Xtra	Cry1F Cry1Ab Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	LL RR2	
Optimum Inrasect XTreme	Cry1F Cry1Ab mCry3A Cry34/35Ab1	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	LL RR2	
Optimum TRIsect	Cry1F mCry3A	BCW <i>ECB FAW WBC</i> <i>CEW SB</i>	CRW	LL RR2	
YieldGard / Genuity Trait Family					
YieldGard VT Triple	Cry1Ab Cry3Bb1	ECB <i>CEW FAW SB</i>	CRW	RR2	
Genuity VT Double PRO	Cry1A.105 Cry2Ab2	<i>CEW ECB FAW</i>	---	RR2	
Genuity VT Triple PRO	Cry1A.105 Cry2Ab2 Cry3Bb1	<i>CEW ECB FAW</i>	CRW	RR2	
Genuity SmartStax	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB</i> <i>FAW SB WBC</i>	CRW	LL RR2	
Genuity VT Double PRO RIB Complete (GENVT2P)	Cry1A.105 Cry2Ab2	<i>CEW ECB FAW</i>	---	RR2	
Genuity VT Triple PRO RIB Complete (GENVT3P)	Cry1A.105 Cry2Ab2 Cry3Bb1	<i>CEW ECB FAW</i>	CRW	RR2	
Genuity SmartStax RIB Complete	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB</i> <i>FAW SB WBC</i>	CRW	LL RR2	
Refuge Advanced Trait Family					
Refuge Advanced Powered by SmartStax	Cry1A.105 Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	BCW <i>CEW ECB</i> <i>FAW SB WBC</i>	CRW	LL RR2	
				5% in the bag	

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THANK YOU TO OUR FARM COOPERATORS:

ZONE 1

Baker-Ladd Farms, Blaine Baker, Clayton
George Grossman, Vandalia
Kyle Huff, Coldwater
OSU NW Experiment Station, Richard Minyo
Hoytville, Ohio
Mathew Talladay, Milan

ZONE 2

Fred Gross Farms -
Peggy Gross & Dick Birchmeier, New Lothrop
Jorgensens Farm Elevator
Jerry Jorgensen & Mike Turner, Williamston
Paul Lettinga, Wayland
MSU Agronomy Farm, Brian Graff, East Lansing
Jim & John Schipper, Martin

ZONE 3

AgBio Research Station, Bruce Sackett, Entrican
Robert Oshe, Custer
Sacket Farms, Larry Sackett, Stanton
Wil-le Farms, Ron & Ed McCrea, Bad Axe

ZONE 4/5

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