

2021 Michigan State Wheat Performance Trials

Photo: Fusarium Head Blight Nursery, 2021



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2021 Michigan State Wheat Performance Trials

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July 29, 2021*

Cooperating weather last fall allowed growers to get wheat planted on time. Most of the crop across the state emerged, tillered out well and went into the winter in good shape. Temperatures over the winter were mild early, followed by cold temperatures in February. Nearly all of the wheat in the lower peninsula was protected by a blanket of snow. Little to no winterkill was reported. As the crop greened up in the spring, expectations and yield potential was very high. Spring conditions allowed nitrogen applications to be made timely, followed by fungicides at Feekes 9 and 10.5.1.

Dry conditions were welcomed for spring planting operations, however the dryness persisted resulting in 78% of the lower peninsula in D1 (moderate) or D2 (severe) drought. Many parts of the state received little or no rain during early to mid grain fill. Hardest hit areas and those with sandy soils caused the wheat to desiccate prematurely, ending grain fill. In late June, heavy and frequent rains made their way into the state. By the last week of June, the drought was over for much of MI. The Saginaw Valley and thumb regions were hardest hit by the drought. The premature death of the crop followed by heavy rains caused significant grain quality issues, particularly preharvest sprouting.

Falling number (FN) evaluates the degree of for preharvest sprouting. All white wheat production regions had poor FN to some degree with about 25% of the white wheat crop in MI below 240. Black sooty mold was widely reported across the state. Some areas had small amounts of black point. Conditions at flowering were dry, so vomitoxin levels were low in 2021. Persistent rains delayed harvest which worsened preharvest sprout. Even soft red wheat was at risk of sprout before the end of harvest.

Temperatures across the region were similar to '19. We did not have the excessive heat in '21 compared to '20. Rainfall was very short in April and May. Most of the rain in June came in two big rain events in the latter half of the month – near the end of the grain fill period.

Figure 1. Number of days above 90 F, 85 F and rainfall data from Michigan Automated Weather Station Network, MSU for three of the MSU Wheat Variety Trial Locations for the 2019, 2020 and 2021 growing seasons. 2021 data was reported through July 16, 2021.

	2019			2020			2021		
	Pigeon	Richville	Mason	Pigeon	Richville	Mason	Pigeon	Richville	Mason
Above 90 F	1	3	3	10	13	10	2	4	2
Above 85 F	14	12	16	30	33	30	15	16	19
April (in)	3.8	2.3	2.9	2.2	2.1	2.6	1.8	0.7	1.5
May (in)	2.8	5	3.4	3.3	3.8	4.2	1.2	1.2	2.6
June (in)	3.6	7	4.5	1.9	1.4	5.8	1.9	4.9	7.0
July (in)	1.9	2.4	2.3	2.8	3.2	2.1	2.5	1.0	1.5

Choosing Varieties

Variety selection is best made using at least three years of data. Varieties selected using data across all locations and multiple years will likely perform well under a wide range of conditions; although, performance of a given variety will vary based on testing location. In selecting varieties for a specific location, it is important to identify varieties that perform well near the location where the variety will be grown. Table 1 provides information on which varieties are top performers in each of the seven trial locations in 2019 through 2021. Selection and planting of two or more varieties is recommended. As an example, planting varieties that differ in flowering date can allow for staggering of management applications, specifically, fungicides to control Fusarium head blight. When selecting varieties, look at disease resistance as well as yield potential.

Disclaimer: *MSU makes no endorsement of any wheat variety or brand.*

Experimental Design

The 2021 State Wheat Performance Trial entries were planted in 7 counties: Gratiot, Hillman, Ingham, Huron, Lenawee, Sanilac and Tuscola. Appendix A (below) presents information on each of these sites. Each plot contained 6 rows with 7.5" row spacing and was planted to a length of 18 feet. Plots were trimmed to a length of 12 feet long in the spring for harvesting purposes. Sites were designed as Alpha Lattice with three replications. All seed was treated, but the chemicals and rates used varied according to the preferences of the originating organization. Seeding rates per linear foot of row were standardized to the rate that would equate with a stand of 1.8 million seeds per acre in a solid stand planted in 7.5" rows. Fall fertilizer application varied with cooperator practice. Spring nitrogen was applied as urea (90 lbs/acre actual N) at green-up and Affinity BroadSpec was used for weed control at all sites.

All sites were coordinated under high management with the exception of additional conventionally managed trials at Tuscola and Isabella Counties. Under high management, an additional 30 pounds of nitrogen was applied using streamer nozzles and 28% UAN. Quilt Xcel fungicide was tank mixed with herbicide and applied at Feekes 6. Prosaro fungicide was applied to control late season fungal diseases with application coinciding with the average flowering date of the trial location.

All plots within a location were harvested on a single day. Yield was calculated using the entire area of the plot including the wheel tracks between plots leading to an underestimation of yield. For data reported on a 0-9 scale 0 is the best possible score.

Seven of our experimental sites are on private farmland. We are extremely grateful to those growers for accommodating our work and all of the associated inconveniences. Funding for the high-management trial inputs was provided by the Michigan Wheat Program. Questions and comments regarding the research reported here should be directed to Dennis Pennington at pennin34@msu.edu or (269) 832-0497. This report and previous reports, may also be accessed through the Web at <http://www.varietytrials.msu.edu/wheat>.

Multi-Year Performance Summary

The full trial included 114 entries (52 of which were experimental lines) from 16 organizations, including Michigan State University, and data analyses were conducted using all of these entries. Attached to this narrative is a list of the names and contact information for those organizations. Each row in these tables has data for a single entry. The columns contain averages for a given trait and time period. Data for all of the entries in this trial are not presented here. However, the averages and statistical parameters in this report are based on the entire set of evaluated materials. **Comparisons among entries are only valid within a column.** Tables 1 and 2 are sorted first by grain color, and then in descending order by yield for 2021. Tables 3, 4 and 5 are sorted in alphabetic order by company and entry name. In some instances (e.g. yield), data columns to the right of the 2021 data columns are multi-year averages. Only data for entries included in all of the relevant years' tests are found here. Not all entries have been tested in all years, so the tables have several blank cells. See the section titled 'Experimental Design' for details on how the trials were conducted and for more detail on what the data in each column represents.

At the bottom of most columns in the tables is the trial average (mean), LSD (least significant difference), and CV (coefficient of variation) for data in that column. LSD values vary among traits and data sets (combinations of sites and years). Differences between the means for two entries that are greater than the LSD for that column are very likely to reflect a genuine difference between the two varieties. If the difference between two means is smaller than the LSD for that column, one should conclude that there is **no evidence that those entries are different for that trait** in the years and sites considered.

Table 1 contains yield data. This data was acquired electronically on the plot combine at the time of harvest. Yield data is standardized to 13.5% moisture. The 2021 yield data contains the multi-site yield averages of only the high management sites and does not include the conventionally managed yield data from Tuscola and Isabella Counties. The conventionally managed data can be found in Table 4 in the conventional vs. high management results.

Table 2 contains test weight and percent moisture for all locations along with the overall average across locations.

Table 3 contains data on resistance to Fusarium Head Blight (FHB, scab). The 2020 deoxynivalenol (DON, VOM) numbers are reported. Once 2021 data from the lab are back, this report will be updated. Scab data were obtained from heavy disease pressure in an inoculated scab screening nursery. FHB infected grain is spread to provide inoculum and artificial misting provides disease-promoting conditions throughout the entire flowering period. 2021 grain samples will be submitted for DON analysis and will be reported later. **Cephalosporium stripe** ratings were taken at the Ingham County location. **Preharvest sprouting (PHS)** samples were collected from Ingham County and subjected to misting in the greenhouse for three days and rated for the degree of sprouting. PHS ratings were conducted using a 0-9 scale with 0 having no sprouting and 9 having fully emerged radicle and roots from over 80% of the spike.

The **flowering date** indicates the average number of days past January 1st that a given entry reached the point where ½ of its heads were flowering. **Physiological maturity** was recorded as the date when 50% of the peduncles in a plot were turning yellow. **Plant height** is reported as the distance in inches from the ground to the tip of average heads in a plot.

FHB Resistance Traits

Severity: The average percent of infected spikelets in each head.

Incidence: The percent of all spikes in a plot showing infection.

FHB index: The overall infection considering severity and incidence.

DON: Levels of mycotoxin (ppm) present in grain. DON data is from the 2020 crop year.

Levels of DON and severity are the most reliable traits to be used in selecting FHB-resistant varieties.

High Management vs. Conventional Management Performance

Table 4 provides a comparison of variety performance under intensive management and conventional management practices. Data on yield, test weight, grain moisture at harvest are provided from conventional management and high management trials at Tuscola and Isabella Counties. Conventional management received 90 pounds of N per acre only. The high management received an additional 30 pounds of N per acre applied at Feekes 6 plus Quilt Xcel fungicide at Feekes 6.0, followed by Prosaro fungicide applied at Feekes 10.5.1. The last two columns present the yield advantage of high management in bushels per acre as well as a ranking of the response. A positive number indicates a yield response to high management. A negative number indicates the higher management actually produced a lower yield. Overall means were 6.7 and 8.1 bushels per acre higher for the high management treatment at Tuscola and Isabella respectively.

Milling and Baking Quality

Table 5 contains data for milling and baking quality. Quality data are from the 2020 harvest season and prior. Data were generated by the USDA Eastern Soft Wheat Quality Laboratory in Wooster, Ohio on grain harvested from the Michigan State Variety trial each year. Flour yield is the ratio of the weight of extractable flour to the weight of milled grain, expressed as a percentage. Percent protein in flour is adjusted at 14% moisture. Softness equivalent percent is the softness of the flour, with higher values indicating softer grained wheat. For cookie diameter, a larger diameter is better. Whole grain protein (%) and whole grain hardness are being reported with 0-100, and higher values indicating harder wheat. The quality lab test weight is not identical to the test weight at harvest due to grain drying and grain cleaning prior to quality laboratory test weight evaluation. Solvent Retention Capacity (SRC) can be conducted on flour using several different solvents and reflects different characteristics of flour quality. Soft wheat flour for cookies typically have a target of 95% or less when used by the US baking industry for biscuits and crackers. Sodium carbonate SRC increases as starch damage due to milling increases. Normal values for good milling soft varieties are 68% or less. Lactic acid measures gluten strength with “weak” soft varieties having values below 85% and strong gluten soft varieties having values, typically, above 105% or 110%.

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Appendix A. Trial Site Descriptions for 2021 MSU Wheat Performance Trials.

COOPERATOR	FUSARIUM HEAD BLIGHT NURSERY	HURON COUNTY	ISABELLA COUNTY		LENAWEE COUNTY	SANILAC COUNTY	TUSCOLA COUNTY		INGHAM	Montmorency
			CONV. MANAGED	HIGH MANAGED			CONV. MANAGED	HIGH MANAGED		
	Michigan State University	Darwin Sneller	Hauck Seed Farm		Woods Seed Farm	JGDM Farms	Micah Laux		Michigan State University	Todd Ableidinger
NEAREST CITY	Lansing	Seabwing	Mt Pleasant		Britton	Sandusky	Reese		Meridian TWP	Hillman
PLANTING DATE	September 26, 2020	October 10, 2020	September 21, 2020		September 24, 2020	October 15, 2020	September 20, 2020		September 17, 2020	October 11, 2020
HARVEST DATE	July 23, 2021	July 6, 2021	07/17/21		July 10, 2021	July 18, 2021	July 5, 2021		July 3, 2021	July 19, 2021
SOIL TYPE	Capac loam, 0 to 4 percent slopes & Colwood-Brookston loams	Avoca loamy sand, 0 to 2 percent slopes	Ithaca Loam, 0 to 4 percent slopes		Lenawee silty clay loam, 0 to 1 percent slopes	Parkhill loam and clay loam, 0 to 1 percent slopes	Tappan-Londo loams, 0 to 3 percent slopes		Conover loam, 0 to 4 percent slopes	Negwegon silt loam, 2 to 6 percent slopes
PRE-PLANT FERTILIZER	333# 6-24-24	250# 12-26-18 2.5% S	200# 7-10-31 6% s		300# 9-23-30	100# Mes-Z 80# Potash, 20# Urea	250# 13-13-21 5%S 1%B 5%M 9%Zn		350# 10-19-18 7.7% s	200# Potash
COMMENTS	Inoculated / Misted Fusarium Head Blight Screening Nursery.	Additional 30 lbs. Nitrogen and Fungicides were applied	90 lbs. Nitrogen and no Fungicides were applied	Additional 30 lbs. Nitrogen and Fungicides were applied	Additional 30 lbs. Nitrogen and Fungicides were applied	Additional 30 lbs. Nitrogen and Fungicides were applied	90 lbs. Nitrogen and no Fungicides were applied	Additional 30 lbs. Nitrogen and Fungicides were applied	Additional 30 lbs. Nitrogen and Fungicides were applied	90 lbs. Nitrogen and no Fungicides were applied
AVERAGE YIELD (BUSHEL / ACRE)	N/A	71.9	95.7	103.8	103.2	97.3	90.8	97.6	72.6	92.1
AVERAGE TEST WEIGHT (LBS. / BUSHEL)	N/A	59.3	54.9	56.1	58.8	57.0	58.7	59.4	56.3	58.3
AVERAGE PERCENT GRAIN MOISTURE AT HARVEST	N/A	12.8	15.2	14.8	13.9	15.6	14.1	13.8	14.4	15.1
2021 DATA RECORDED (NUMBER OF REPS)		3	3	3	3	3	3	3	3	3
FLAG LEAF FUNGICIDE APPLICATION DATE	N/A	May 20, 2021	N/A	May 13, 2021	May 12, 2021	May 20, 2021	N/A	May 13, 2021	May 12, 2021	N/A
FLOWERING FUNGICIDE APPLICATION DATE	N/A	June 3, 2021	N/A	June 1, 2021	May 27, 2021	June 3, 2021	N/A	May 27, 2021	May 27, 2021	N/A
GREEN-UP FERTILIZER	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	75lbs Nitrogen

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Table 2. Multi-Location Performance Summary for Test Weight and Percent Moisture.

Line	Color	Overall		Hillman		Ingham		Huron		Sanilac		Tuscola		Lenawee		Isabella	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
13VTK59-55	R	14.2	59.4	14.3	58.7	13.8	58.9	12.8	60.3	15.8	58.1	13.7	61.3	14.1	61.0	14.9	57.3
AC Mountain	W	14.0	57.0	14.4	58.2	12.8	55.8	13.2	58.0	15.9	56.3	13.3	57.8	13.6	58.0	14.8	55.0
AgriMAXX 498	R	14.9	57.5	16.8	57.9	14.7	57.5	13.1	58.3	16.0	56.9	14.4	59.0	14.2	57.7	14.9	55.4
AgriMAXX 502	R	14.3	57.9	14.3	58.4	13.9	56.2	13.2	59.9	15.8	56.7	13.9	59.6	14.0	59.1	15.0	55.4
AgriMAXX 503	R	13.9	57.3	11.1	53.6	14.7	55.7	13.5	59.4	15.3	57.0	14.2	60.2	13.9	59.2	14.6	56.4
AgriMAXX 505	R	14.1	59.3	14.6	58.7	14.3	58.0	12.5	61.2	15.4	58.3	13.6	61.4	14.0	61.0	14.6	57.1
AgriMAXX 513	R	14.2	58.5	15.2	58.2	14.5	56.7	12.3	60.3	15.6	57.4	13.7	60.7	13.7	59.6	14.5	56.7
AgriMAXX 516	R	14.4	57.7	15.1	58.6	14.0	55.3	13.4	59.8	15.5	57.0	14.1	59.3	14.3	58.4	14.3	55.8
AgriMAXX EXP 2002	R	14.4	59.0	15.1	58.9	14.5	57.3	12.9	61.1	14.9	58.2	14.0	60.8	14.0	59.8	15.1	57.5
AgriMAXX EXP 2055W	W	14.6	57.0	15.2	58.1	15.1	55.8	13.3	57.1	15.6	55.4	14.0	58.0	14.0	58.4	14.9	55.9
AgriMAXX Exp. 2050W	W	14.5	57.2	14.4	58.4	15.2	55.6	12.9	58.1	17.3	56.3	13.6	58.3	13.8	58.3	14.3	55.5
Ambassador	W	14.2	56.5	14.2	58.2	14.9	53.5	13.3	59.2	15.6	56.0	13.5	57.0	13.6	56.7	14.3	54.9
DF 105 R	R	14.1	57.6	14.1	58.1	14.7	55.9	12.7	60.1	15.0	57.2	13.7	58.8	13.9	57.5	14.7	55.6
DF 112 R	R	14.1	57.2	14.2	58.3	14.2	55.0	13.2	59.2	15.1	56.9	14.0	58.7	13.6	57.4	14.3	55.2
DF 119 R	R	14.4	57.9	14.7	58.5	14.8	55.9	12.7	60.0	15.6	56.1	13.9	59.6	13.7	58.2	15.1	56.7
DF 121 R	R	14.6	57.8	15.1	58.5	15.0	56.1	13.4	60.4	16.2	57.3	13.0	56.3	14.2	59.0	15.5	56.7
DF 131 R	R	14.4	58.0	15.5	58.7	14.4	55.7	12.9	60.0	15.8	56.9	13.7	59.7	13.9	58.3	14.6	56.8
DF 141 R	R	14.1	58.1	15.1	58.6	14.7	54.9	13.2	60.7	14.5	57.8	13.2	60.0	14.1	58.8	14.5	55.8
DF 218 W	W	14.8	58.0	17.0	58.0	15.1	56.3	12.6	60.4	15.7	57.7	14.0	60.0	14.1	58.1	15.2	55.7
DF 261 W	W	14.3	57.1	14.9	58.3	14.2	56.1	12.2	57.8	15.7	55.3	13.9	58.2	14.0	58.6	15.1	55.5
DF 271 W	W	14.2	57.4	14.5	57.9	14.7	56.8	13.2	58.2	15.6	55.5	13.4	59.4	13.7	59.3	14.3	55.0
DF EX 2101 R	R	14.1	58.1	15.3	58.4	13.7	56.4	12.4	59.5	14.9	56.7	13.5	60.7	13.5	59.7	14.8	55.7
DF EX 2102 R	R	14.1	58.3	14.6	58.0	14.6	56.4	12.5	60.4	13.8	57.2	13.7	60.1	13.9	59.2	15.2	57.2
DF EX 2103 R	R	14.2	56.2	15.2	57.9	13.4	54.6	12.2	57.3	15.8	55.4	14.0	57.1	14.0	57.0	14.3	53.9
DF EX 2104 R	R	14.3	59.1	14.7	59.0	14.5	56.3	12.9	61.1	15.8	58.2	13.8	61.0	14.2	60.2	14.6	58.3
Dyna-Gro 9002	R	14.5	57.8	15.4	58.3	14.1	56.8	12.9	59.4	16.3	57.2	14.2	59.1	13.9	58.8	14.5	55.6
Dyna-Gro 9070	R	14.2	57.9	14.4	58.4	14.6	56.6	12.8	58.8	14.7	56.6	13.8	60.1	13.8	58.8	15.1	55.6

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Line	Color	Overall		Hillman		Ingham		Huron		Sanilac		Tuscola		Lenawee		Isabella	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
Dyna-Gro 9082W	W	14.3	57.5	15.6	58.8	14.2	52.8	12.4	59.2	15.5	57.4	13.6	58.7	13.6	58.9	14.7	56.6
Dyna-Gro 9120	R	14.6	59.3	15.2	58.6	14.2	58.1	12.3	61.6	17.0	57.9	13.8	61.6	13.7	59.8	15.4	57.7
Dyna-Gro 9151	R	14.2	59.1	15.2	58.6	14.7	58.2	11.4	60.8	15.7	58.2	14.5	60.9	13.6	59.7	14.2	57.4
Dyna-Gro 9172	R	14.5	58.0	15.7	58.9	15.2	55.3	12.6	60.0	15.5	57.2	13.9	60.0	13.8	59.0	14.5	55.9
Dyna-Gro 9182	R	14.5	58.1	14.9	58.4	14.5	56.3	13.4	60.0	14.9	57.7	14.5	59.8	14.1	58.9	15.6	55.7
Dyna-Gro 9242W	W	14.7	57.9	14.6	58.3	15.2	55.8	13.1	59.8	16.4	57.5	13.7	59.2	13.9	58.3	15.5	56.6
Dyna-Gro WX19799W	W	14.4	56.3	14.4	58.3	14.7	53.3	13.1	57.0	16.6	55.5	13.6	58.0	13.7	57.8	14.8	54.3
Dyna-Gro WX20734	R	14.6	58.3	15.1	58.3	14.3	57.4	13.4	59.9	16.2	57.1	13.7	59.9	14.2	59.6	15.2	56.2
Dyna-Gro WX20738	R	14.5	58.5	14.5	59.1	14.5	57.3	12.6	60.0	16.7	57.2	13.4	60.8	14.2	59.3	15.3	56.2
Dyna-Gro WX21791W	W	14.6	58.2	14.8	58.4	14.9	54.9	13.0	60.1	16.5	57.0	14.2	60.3	14.1	59.7	14.8	57.1
Erismen	R	14.2	58.9	14.5	58.9	13.8	58.7	13.0	59.8	16.3	58.0	13.8	60.3	13.9	59.7	14.0	57.5
Harbor	R	14.4	57.9	14.5	58.5	14.9	56.7	12.8	59.4	16.1	57.6	13.5	59.1	13.6	58.3	15.1	56.0
Haubert	R	14.7	58.2	15.0	58.7	14.3	57.5	13.4	59.4	16.3	56.9	14.3	59.7	14.0	59.4	15.4	55.7
HS338R	R	14.5	58.7	14.7	58.7	14.4	58.3	12.7	59.2	16.9	57.3	14.2	60.0	13.9	60.5	14.8	57.1
ISF 1001	W	14.5	56.8	15.0	57.9	14.6	55.8	13.3	57.7	15.8	55.4	14.0	57.7	13.9	58.1	14.7	55.3
ISF 1115	W	14.2	57.3	14.4	58.0	14.3	57.1	11.7	57.5	16.6	56.0	14.2	58.6	13.9	58.9	14.0	55.3
ISF 790	R	14.6	58.0	16.8	58.2	14.1	56.8	12.2	58.8	15.0	56.3	14.1	60.6	14.0	59.7	15.8	55.4
Jupiter	W	14.4	57.8	15.3	57.9	14.8	55.9	13.2	60.1	15.1	57.3	13.7	59.0	13.7	57.9	14.9	56.4
KWS305	W	14.5	58.0	16.1	58.1	14.5	54.4	13.0	61.5	15.3	57.7	13.7	60.7	13.7	57.3	14.9	56.5
KWS308	W	15.0	57.7	17.6	58.2	14.9	56.2	12.6	58.2	17.0	57.6	14.7	59.1	13.7	58.4	14.3	56.1
KWS316	W	14.3	57.0	14.8	58.0	14.4	55.6	12.8	57.7	15.5	55.9	13.9	58.1	14.1	58.1	14.9	55.5
KWS317	W	14.3	57.5	14.3	58.3	14.4	56.8	13.4	58.3	15.7	56.3	14.0	58.7	14.0	59.0	14.4	55.3
KWS319	W	14.2	56.6	14.7	57.9	14.1	53.2	11.9	57.7	16.5	56.2	13.8	57.8	13.8	57.8	14.4	55.3
KWS327	W	14.2	56.4	16.2	58.5	14.4	53.2	12.1	56.5	14.9	56.7	13.6	58.1	13.9	57.4	14.3	54.5
KWS340	R	14.5	59.6	15.5	59.0	14.3	58.2	13.1	61.7	15.4	59.3	14.1	61.4	13.9	60.1	14.9	58.1
KWS356	R	14.1	58.5	14.6	58.6	13.7	56.9	13.4	59.1	14.8	58.0	13.4	59.4	13.9	59.8	14.7	57.3
KWS361	R	14.1	58.0	15.0	58.2	14.1	56.2	11.7	60.0	15.9	57.8	13.3	59.0	13.9	58.0	15.0	56.8

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Table 2. Multi-Location Performance Summary for Test Weight and Percent Moisture.

Line	Color	Overall		Hillman		Ingham		Huron		Sanilac		Tuscola		Lenawee		Isabella	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
KWS375	R	14.3	58.9	15.8	58.8	14.4	57.2	12.1	59.5	15.1	59.2	13.8	60.7	13.9	60.7	14.9	56.7
LCS3334	R	14.6	58.8	15.1	58.5	14.7	58.4	11.9	59.3	17.2	57.5	14.3	60.2	13.9	59.9	14.6	57.8
LW2068	R	14.1	57.6	14.7	58.4	14.0	57.5	13.2	58.8	15.1	55.7	13.5	58.8	13.7	58.1	14.2	55.9
LW2148	R	14.5	57.9	14.8	58.4	14.9	55.6	12.4	59.9	16.8	56.5	13.4	59.1	13.9	58.7	14.9	57.0
LW2169	R	14.2	57.7	15.9	58.5	14.0	55.7	11.8	59.5	15.0	56.5	14.1	59.4	14.1	58.8	14.7	55.5
LW2958	R	14.3	58.4	14.4	58.5	13.9	56.4	12.8	60.6	16.5	57.2	13.5	60.1	14.1	59.5	15.1	56.9
MCIA Flipper	R	14.6	57.8	15.2	58.1	14.6	56.5	13.5	58.6	15.9	57.2	13.9	59.2	13.9	58.9	15.0	56.0
MCIA Jonah	R	14.8	57.7	16.5	57.9	14.5	56.8	13.1	58.6	16.5	57.4	13.9	59.2	14.1	58.7	14.9	55.6
MCIA MARLIN	R	14.7	58.3	18.0	57.6	13.3	56.4	12.9	59.8	15.9	56.9	13.8	61.2	14.4	59.8	14.8	56.2
MCIA Red Dragon	R	14.3	57.5	14.4	58.0	14.4	56.5	13.0	58.6	15.3	56.6	13.7	58.7	14.2	58.7	14.8	56.0
MCIA Whale	R	14.8	58.1	18.2	56.9	15.0	55.9	12.7	59.6	14.7	57.7	14.3	59.8	13.8	59.5	15.1	57.3
MCIA Wharf	R	13.8	56.9	14.2	58.3	13.7	54.5	12.8	59.2	14.4	56.7	13.4	57.7	14.0	56.7	14.1	55.6
MI14W0190	W	14.2	59.1	14.8	59.0	15.0	57.6	12.2	60.9	15.8	58.6	13.4	60.4	13.9	59.8	14.6	57.8
MI16R0720	R	14.3	56.5	14.7	58.0	13.8	55.4	13.5	57.3	15.5	55.3	13.8	58.0	13.9	57.3	14.7	54.0
MI16R0898	R	14.9	58.5	16.5	57.6	15.0	56.2	13.0	59.6	16.2	59.1	14.5	59.8	14.2	59.0	15.0	57.9
MI16R0906	R	14.2	57.7	15.4	57.9	14.6	55.5	12.6	58.6	14.9	57.2	13.8	59.3	13.6	58.6	14.3	56.4
MI16W0133	W	14.3	57.0	16.3	57.4	14.6	55.2	13.1	58.7	14.5	56.1	13.4	58.6	13.5	58.1	14.6	55.0
MI16W0528	W	14.3	57.0	14.4	58.3	14.5	54.4	13.4	58.7	15.3	56.4	14.5	58.0	14.1	58.1	13.9	55.3
MI17R0357	R	14.3	57.6	15.0	57.9	14.6	56.1	12.7	58.9	15.0	56.5	14.2	58.8	14.1	58.8	14.6	56.3
MI17W0224	W	14.9	57.4	17.4	57.7	14.3	55.5	13.5	58.7	15.3	57.6	14.4	58.6	14.1	58.0	15.5	56.2
MI17W0235	W	14.2	57.0	14.7	58.2	14.7	56.1	12.8	58.5	14.9	56.0	13.6	57.6	13.8	57.8	14.8	54.9
MI18R1605	R	14.1	58.2	14.4	58.5	14.0	57.4	12.6	59.6	15.8	56.6	13.8	60.2	13.5	59.4	14.0	56.3
MI18W0200	W	14.0	57.9	14.2	58.3	14.4	56.4	13.2	60.2	14.9	56.7	13.3	58.8	13.7	59.2	14.3	56.3
MI18W0286	W	14.3	56.5	14.5	58.0	15.3	53.2	12.1	59.2	15.8	54.2	13.6	58.6	13.7	58.2	14.9	54.2
Moonlight	W	14.3	56.8	14.5	58.0	14.3	54.6	12.9	58.5	15.3	56.0	14.2	57.5	13.8	57.3	14.6	56.0
Prestyn	R	14.1	57.4	14.4	58.3	14.5	56.9	12.7	58.1	15.2	56.8	13.6	58.8	14.0	58.4	14.4	54.8
REXP1215	R	14.2	57.2	14.1	58.2	13.7	56.0	12.9	59.6	16.3	55.9	13.3	58.7	14.1	57.1	14.8	55.2

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Table 2. Multi-Location Performance Summary for Test Weight and Percent Moisture.

Line	Color	Overall		Hillman		Ingham		Huron		Sanilac		Tuscola		Lenawee		Isabella	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
RS 902	R	14.1	58.4	14.9	58.4	13.8	58.3	11.9	58.9	15.4	57.6	14.0	59.9	14.0	59.8	14.8	56.0
RS 912	R	14.7	58.0	14.6	58.6	14.5	56.5	13.6	58.8	16.9	57.0	13.7	59.7	13.8	58.8	15.4	56.4
RS 961	R	14.4	57.6	15.0	58.7	14.6	56.9	13.2	59.3	16.4	57.2	13.5	59.6	14.3	58.9	14.1	52.1
RS 977	R	14.1	57.6	14.7	58.3	14.3	57.0	13.5	59.0	14.8	56.4	13.4	59.5	13.8	57.9	14.3	55.5
RWEXP1212	R	14.6	59.6	16.1	58.8	13.9	58.3	13.6	61.4	16.0	59.3	13.8	61.4	14.1	60.3	14.8	58.0
Sunburst	R	14.6	59.8	17.2	58.4	14.2	57.5	12.3	60.6	15.5	59.5	13.7	62.2	14.1	61.4	15.4	58.7
SY 100	R	14.2	56.3	16.2	57.8	13.7	55.2	12.3	57.2	15.3	55.8	13.4	57.5	14.1	57.4	14.4	53.6
SY 547	R	13.9	58.3	14.9	58.5	14.6	56.0	11.1	59.9	13.9	56.1	13.7	60.2	13.7	59.7	14.9	57.8
SY 576	R	14.0	57.8	15.0	58.7	14.8	54.5	11.5	59.2	14.8	57.4	13.4	60.4	13.8	58.5	14.8	55.7
SY Viper	R	14.4	59.0	16.0	58.1	13.4	58.3	11.8	58.4	16.4	58.8	13.8	61.1	14.0	60.5	15.5	57.9
Tyson	R	14.4	58.0	15.5	58.7	13.6	56.7	13.1	59.4	16.5	56.5	13.9	59.5	13.8	59.0	14.6	56.2
W 300	R	14.0	57.7	14.3	58.1	14.5	57.4	12.7	58.6	15.1	56.8	13.6	59.1	13.7	58.4	13.9	55.3
W 304	R	14.5	58.5	14.9	58.6	14.5	58.1	12.5	59.9	16.2	56.9	13.8	59.8	13.7	59.8	15.5	56.5
W 305	R	14.3	58.1	15.3	58.5	15.2	56.7	11.7	58.8	15.2	57.4	13.6	60.0	13.8	59.1	15.1	56.6
W 310	R	14.4	57.5	14.6	58.0	14.8	56.3	13.1	59.2	16.2	56.5	13.9	58.9	13.9	58.4	14.5	55.1
W 313	R	14.5	58.0	14.6	58.5	14.8	56.9	12.6	58.2	16.5	57.1	13.6	59.7	13.9	58.9	15.4	56.5
W 322	R	14.1	58.3	14.9	58.7	13.5	57.1	13.0	60.2	14.8	57.1	13.3	60.2	13.8	59.6	14.8	55.7
W 324	R	14.4	57.9	15.6	58.4	14.3	57.2	12.6	59.3	15.3	56.5	13.9	59.6	14.0	58.6	14.7	56.1
Whitetail	W	14.0	57.3	14.4	58.2	14.7	55.7	12.9	59.3	14.3	55.7	13.5	58.1	14.1	58.3	14.4	55.7
	Mean	14.3	57.9	15.1	58.3	14.4	56.3	12.8	59.3	15.6	57.0	13.8	59.4	13.9	58.8	14.8	56.1
	CV	1.7	1.4	6.4	1.0	3.3	2.3	4.3	1.8	4.6	1.7	2.4	1.9	1.4	1.6	2.8	1.9
	LSD	0.3	0.4	0.6	0.5	1.3	0.8	1.7	0.8	1.7	1.1	0.6	1.3	0.4	0.4	0.8	1.5

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Table 3. Fusarium Head Blight Resistance, lodging, cephalosporium stripe, pre-harvest sprouting, plant height and flowering data.

Line	Color	Fusarium Head Blight					Lodging (0-9)**	Cephalosporium Stripe		Preharvest Sprouting (0-9)**	Plant Height (inches)	Flowering Date Days past Jan. 1	Physiological Maturity Days past Jan. 1	Grain Fill Period # of days
		Severity 2021	Incidence 2021	Index 2021	DON ppm 2021	FHB Rating*		Severity	Incidence					
13VTK59-55	R	49.7	94.8	47.1	20.5	S	1	2.1	20.2	2.6	28.5	146	171	25
AgriMAXX 498	R	42.1	94.6	39.8	23.0	S	2.5	2.1	30.8	2.9	34.6	147	178	31
AgriMAXX 502	R	42.4	94.8	40.2	29.0	S	2	2.3	46.5	2.2	31.2	146	175	29
AgriMAXX 503	R	40.6	94.6	38.5	15.7	MS	5	2.8	49.7	1.4	33.7	147	175	28
AgriMAXX 505	R	46.7	94.7	44.2	22.8	S	1.5	2.1	61.8	1.3	30.3	148	175	27
AgriMAXX 513	R	39.1	93.5	36.6	22.7	MS	5	2.3	53.9	0.8	32.7	147	175	28
AgriMAXX 516	R	45.1	94.5	42.6	18.0	MS	0	1.6	78.4	0.0	31.8	147	177	30
AgriMAXX EXP 2002	R	37.6	94.0	35.3	12.2	MR	1	2.1	64.1	1.3	30.3	146	176	30
DF 105 R	R	49.6	94.6	46.9	19.8	S	3.5	2.3	17.2	4.2	30.6	146	175	29
DF 112 R	R	54.1	94.7	51.3	36.5	VS	1.5	1.8	49.7	2.0	30.9	146	175	29
DF 119 R	R	49.6	94.8	47.0	16.8	S	2.5	2.7	46.5	2.1	31.4	146	169	23
DF 121 R	R	54.1	94.8	51.3	23.9	S	1	1.8	75.9	0.0	31.9	147	176	29
DF 131 R	R	43.6	94.6	41.2	22.5	S	2	2.2	43.4	3.2	30.9	146	177	31
DF 141 R	R	55.7	94.7	52.8	22.6	S	0	1.9	82.3	3.7	29.3	146	175	29
DF EX 2101 R	R	61.2	94.6	57.9	17.2	S	1	1.9	56.2	0.0	31.5	147	174	27
DF EX 2102 R	R	33.2	93.0	30.9	9.6	MR	1.5	2.0	51.6	0.9	31.5	146	174	28
DF EX 2103 R	R	49.7	94.8	47.2	35.1	VS	5.5	2.2	26.2	0.8	30.8	146	173	27
DF EX 2104 R	R	41.5	94.6	39.2	11.3	MR	5	2.4	91.8	4.8	32.6	148	173	25
Dyna-Gro 9002	R	49.4	94.6	46.7	22.6	S	4	1.8	58.4	2.8	32.1	146	174	28
Dyna-Gro 9070	R	36.2	94.2	34.1	15.8	MR	2	1.8	62.4	3.7	31.7	146	175	29
Dyna-Gro 9120	R	31.6	92.6	29.3	12.2	MR	0	1.8	37.3	1.5	30.2	146	177	31
Dyna-Gro 9151	R	42.2	94.6	39.9	18.7	MS	2	2.2	37.2	2.2	31.1	148	175	27
Dyna-Gro 9172	R	45.5	94.8	43.2	20.1	S	1	2.5	67.9	1.3	31.4	147	177	30
Dyna-Gro 9182	R	43.6	94.7	41.3	12.0	MS	2	2.3	52.7	1.1	33	147	175	28
Dyna-Gro WX20734	R	51.9	94.6	49.1	13.0	MS	2	1.8	70.9	2.0	30.3	146	174	28
Dyna-Gro WX20738	R	42.1	94.7	39.9	32.0	S	3	2.5	61.6	1.7	32	146	175	29
Erisman	R	37.4	94.5	35.3	11.7	MR	8	2.7	31.7	2.6	33.3	147	169	22
Harbor	R	45.2	94.7	42.8	37.1	S	7.5	2.3	39.7	1.6	32.7	146	172	26
Haubert	R	40.7	94.7	38.5	18.8	MS	2	2.8	37.7	0.2	32.4	146	175	29
HS338R	R	37.7	94.8	35.7	-	-	8	2.0	44.0	0.8	32.3	146	173	27

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Table 3. Fusarium Head Blight Resistance, lodging, cephalosporium stripe, pre-harvest sprouting, plant height and flowering data.

Line	Color	Fusarium Head Blight					Lodging (0-9)**	Cephalosporium Stripe		Preharvest Sprouting (0-9)**	Plant Height (inches)	Flowering Date Days past Jan. 1	Physiological Maturity Days past Jan. 1	Grain Fill Period # of days
		Severity 2021	Incidence 2021	Index 2021	DON ppm 2021	FHB Rating*		Severity	Incidence					
ISF 790	R	46.7	94.7	44.2	12.9	MS	7	1.6	44.3	3.8	31.5	146	174	28
KWS340	R	46.6	93.6	43.7	13.6	MS	3	2.1	42.2	0.2	31.9	146	175	29
KWS356	R	57.2	94.7	54.2	24.0	VS	0	2.4	71.0	6.5	30.7	148	177	29
KWS361	R	39.1	94.7	37.1	18.2	MS	4.5	2.2	68.0	0.8	35	147	173	26
KWS375	R	42.2	94.8	40.0	23.2	S	2.5	2.1	24.2	1.4	29.3	147	176	29
LCS3334	R	31.7	93.8	29.7	11.3	MR	6	2.2	14.5	0.2	33.6	146	175	29
LW2068	R	33.3	94.8	31.5	16.4	MR	3	2.8	13.6	1.7	31.2	146	175	29
LW2148	R	34.6	94.5	32.7	12.8	MR	6.5	3.0	70.4	0.0	34.3	147	174	27
LW2169	R	41.1	94.7	38.9	22.9	MS	0	2.6	43.6	1.4	30	147	173	26
LW2958	R	34.6	94.5	32.7	11.3	MR	2	2.2	50.8	1.4	32.4	146	171	25
MCIA Flipper	R	52.3	94.8	49.6	26.4	VS	0.5	2.0	36.3	1.3	28.9	146	173	27
MCIA Jonah	R	51.1	94.6	48.3	20.1	S	2.5	2.3	49.2	1.4	32.2	146	176	30
MCIA MARLIN	R	61.4	94.6	58.1	22.5	S	7	1.7	42.7	2.4	28	147	174	27
MCIA Red Dragon	R	49.7	92.7	46.0	19.0	S	3	2.3	52.4	1.5	36.9	146	172	26
MCIA Whale	R	47.7	94.5	45.1	18.6	S	0.5	2.9	11.0	3.8	34.6	148	176	28
MCIA Wharf	R	48.2	94.3	45.5	14.7	MS	2	2.7	27.1	4.0	27.4	146	175	29
MI16R0720	R	60.1	94.7	56.9	24.7	VS	6	2.0	52.6	2.5	29.5	147	171	24
MI16R0898	R	26.8	94.5	25.3	9.5	MR	1	2.4	28.9	0.0	36.3	148	178	30
MI16R0906	R	58.5	94.6	55.4	19.2	S	1	1.9	37.1	3.1	31.5	146	177	31
MI17R0357	R	55.6	94.7	52.7	24.8	VS	1	1.9	64.7	1.5	27.4	146	174	28
MI18R1605	R	52.0	94.3	49.0	23.0	S	0.5	1.5	38.1	2.0	30.9	146	169	23
Prestyn	R	33.1	94.7	31.3	13.9	MR	7.5	2.4	55.1	0.8	32.2	146	173	27
REXP1215	R	40.7	94.7	38.5	15.2	MS	3	2.2	49.4	2.1	29	146	172	26
RS 902	R	39.1	94.6	37.0	11.6	MR	0.5	2.1	24.0	0.2	31.2	146	175	29
RS 912	R	37.2	94.6	35.1	14.5	MR	4	2.4	58.7	0.8	33.8	148	172	24
RS 961	R	45.5	94.8	43.1	14.2	MS	1.5	2.4	54.4	0.6	30	147	176	29
RS 977	R	39.3	94.8	37.2	17.3	MS	3.5	1.8	51.2	1.5	30.9	147	176	29
RWEXP1212	R	41.4	94.8	39.2	12.0	MR	4	1.8	78.0	0.8	30.2	146	173	27
Sunburst	R	45.8	94.7	43.4	24.1	S	1	2.5	40.0	0.0	28.5	148	179	31
SY 100	R	58.6	94.7	55.5	12.4	S	4	2.3	37.7	2.7	30.7	146	177	31

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Table 3. Fusarium Head Blight Resistance, lodging, cephalosporium stripe, pre-harvest sprouting, plant height and flowering data.

Line	Color	Fusarium Head Blight					Lodging (0-9)**	Cephalosporium Stripe		Preharvest Sprouting (0-9)**	Plant Height (inches)	Flowering Date Days past Jan. 1	Physiological Maturity Days past Jan. 1	Grain Fill Period # of days
		Severity 2021	Incidence 2021	Index 2021	DON ppm 2021	FHB Rating*		Severity	Incidence					
SY 547	R	37.7	94.2	35.5	20.4	MS	2	1.1	70.4	1.3	33	146	173	27
SY 576	R	43.6	94.6	41.2	12.6	MS	3	2.4	65.3	3.7	35	149	177	28
SY Viper	R	42.2	93.6	39.5	18.1	MS	5	2.4	50.2	1.6	35.1	146	172	26
Tyson	R	41.6	94.7	39.4	11.9	MR	0.5	2.0	33.3	0.8	29.6	146	173	27
W 300	R	36.1	94.5	34.2	10.7	MR	1	2.5	30.3	0.8	31.8	146	173	27
W 304	R	37.7	94.6	35.6	12.2	MR	1	3.2	0.0	0.3	32.8	146	176	30
W 305	R	40.7	94.8	38.6	12.4	MR	2.5	2.8	19.2	1.2	31.3	147	177	30
W 310	R	40.7	94.8	38.6	18.7	MS	2	2.4	39.2	2.4	30.6	147	176	29
W 313	R	34.6	94.6	32.7	13.9	MR	5	2.1	90.3	0.8	32.4	146	173	27
W 322	R	42.1	94.8	39.9	15.0	MS	0	1.9	49.7	0.6	32.8	147	175	28
W 324	R	43.2	94.7	40.9	23.3	S	2	1.9	51.7	1.3	30	147	173	26
AC Mountain	W	47.6	94.6	45.0	36.7	VS	3.5	2.4	17.5	6.7	37.4	147	175	28
AgriMAXX EXP 2055W	W	45.1	94.6	42.6	19.9	MS	4.5	2.0	64.2	6.0	32.6	146	176	30
AgriMAXX Exp. 2050W	W	43.6	94.6	41.3	21.0	S	2.5	1.9	25.9	6.5	30.1	147	177	30
Ambassador	W	73.5	94.7	69.6	52.1	VS	3	2.1	49.6	5.4	35.7	147	175	28
DF 218 W	W	56.0	94.6	53.0	36.6	VS	0.5	2.7	14.1	5.6	31.7	148	176	28
DF 261 W	W	50.3	94.5	47.5	20.7	S	4	2.0	43.5	3.4	30.8	146	171	25
DF 271 W	W	45.2	94.8	42.9	23.3	S	1	2.4	27.7	2.8	30.4	147	173	26
Dyna-Gro 9082W	W	34.6	94.5	32.7	34.0	MS	0	1.9	70.6	6.2	30.7	148	177	29
Dyna-Gro 9242W	W	33.1	94.6	31.3	21.7	MS	0	2.3	58.2	4.2	32.9	147	176	29
Dyna-Gro WX19799W	W	51.5	94.6	48.8	20.9	S	2.5	1.9	60.3	6.3	30.3	147	176	29
Dyna-Gro WX21791W	W	39.1	94.2	36.8	36.1	S	0	1.9	65.4	6.8	30	147	176	29
ISF 1001	W	46.6	94.7	44.2	31.9	S	5	2.2	71.8	5.8	31.5	146	174	28
ISF 1115	W	37.6	94.5	35.5	17.8	MS	2.5	2.9	35.9	4.3	28.9	146	173	27
Jupiter	W	66.0	94.5	62.4	44.1	VS	2	2.4	37.1	4.1	30.8	147	177	30
KWS305	W	43.6	94.6	41.3	26.7	S	8	2.6	34.8	3.3	32.4	147	176	29
KWS308	W	42.1	94.5	39.8	17.5	MS	8.5	2.6	52.0	2.2	31.7	147	175	28
KWS316	W	53.5	94.8	50.8	24.7	S	3	2.5	47.7	6.4	30.7	146	174	28
KWS317	W	43.7	94.5	41.3	18.1	MS	3	2.1	42.2	4.7	30.8	146	174	28
KWS319	W	46.7	94.8	44.3	36.1	S	4	1.8	62.1	4.6	31	147	172	25

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Table 3. Fusarium Head Blight Resistance, lodging, cephalosporium stripe, pre-harvest sprouting, plant height and flowering data.

Line	Color	Fusarium Head Blight					Lodging (0-9)**	Cephalosporium Stripe		Preharvest Sprouting (0-9)**	Plant Height (inches)	Flowering Date Days past Jan. 1	Physiological Maturity Days past Jan. 1	Grain Fill Period # of days
		Severity 2021	Incidence 2021	Index 2021	DON ppm 2021	FHB Rating*		Severity	Incidence					
KWS327	w	61.6	94.9	58.5	51.9	VS	4.5	2.3	45.9	7.0	29.4	147	173	26
MI14W0190	w	19.8	94.6	18.7	21.5	MS	0.5	2.6	33.0	4.6	32.3	146	172	26
MI16W0133	w	58.6	94.7	55.5	55.0	VS	2	2.0	38.9	6.3	31.1	146	174	28
MI16W0528	w	63.0	94.8	59.7	28.5	VS	4.5	2.2	27.2	4.3	32.3	147	176	29
MI17W0224	w	60.0	94.5	56.7	32.0	VS	3	2.4	11.9	5.5	29.9	146	174	28
MI17W0235	w	64.6	94.7	61.2	36.9	VS	5	2.2	43.9	4.6	34	147	176	29
MI18W0200	w	73.6	95.0	69.9	48.4	VS	6	2.4	43.7	3.7	29.4	147	171	24
MI18W0286	w	65.0	94.6	61.5	47.8	VS	0	1.8	61.4	5.6	30.9	147	178	31
Moonlight	w	66.1	94.6	62.5	31.0	VS	7	2.4	37.7	2.3	32.2	146	173	27
Whitetail	w	49.7	94.4	47.0	29.8	S	5	1.5	61.5	6.8	31.8	146	173	27
	Mean	46.1	94.5				2.9	2.2	46.6	2.7	31.6	146.6	174.5	27.9
	CV	21.5	0.4				76.8	16.3	39.4	75.5	6.0	0.5	1.2	
	LSD	3.2	0.7				3.8	0.7	34.5	3.2	2.3	1.0	3.0	

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Table 4. Conventional (Conv.) vs High Management (HM) Yield Results.

Line	Color	Tuscola High Management			Tuscola Conventional Management			Tuscola HM - Conv.		Isabella High Management			Isabella Conventional Management			Isabella HM - Conv.	
		Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank	Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank
13VTK59-55	R	91.4	13.7	61.3	83.8	14.6	60.4	7.6	42	103.6	14.9	57.3	88.2	15.4	56.1	15.4	3
AC Mountain	W	86.8	13.3	57.8	89.5	14.1	57.6	-2.8	96	96.5	14.8	55.0	91.5	15.0	54.2	5.0	81
AgriMAXX 498	R	96.2	14.4	59.0	93.6	14.5	58.9	2.6	74	105.3	14.9	55.4	97.4	16.0	53.9	7.9	54
AgriMAXX 502	R	101.4	13.9	59.6	88.6	14.1	59.0	12.8	19	103.4	15.0	55.4	99.7	15.1	54.4	3.7	92
AgriMAXX 503	R	105.7	14.2	60.2	93.6	14.3	58.9	12.1	21	107.6	14.6	56.4	99.6	15.3	55.2	8.0	51
AgriMAXX 505	R	101.9	13.6	61.4	100.4	13.7	61.2	1.5	84	104.2	14.6	57.1	94.0	14.6	55.4	10.2	30
AgriMAXX 513	R	97.3	13.7	60.7	95.0	14.1	59.5	2.3	76	104.6	14.5	56.7	95.8	15.1	55.3	8.8	39
AgriMAXX 516	R	100.0	14.1	59.3	89.0	14.1	58.4	11.0	24	107.8	14.3	55.8	99.8	15.0	54.8	8.0	50
AgriMAXX EXP 2002	R	95.1	14.0	60.8	83.2	14.1	60.6	12.0	22	103.6	15.1	57.5	93.4	15.4	55.9	10.3	27
AgriMAXX EXP 2055W	W	95.3	14.0	58.0	93.3	14.2	57.6	2.1	80	97.1	14.9	55.9	91.5	15.2	54.5	5.6	76
AgriMAXX Exp. 2050W	W	114.7	13.6	58.3	95.1	14.2	58.2	19.6	2	109.2	14.3	55.5	100.6	14.5	54.7	8.7	41
Ambassador	W	87.1	13.5	57.0	83.6	13.5	56.4	3.4	68	100.5	14.3	54.9	94.9	14.6	54.2	5.7	75
DF 105 R	R	97.5	13.7	58.8	93.6	14.1	58.1	3.9	64	101.7	14.7	55.6	93.1	15.0	54.1	8.6	42
DF 112 R	R	97.0	14.0	58.7	94.8	14.2	58.5	2.2	77	105.5	14.3	55.2	94.2	14.8	53.8	11.3	17
DF 119 R	R	97.9	13.9	59.6	94.4	14.0	59.0	3.5	65	104.0	15.1	56.7	96.9	15.3	55.7	7.1	59
DF 121 R	R	107.3	13.0	56.3	100.0	14.0	59.0	7.3	44	110.4	15.5	56.7	106.0	15.1	55.1	4.4	86
DF 131 R	R	101.2	13.7	59.7	96.6	14.4	58.6	4.6	61	106.2	14.6	56.8	97.8	14.6	54.7	8.5	44
DF 141 R	R	90.2	13.2	60.0	82.7	14.0	58.9	7.5	43	102.4	14.5	55.8	95.4	15.2	54.5	7.0	60
DF 218 W	W	95.7	14.0	60.0	88.5	14.2	58.2	7.2	45	100.9	15.2	55.7	98.5	15.5	56.0	2.4	96
DF 261 W	W	97.5	13.9	58.2	92.8	14.0	58.0	4.7	59	98.7	15.1	55.5	90.1	15.4	55.0	8.5	43
DF 271 W	W	111.4	13.4	59.4	95.3	14.3	58.0	16.1	6	108.1	14.3	55.0	101.2	14.8	54.0	7.0	61
DF EX 2101 R	R	100.4	13.5	60.7	92.2	14.2	59.8	8.3	38	105.3	14.8	55.7	98.9	14.6	54.5	6.4	67
DF EX 2102 R	R	97.3	13.7	60.1	83.1	14.2	59.5	14.2	13	105.3	15.2	57.2	92.7	15.5	56.1	12.6	12
DF EX 2103 R	R	97.5	14.0	57.1	92.1	14.0	56.8	5.3	57	110.3	14.3	53.9	99.2	14.6	52.8	11.1	21
DF EX 2104 R	R	99.0	13.8	61.0	93.9	14.3	60.5	5.1	58	103.6	14.6	58.3	96.7	14.7	57.3	7.0	62
Dyna-Gro 9002	R	96.5	14.2	59.1	102.3	14.7	58.6	-5.8	98	105.8	14.5	55.6	98.9	15.6	54.7	6.9	63
Dyna-Gro 9070	R	106.9	13.8	60.1	87.0	14.0	58.3	19.8	1	107.6	15.1	55.6	96.7	15.9	53.9	10.9	25
Dyna-Gro 9082W	W	89.9	13.6	58.7	90.1	13.7	58.3	-0.2	91	106.1	14.7	56.6	94.8	14.9	54.6	11.2	18
Dyna-Gro 9120	R	91.5	13.8	61.6	90.0	14.0	61.3	1.5	83	106.3	15.4	57.7	99.9	15.4	56.5	6.3	68
Dyna-Gro 9151	R	100.6	14.5	60.9	86.9	13.9	60.7	13.7	14	105.4	14.2	57.4	95.4	15.2	55.8	10.0	32
Dyna-Gro 9172	R	102.4	13.9	60.0	91.4	14.0	59.0	11.0	23	107.2	14.5	55.9	99.6	15.4	54.6	7.6	57

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Table 4. Conventional (Conv.) vs High Management (HM) Yield Results.

Line	Color	Tuscola High Management			Tuscola Conventional Management			Tuscola HM - Conv.		Isabella High Management			Isabella Conventional Management			Isabella HM - Conv.	
		Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank	Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank
Dyna-Gro 9182	R	94.5	14.5	59.8	88.5	14.1	58.5	5.9	54	104.5	15.6	55.7	100.4	15.5	55.4	4.1	91
Dyna-Gro 9242W	W	90.2	13.7	59.2	97.9	14.3	58.4	-7.7	100	103.2	15.5	56.6	94.5	15.8	55.8	8.7	40
Dyna-Gro WX19799W	W	90.3	13.6	58.0	88.9	13.8	57.7	1.4	85	100.9	14.8	54.3	94.7	15.0	52.9	6.3	70
Dyna-Gro WX20734	R	100.7	13.7	59.9	92.7	14.5	58.7	8.0	41	105.4	15.2	56.2	101.0	16.0	54.9	4.4	85
Dyna-Gro WX20738	R	92.8	13.4	60.8	90.2	13.5	60.1	2.6	73	103.6	15.3	56.2	95.6	15.5	55.0	7.9	53
Dyna-Gro WX21791W	W	94.7	14.2	60.3	86.7	14.1	59.2	8.1	39	104.1	14.8	57.1	94.4	15.3	56.2	9.6	36
Erismen	R	88.0	13.8	60.3	77.2	14.0	59.1	10.7	26	91.0	14.0	57.5	87.7	15.3	56.2	3.3	94
Harbor	R	87.5	13.5	59.1	84.7	13.9	58.5	2.8	71	91.9	15.1	56.0	91.0	16.0	55.2	0.9	97
Haubert	R	98.6	14.3	59.7	89.0	14.1	59.4	9.6	32	104.4	15.4	55.7	99.4	15.5	55.0	5.0	79
HS338R	R	97.2	14.2	60.0	94.5	14.3	59.5	2.7	72	104.7	14.8	57.1	100.5	15.7	55.9	4.2	90
ISF 1001	W	93.4	14.0	57.7	91.4	14.1	57.6	2.0	81	100.2	14.7	55.3	87.1	15.2	54.7	13.1	10
ISF 1115	W	102.0	14.2	58.6	101.0	14.4	58.2	1.0	88	107.5	14.0	55.3	93.9	14.7	54.0	13.7	8
ISF 790	R	104.6	14.1	60.6	90.1	14.1	59.9	14.5	12	109.7	15.8	55.4	98.6	15.6	55.3	11.1	22
Jupiter	W	100.5	13.7	59.0	93.8	14.0	58.2	6.7	50	106.7	14.9	56.4	98.4	15.3	55.5	8.2	47
KWS305	W	91.6	13.7	60.7	83.6	13.8	59.3	8.0	40	96.8	14.9	56.5	88.9	15.2	55.5	7.8	55
KWS308	W	101.4	14.7	59.1	93.1	14.6	59.6	8.3	37	97.5	14.3	56.1	84.2	15.0	55.0	13.4	9
KWS316	W	92.3	13.9	58.1	85.4	14.5	57.4	6.9	49	95.8	14.9	55.5	87.6	15.5	54.3	8.2	46
KWS317	W	99.0	14.0	58.7	106.0	14.3	58.1	-6.9	99	104.4	14.4	55.3	99.9	14.8	54.2	4.5	83
KWS319	W	96.7	13.8	57.8	90.9	13.8	57.4	5.8	55	101.3	14.4	55.3	97.0	14.7	54.8	4.3	88
KWS327	W	97.7	13.6	58.1	93.1	13.9	57.2	4.6	60	92.3	14.3	54.5	86.6	14.6	53.6	5.7	74
KWS340	R	93.2	14.1	61.4	94.7	14.5	60.7	-1.6	95	106.1	14.9	58.1	98.1	15.8	56.5	8.1	49
KWS356	R	92.6	13.4	59.4	86.1	14.0	58.8	6.5	52	100.8	14.7	57.3	96.4	15.1	54.8	4.4	84
KWS361	R	107.7	13.3	59.0	92.6	14.2	58.7	15.1	7	105.3	15.0	56.8	100.0	15.6	55.5	5.3	77
KWS375	R	87.3	13.8	60.7	84.1	13.9	60.6	3.2	70	104.3	14.9	56.7	92.1	15.3	55.1	12.2	13
LCS3334	R	96.2	14.3	60.2	94.3	14.9	59.5	1.9	82	104.0	14.6	57.8	97.3	15.5	56.6	6.7	64
LW2068	R	102.7	13.5	58.8	93.3	14.0	58.3	9.4	33	107.7	14.2	55.9	101.9	14.5	54.5	5.8	72
LW2148	R	99.9	13.4	59.1	92.7	14.2	59.3	7.2	46	103.0	14.9	57.0	96.4	15.4	55.0	6.5	66
LW2169	R	98.6	14.1	59.4	99.8	14.3	58.8	-1.1	94	108.6	14.7	55.5	100.3	15.0	54.5	8.3	45
LW2958	R	95.1	13.5	60.1	90.8	13.8	59.0	4.3	63	103.0	15.1	56.9	93.5	15.2	55.9	9.4	37
MCIA Flipper	R	99.6	13.9	59.2	99.5	14.0	59.4	0.1	90	108.6	15.0	56.0	102.9	15.4	55.0	5.7	73
MCIA Jonah	R	91.7	13.9	59.2	89.4	14.4	58.8	2.4	75	103.4	14.9	55.6	99.1	15.5	54.6	4.4	87

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Table 4. Conventional (Conv.) vs High Management (HM) Yield Results.

Line	Color	Tuscola High Management			Tuscola Conventional Management			Tuscola HM - Conv.		Isabella High Management			Isabella Conventional Management			Isabella HM - Conv.	
		Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank	Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank
MCIA MARLIN	R	96.3	13.8	61.2	97.2	14.3	59.8	-1.0	93	108.2	14.8	56.2	105.4	16.0	55.2	2.8	95
MCIA Red Dragon	R	101.1	13.7	58.7	87.5	14.4	57.7	13.5	16	107.7	14.8	56.0	93.6	15.1	55.2	14.1	7
MCIA Whale	R	86.7	14.3	59.8	87.2	14.2	59.9	-0.6	92	104.4	15.1	57.3	86.2	15.9	55.3	18.2	1
MCIA Wharf	R	105.3	13.4	57.7	96.6	13.7	57.2	8.7	36	108.8	14.1	55.6	93.7	14.5	54.2	15.0	4
MI14W0190	W	90.3	13.4	60.4	80.1	14.4	59.1	10.2	29	100.5	14.6	57.8	85.7	15.8	55.9	14.8	6
MI16R0720	R	103.4	13.8	58.0	86.4	14.3	56.9	17.0	5	101.0	14.7	54.0	101.0	15.1	53.0	0.1	98
MI16R0898	R	93.0	14.5	59.8	89.5	14.4	59.4	3.5	65	103.8	15.0	57.9	92.7	15.5	56.5	11.1	23
MI16R0906	R	103.6	13.8	59.3	89.9	14.0	57.7	13.7	14	104.8	14.3	56.4	94.7	14.7	55.2	10.1	31
MI16W0133	W	92.5	13.4	58.6	89.0	14.2	57.5	3.5	67	103.3	14.6	55.0	95.7	15.1	54.0	7.6	57
MI16W0528	W	97.7	14.5	58.0	97.2	14.2	57.6	0.5	89	100.1	13.9	55.3	90.4	14.6	54.0	9.7	35
MI17R0357	R	103.1	14.2	58.8	88.2	13.9	58.4	15.0	8	106.7	14.6	56.3	97.7	15.3	54.6	9.0	38
MI17W0224	W	102.1	14.4	58.6	91.4	14.5	58.2	10.7	27	98.2	15.5	56.2	93.9	15.5	55.4	4.3	88
MI17W0235	W	100.9	13.6	57.6	86.1	14.3	57.2	14.8	10	106.6	14.8	54.9	96.3	14.8	54.3	10.3	26
MI18R1605	R	99.7	13.8	60.2	88.9	12.9	56.8	10.8	25	104.0	14.0	56.3	92.3	15.1	54.7	11.7	14
MI18W0200	W	95.0	13.3	58.8	77.8	13.8	56.7	17.2	4	101.9	14.3	56.3	87.0	14.2	55.3	14.9	5
MI18W0286	W	98.3	13.6	58.6	92.8	14.2	56.9	5.5	56	100.4	14.9	54.2	87.8	15.3	52.7	12.6	11
Moonlight	W	97.0	14.2	57.5	84.7	14.5	56.7	12.3	20	98.8	14.6	56.0	90.7	15.2	54.7	8.1	48
Prestyn	R	90.7	13.6	58.8	89.6	13.7	58.3	1.1	86	100.9	14.4	54.8	89.6	14.9	54.2	11.4	16
REXP1215	R	108.0	13.3	58.7	93.4	14.4	57.7	14.6	11	103.9	14.8	55.2	105.7	15.1	53.9	-1.8	100
RS 902	R	96.4	14.0	59.9	87.3	14.0	59.5	9.1	34	107.4	14.8	56.0	96.1	15.6	55.0	11.2	18
RS 912	R	104.1	13.7	59.7	84.5	14.2	59.0	19.6	3	103.6	15.4	56.4	95.6	15.6	54.7	7.9	52
RS 961	R	85.0	13.5	59.6	82.9	14.2	59.1	2.1	79	109.5	14.1	52.1	93.3	14.9	55.3	16.2	2
RS 977	R	94.6	13.4	59.5	97.5	14.3	58.3	-2.9	97	103.8	14.3	55.5	97.1	15.4	54.0	6.7	65
RWEXP1212	R	100.2	13.8	61.4	93.2	13.9	60.9	6.9	48	107.8	14.8	58.0	104.4	15.9	56.6	3.4	93
Sunburst	R	96.3	13.7	62.2	89.2	14.0	61.4	7.1	47	103.5	15.4	58.7	97.2	15.8	58.2	6.3	69
SY 100	R	106.0	13.4	57.5	99.3	14.3	56.6	6.7	51	105.0	14.4	53.6	100.0	15.5	52.0	5.0	80
SY 547	R	101.6	13.7	60.2	97.2	14.2	59.3	4.4	62	108.4	14.9	57.8	98.2	15.5	56.0	10.2	28
SY 576	R	91.0	13.4	60.4	87.7	13.7	59.8	3.3	69	100.3	14.8	55.7	92.6	15.0	54.9	7.7	56
SY Viper	R	90.5	13.8	61.1	88.3	14.5	60.1	2.2	77	106.4	15.5	57.9	100.6	16.2	56.9	5.8	71
Tyson	R	100.0	13.9	59.5	93.8	14.1	58.6	6.2	53	108.6	14.6	56.2	98.3	15.1	54.2	10.2	29

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Table 4. Conventional (Conv.) vs High Management (HM) Yield Results.

Line	Color	Tuscola High Management			Tuscola Conventional Management			Tuscola HM - Conv.		Isabella High Management			Isabella Conventional Management			Isabella HM - Conv.	
		Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank	Bu/A	% Moist	TW	Bu/A	% Moist	TW	Difference	Rank
W 300	R	94.3	13.6	59.1	84.7	14.2	58.1	9.6	31	92.6	13.9	55.3	93.6	15.3	53.9	-1.1	99
W 304	R	93.4	13.8	59.8	92.4	14.4	59.2	1.0	87	106.3	15.5	56.5	96.3	15.6	54.8	10.0	33
W 305	R	101.8	13.6	60.0	86.8	14.4	58.9	14.9	9	105.1	15.1	56.6	93.7	15.4	54.8	11.5	15
W 310	R	103.8	13.9	58.9	94.0	14.1	58.3	9.9	30	102.3	14.5	55.1	97.2	14.8	54.8	5.1	78
W 313	R	101.6	13.6	59.7	88.1	14.2	58.9	13.4	17	100.8	15.4	56.5	96.1	15.4	54.7	4.7	82
W 322	R	102.8	13.3	60.2	92.3	13.8	59.7	10.6	28	107.9	14.8	55.7	98.1	15.0	54.5	9.9	34
W 324	R	102.7	13.9	59.6	89.6	14.3	58.5	13.2	18	112.4	14.7	56.1	101.4	15.1	54.7	11.1	24
Whitetail	W	96.9	13.5	58.1	88.0	14.2	57.0	8.9	35	104.0	14.4	55.7	92.9	14.8	54.7	11.2	20
	Mean	97.6	13.8	59.4	90.8	14.1	58.7	6.7		103.8	14.8	56.1	95.7	15.2	54.9	8.1	
	CV	5.9	2.4	1.9	5.8	2.0	1.9			4.0	2.8	1.9	4.8	2.7	1.8		
	LSD	9.3	0.6	1.3	7.2	0.9	1.2			2.3	1.5	0.8	3.8	0.8	0.9		

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Table 5. Milling and baking qualities.

Line	Color	NIR Kernel Protein (at 12%)	SKCS Kernel Hardness	Adjusted Flour Yield (%)	Softness Equivalent (%)	Flour Protein (at 14%)	Lactic Acid SRC (%)	Sodium Carbonate SRC (%)	Cookie Diameter (cm)
13VTK59-55	R	12.1	30.7	66.1	51.8	9.9	117.3	72.7	18.5
AC Mountain	W	11.1	14.5	66.5	57.3	9.1	101.3	67.5	19.6
AgriMAXX 498	R	10.4	22.6	69.8	58.7	8.4	116.4	67.8	20.0
AgriMAXX 502	R	12.3	19.0	65.1	57.2	9.6	150.3	70.7	18.8
AgriMAXX 503	R	11.5	18.4	65.7	57.4	9.4	139.8	72.6	19.0
AgriMAXX 505	R	12.5	12.7	64.3	60.9	10.1	172.4	79.0	17.9
AgriMAXX 513	R	12.5	69.3	66.3	39.7	10.8	139.9	88.1	16.3
AgriMAXX 516	R	10.7	27.9	67.7	59.2	8.6	116.4	71.9	19.9
AgriMAXX EXP 2002	R	12.3	29.2	65.3	57.6	10.3	145.3	71.3	18.7
AgriMAXX EXP 2055W	W	11.6	26.5	68.2	51.8	9.3	127.3	72.8	18.9
AgriMAXX Exp. 2050W	W	11.8	11.7	68.1	57.0	9.6	137.7	70.6	18.6
Ambassador	W	11.7	32.6	66.7	47.8	9.1	125.6	75.6	18.6
DF 105 R	R	11.5	25.5	66.8	58.8	9.6	112.9	67.7	18.9
DF 112 R	R	11.7	14.8	66.8	59.9	9.4	126.5	70.4	19.7
DF 119 R	R	11.6	7.4	65.2	59.8	9.5	138.6	73.9	19.0
DF 121 R	R	11.3	28.4	66.2	58.1	8.7	138.0	70.7	18.8
DF 131 R	R	11.3	26.6	67.2	58.5	9.2	103.5	71.7	18.9
DF 141 R	R	11.7	12.1	66.8	58.1	9.4	124.3	71.4	19.0
DF 218 W	W	12.0	30.7	65.2	49.6	9.3	127.3	79.0	18.2
DF 261 W	W	11.8	22.4	67.7	51.9	9.3	164.9	72.8	19.1
DF 271 W	W	11.2	22.6	67.8	54.0	9.0	109.8	72.2	19.1
DF EX 2101 R	R	12.0	18.5	63.9	57.9	9.8	153.2	74.2	18.6
DF EX 2102 R	R	11.4	25.5	64.8	56.4	9.1	122.0	71.2	19.6
DF EX 2103 R	R	10.9	12.6	67.1	63.5	9.0	128.6	68.7	19.6
DF EX 2104 R	R	12.1	24.7	65.3	54.6	9.3	122.0	72.4	18.9
Dyna-Gro 9002	R	11.7	5.6	65.7	59.6	9.4	141.7	68.7	19.3
Dyna-Gro 9070	R	12.1	18.2	64.9	56.4	9.7	151.5	69.7	18.7
Dyna-Gro 9082W	W	11.0	35.2	66.3	55.1	9.0	117.2	71.5	18.9
Dyna-Gro 9120	R	12.3	14.0	64.7	61.4	9.7	165.8	71.7	18.7
Dyna-Gro 9151	R	12.0	13.5	64.3	59.4	9.8	163.9	78.8	18.0
Dyna-Gro 9172	R	11.1	20.8	67.2	59.1	9.3	134.0	71.6	19.2
Dyna-Gro 9182	R	12.1	22.5	65.3	56.2	9.8	136.3	70.2	19.0
Dyna-Gro 9242W	W	11.0	26.6	65.8	55.1	8.8	121.9	71.4	19.1
Dyna-Gro WX19799W	W	11.7	16.7	65.8	57.9	9.5	140.5	71.3	18.7
Dyna-Gro WX20734	R	10.7	21.1	66.5	60.1	8.8	123.3	70.3	19.2
Dyna-Gro WX20738	R	11.3	17.3	65.1	58.2	9.3	136.2	72.5	19.4
Dyna-Gro WX21791W	W	12.4	26.2	66.0	51.5	9.9	127.9	69.7	19.1
Erisman	R	12.8	13.3	67.0	56.0	10.5	132.2	67.4	18.4
Harbor	R	13.4	12.1	65.4	53.6	10.5	129.0	70.2	18.9
Haubert	R	11.5	9.4	67.8	62.7	9.4	131.7	69.6	19.5
HS338R	R	---	---	---	---	---	---	---	---
ISF 1001	W	11.7	24.5	67.3	51.5	9.3	130.1	73.0	19.2
ISF 1115	W	11.3	16.0	67.6	56.3	9.2	134.6	70.6	18.8
ISF 790	R	11.3	19.1	67.3	56.9	9.1	128.2	71.6	19.2
Jupiter	W	10.7	13.1	68.2	61.1	8.7	119.4	71.4	18.9
KWS305	W	11.7	23.3	63.9	56.4	8.9	110.5	75.8	18.7
KWS308	W	10.9	20.2	67.7	62.7	8.7	124.8	72.6	19.2
KWS316	W	11.0	20.9	68.1	52.0	9.0	127.8	71.3	18.8
KWS317	W	11.9	21.8	67.6	53.5	9.4	129.0	70.7	19.5
KWS319	W	11.8	24.3	64.8	53.1	9.3	126.4	71.4	19.3
KWS327	W	10.9	21.7	66.8	58.9	9.0	108.3	72.3	19.4
KWS340	R	11.5	21.4	66.8	58.2	9.6	144.0	72.1	19.1
KWS356	R	11.4	29.3	64.8	53.5	8.9	98.3	73.3	18.9
KWS361	R	11.9	24.4	67.1	54.3	9.6	97.9	69.1	19.5
KWS375	R	12.4	20.5	64.7	57.5	9.9	135.1	71.5	18.8
LCS3334	R	10.7	17.7	66.7	59.0	9.1	107.1	72.1	19.3

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Table 5. Milling and baking qualities.

Line	Color	NIR Kernel Protein (at 12%)	SKCS Kernel Hardness	Adjusted Flour Yield (%)	Softness Equivalent (%)	Flour Protein (at 14%)	Lactic Acid SRC (%)	Sodium Carbonate SRC (%)	Cookie Diameter (cm)
LW2068	R	11.7	25.7	65.0	49.5	9.7	119.2	68.7	19.0
LW2148	R	11.8	21.9	65.6	54.9	9.4	131.2	71.4	19.3
LW2169	R	10.4	11.3	67.2	64.8	8.5	135.8	71.8	19.3
LW2958	R	12.0	10.5	65.1	62.1	10.0	152.1	70.2	18.9
MCIA Flipper	R	11.3	15.0	67.1	58.9	8.7	110.9	68.9	19.4
MCIA Jonah	R	10.9	10.9	67.8	62.4	8.8	130.4	66.8	20.2
MCIA MARLIN	R	11.0	23.7	67.7	56.1	8.7	121.6	72.3	19.4
MCIA Red Dragon	R	11.7	16.9	66.4	54.5	9.2	131.4	72.0	19.2
MCIA Whale	R	12.0	28.7	67.0	54.7	9.2	114.3	72.0	18.6
MCIA Wharf	R	10.8	7.8	65.6	57.8	8.6	107.8	70.2	19.7
MI14W0190	W	12.1	23.0	65.6	53.1	9.7	131.5	68.3	19.0
MI16R0720	R	11.1	3.6	65.7	59.7	8.9	150.6	70.6	18.8
MI16R0898	R	10.6	28.2	66.5	57.7	8.4	110.3	70.5	19.1
MI16R0906	R	10.3	26.0	66.3	56.9	8.3	126.1	72.1	19.1
MI16W0133	W	11.5	17.8	64.9	60.3	9.4	122.7	73.2	18.9
MI16W0528	W	10.7	10.8	66.2	61.5	8.7	140.2	69.8	19.8
MI17R0357	R	11.0	26.8	65.8	52.4	8.5	107.6	69.6	19.0
MI17W0224	W	11.0	14.0	65.6	59.7	8.7	121.0	74.1	18.9
MI17W0235	W	11.3	26.8	65.6	54.5	8.9	107.4	70.8	19.0
MI18R1605	R	11.7	22.1	64.9	55.0	9.4	135.8	73.4	18.5
MI18W0200	W	13.3	46.1	63.9	34.3	11.0	122.0	89.6	16.7
MI18W0286	W	11.5	27.1	65.4	53.3	9.1	110.4	75.7	18.3
Moonlight	W	12.4	25.4	66.1	53.1	9.9	126.7	71.8	18.9
Prestyn	R	12.4	21.6	66.2	55.9	10.3	128.4	65.8	19.4
REXP1215	R	10.8	9.3	64.4	64.2	9.0	161.7	73.7	18.6
RS 902	R	11.2	7.7	68.4	63.1	9.3	129.2	69.2	19.1
RS 912	R	11.7	19.7	65.6	55.7	9.3	126.7	70.9	18.9
RS 961	R	12.4	60.4	65.9	44.8	10.9	116.5	80.4	17.6
RS 977	R	11.9	25.8	64.8	50.4	9.8	119.0	68.6	19.0
RWEXP1212	R	11.7	26.3	67.2	55.6	9.4	125.4	72.1	19.3
Sunburst	R	12.3	41.2	61.2	49.5	10.1	129.1	80.1	17.7
SY 100	R	10.4	9.4	68.4	61.5	8.4	118.3	69.4	20.0
SY 547	R	11.3	29.7	64.9	54.8	9.2	120.5	72.9	19.0
SY 576	R	11.4	41.4	63.6	52.1	9.2	107.0	75.9	19.0
SY Viper	R	11.8	15.6	65.6	56.1	9.3	120.6	78.5	19.2
Tyson	R	11.4	19.1	66.7	62.6	9.4	136.4	70.7	19.4
W 300	R	11.6	24.1	65.9	56.3	9.8	125.8	65.9	19.4
W 304	R	11.4	15.7	68.7	61.7	9.3	126.6	68.7	19.8
W 305	R	12.1	58.8	66.7	44.7	10.7	112.1	81.0	17.4
W 310	R	12.1	29.7	64.8	48.4	9.7	114.7	68.5	18.5
W 313	R	11.9	30.6	66.0	52.0	9.4	119.8	71.0	19.4
W 322	R	11.5	29.0	64.2	55.8	9.3	138.9	75.4	18.3
W 324	R	11.1	21.4	65.8	59.3	9.1	132.9	72.0	19.0
Whitetail	W	11.7	22.3	66.8	56.9	9.2	112.4	72.0	18.8

Commercially Available Varieties entered in the 2021 Michigan State University Wheat Performance Trials

AgriMAXX Wheat Company

AgriMAXX 2050W
AgriMAXX 2055W
AgriMAXX 498
AgriMAXX 502
AgriMAXX 503
AgriMAXX 505
AgriMAXX 513
AgriMAXX 516
AgriMAXX EXP 2002

AgriPro

SY 100
SY 547
SY 576
SY Viper

Albert Lea Seeds

Erisman
LCS3334

DF Seeds Inc.

AMBASSADOR
DF 105 R
DF 112 R
DF 119 R
DF 121 R
DF 131 R
DF 218 W
DF 261 W
DF 271 W
DF 141 R
DF EX 2101 R
DF EX 2102 R
DF EX 2103 R
DF EX 2104 R

Dyna-Gro Seed

9002
9070
9120
9151
9172
9182

9082W
9242W
WX19799W
WX20734
WX20738
WX21791W

Harrington Seeds Inc.

HS338R

Irrer Seed Farm

ISF 790
REXP1215
RWEXP1212
ISF 1001
ISF 1115

KWS Cereals

KWS305
KWS308
KWS316
KWS317
KWS319
KWS327
KWS340
KWS356
KWS361
KWS375

Local Seed Company LLC

LW2068
LW2148
LW2169
LW2958

Michigan Crop Improvement

Association

AC Mountain
Harbor
Jupiter
MCIA MARLIN
MCIA Flipper
MCIA Jonah
MCIA Red Dragon

MCIA Whale
MCIA Wharf
Moonlight
Sunburst
Whitetail

Michigan State University

MI14W0190
MI16R0720
MI16R0898
MI16R0906
MI16W0133
MI16W0528
MI17R0357
MI17W0224
MI17W0235
MI18R1605
MI18W0200
MI18W0286

Rupp Seeds Inc.

RS 902
RS 912
RS 961
RS 977

Synergy Ag

Haubert
Prestyn
Tyson

Wellman Seeds Inc.

W 300
W 304
W 305
W 310
W 313
W 322
W 324
WEX 106

VCIA

13VTK59-55

Organizations Participating in the 2021 Michigan State University Wheat Performance Trials

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Mascoutah, IL 62258
Phone: 855-629-9432

Agripro
1521 N. Convent St. Suite 200
Bourbonnais, IL 60914
Phone: 815-370-3291

Albert Lea Seed
1414 W. Main
PO Box 127
Albert Lea, MN 56007
Phone: 800-352-5247

D.F. Seeds, Inc.
P.O. Box 159
905 S. Jackson St.
Dansville, MI 48819
Phone: 517-623-6161

Dyna-Gro Seed
4648 S Garfield Rd
Auburn, MI 48611
Phone: 989-662-0000

Harrington Seeds, Inc.
2586 Bradleyville Road
Reese, MI 48757
Phone: 989-868-4750

Irrer Seed Farm
9621 Dexter Trail
Fowler, MI 48835
Phone: 517-719-5710

KWS Cereals
4101 Colleen Drive
Champaign, IL 61822
Phone: 330-439-3341

Local Seed Company LLC
802 Rozelle St
Memphis, TN 38104
Phone: 901-260-6000

Michigan Crop Improvement
Association
2905 Jolly Road
Okemos, MI 48864
Phone: 517-332-3546

Rupp Seeds, Inc.
17919 Co Rd. B
Wauseon, OH 43567
Phone: 419-337-1841

Synergy Ag
6150 N. Co Rd. 33
Tiffin, OH 44883
Phone: 419-355-6708

Virginia Crop Improvement Association (VCIA)
9225 Atlee Branch Lane
Mechanicsville, VA 23116
Phone: 804-746-4884

Wellman Seeds, Inc.
23778 Delphos Jennings Road
Delphos, OH 45833
Phone: 800-717-7333