

# 2022 Michigan State Wheat Performance Trials

Photo: Wheat Performance Trials, Tuscola County



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# 2022 Michigan State Wheat Performance Trials

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Planting last fall was a bit of a challenge. Frequent rainfall slowed drybean and soybean harvest which delayed wheat planting in some areas. Heavy rainfall after planting caused water stress including yellowing of plants and drown out in low areas of the field. Areas with wheel traffic from planting were affected the most. Fields planted that were able to get plants established before heavy rains did very well. In some cases, this was early planted wheat – in other cases it was later planted wheat. It just depended on where you were in the state and when the rain fell on your fields. Planted acres of wheat were 470,000, down 140,000 from a year ago. Water stressed plants that survived the fall did winterkill in many fields, reducing the stand and yield potential.

Spring conditions were fairly good for putting nitrogen, herbicides and fungicides on wheat. We had some cold temperatures that slowed herbicide application, but for the most part, spring applications went okay for most of the wheat crop. Due to the wet fall, crop condition ratings were down from a year ago through most of the spring and early summer.

Crop quality at harvest was much improved this year compared to last year. There have been no reports of preharvest sprout (low falling numbers) and due to dry conditions during flowering, fusarium head blight infections and vomitoxin levels are low or even not detectable. Test weights are widely ranging. Early harvested wheat had good yields (better than expected) with good test weights. Later harvested wheat has suffered from lower test weight. Once physiological maturity was reached, dry down was slow which extended our grain fill period. Then higher temperatures and dry conditions moved in and rapidly completed dry down.

Temperatures across the region were similar to '21. We did not have the excessive heat in '22 compared to '20. There were more days above 85 degrees compared with last year, but days above 90 degrees were similar. Total monthly rainfall was distributed more evenly between months, however there were dry periods in June and July. On June 28, most of the thumb and parts of central Michigan were listed on the drought monitor as abnormally dry (D0) and by July 19 most of that area had progressed to moderate drought (D1).

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 2020, 2021 and 2022 growing seasons. 2022 data was reported through July 26, 2022.

	2020			2021			2022		
	Pigeon	Richville	Mason	Pigeon	Richville	Mason	Pigeon	Richville	Mason
Above 90 F	10	13	10	2	4	2	5	5	2
Above 85 F	30	33	30	15	16	19	22	24	22
April (in)	2.2	2.1	2.6	1.8	0.7	1.5	2.19	2.4	4.03
May (in)	3.3	3.8	4.2	1.2	1.2	2.6	2.13	1.64	3.85
June (in)	1.9	1.4	5.8	1.9	4.9	7	1.58	2.15	2.43
July (in)	2.8	3.2	2.1	2.5	1	1.5	0.93	2.27	2.26

## 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 2020 through 2022. 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 2022 State Wheat Performance Trial entries were planted in 7 counties: Isabella, Hillman, Ingham, Huron, Montcalm, Sanilac and Tuscola. Sanilac location was not harvested due to severe water damage from fall rains post-planting. 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](mailto: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 125 entries (63 of which were experimental lines) from 13 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 2022. 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 2022 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 2022 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 2021 deoxynivalenol (DON, VOM) numbers are reported. Once 2022 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. **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 1/2 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 presents 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 3.0 and 2.1 bushels per acre higher for the high management treatment at Tuscola and Isabella respectively. Both of these sites had water damage from fall rains.

### **Milling and Baking Quality**

**Table 5** contains data for milling and baking quality. Quality data are from the 2021 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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## 2022 Michigan State University Wheat Performance Trials

Appendix A. Trial Site Descriptions for 2022 MSU Wheat Performance Trials.

	FUSARIUM HEAD BLIGHT NURSERY	HURON COUNTY	Isabella County		Montcalm COUNTY	SANILAC COUNTY	TUSCOLA COUNTY		INGHAM	HILLMAN
			CONV. MANAGED	HIGH MANAGED			CONV. MANAGED	HIGH MANAGED		
COOPERATOR	Michigan State University	Darwin Sneller	Hauck Seed Farm		Woods Seed Farm	JGDM Farms	Micah Laux		Michigan State University	Todd Ableidinger
NEAREST CITY	Lansing	Seabwing	Rosebush		Edmore	Sandusky	Reese		Meridian TWP	Hillman
PLANTING DATE	October 19, 2021	October 20, 2021	October 20, 2021		October 27, 2021	October 6, 2021	September 20, 2021		September 21, 2021	September 22, 2021
HARVEST DATE	July 26, 2022	July 18, 2022	July 20, 2022		July 22, 2022	N/A	July 8, 2022		July 10, 2022	July 25, 2022
SOIL TYPE	Capac loam, 0 to 4 percent slopes & Colwood-Brookston loams	Tappan loam, 0 to 1 percent slopes	Ziegenfuss loam & Ithaca loam, 0 to 4 percent slopes		Tekenink-Spinks loamy sands, 6 to 12 percent slopes	Conover loam, 0 to 3 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	Algonquin-Springport complex, 0 to 6 percent slopes
PRE-PLANT FERTILIZER	100# 11-52-0 100#0-0-60	100# 11-52-0 50# 0-0-60	100# 11-52-0 100# 0-0-62		100# 46-0-0 100# 0-60	112.50# 12-40-0 10%\$ 1%Z 22.5# 46-0-0 90# 0-0-62	250# 13-13-21 5%\$ 1%B 5%M9%Zn		350# 10-19-18 7.7% s	N/A
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 Applied and Fungicides were applied	Site dropped due to water damage	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 were applied
AVERAGE YIELD (BUSHEL / ACRE)	N/A	107.1	79.9	82.5	67.1	N/A	90.7	93.4	106.4	85.2
AVERAGE TEST WEIGHT (LBS. / BUSHEL)	N/A	59.3	55.8	55.7	55.5	N/A	60.1	59.8	60.4	56.7
AVERAGE PERCENT GRAIN MOISTURE AT HARVEST	N/A	19.2	14.4	14.7	11.2	N/A	15.5	15.4	14.3	22.0
2022 DATA RECORDED (NUMBER OF REPS)	3	3	3	3	3	0	3	3	3	3
FLAG LEAF FUNGICIDE APPLICATION DATE	N/A	May 24, 2022	N/A	May 24, 2022	May 24, 2022	N/A	N/A	May 23, 2022	May 20, 2022	N/A
FLOWERING FUNGICIDE APPLICATION DATE	N/A	June 8, 2022	N/A	June 8, 2022	June 8, 2022	N/A	N/A	June 2, 2022	June 1, 2022	N/A
GREEN-UP FERTILIZER	90lbs Nitrogen 20 lbs Sulfur	90lbs Nitrogen 20lbs Sulfur	90lbs Nitrogen	90lbs Nitrogen 20 lbs Sulfur	90lbs Nitrogen 20lbs Sulfur	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	90lbs Nitrogen	75lbs Nitrogen

# 2022 Michigan State University Wheat Performance Trials

Table 1 : Multi-Year Performance Summary (Note: Tables sorted by 2022 High Management Yield, white wheat's grouped before red)

Line	Company	Seed Treatment	Seed Color	Yield (Bu/A adjusted to 13.5% Moisture)				Hillman				Huron				Ingham				Isabella			Montcalm		Tuscola				
				2022		2 Yr Avg		3 Yr Avg		2022		2 Yr Avg		3 Yr Avg		2022		2 Yr Avg		2022		2022		2022		2 Yr Avg		3 Yr Avg	
				Overall	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	Bu/A	Rank	21-22	Bu/A	Rank	21-22	20-22
AgriMAXX Mackinac	AgriMAXX Wheat Company	PRIME ST	W	94.2	1	---	---	90.7	1	---	---	112.2	4	---	---	110.5	5	---	---	84.4	5	---	70.8	6	96.6	4	---	---	
KWS430	KWS Cereals	CruiserMaxx Vibrance Cereals	W	94.1	2	---	---	86.6	5	---	---	105.9	11	---	---	111.4	3	---	---	89.4	3	---	79.5	1	91.5	14	---	---	
DF 271 W	DF Seeds, LLC	DFender Plus	W	93.7	3	---	---	77.8	15	---	---	118.6	1	---	---	115.3	1	---	---	78.2	16	---	77.3	2	94.7	7	---	---	
Ambassador	DF Seeds, LLC	DFender	W	92.8	4	92.8	93.7	89.0	2	93	97.2	115.6	3	95.5	99.8	104.9	12	89.3	85.6	89.9	2	95.2	62.9	17	94.8	6	90.9	92.0	
DF 271 W	DF Seeds, LLC	DFender	W	92.5	5	95.1	---	80.0	14	86	---	104.7	13	92.4	---	115.3	1	98.1	---	78.0	17	93.1	76.6	3	100.6	1	106.0	---	
ISF 1115	Irrer Seed Farm	Vibrance Extreme	W	91.4	6	93.3	---	82.2	9	88	---	106.3	9	91.2	---	111.0	4	93.6	---	81.0	13	94.3	70.9	5	96.8	3	99.4	---	
Jupiter	MCIA	Vibrance Extreme	W	91.2	7	93.4	94.8	77.8	16	83	90.6	115.8	2	99.0	102.4	109.2	7	91.6	89.3	85.7	4	96.2	64.0	14	94.7	8	97.6	96.9	
M120W0035	MSU	Dividend Extreme	W	90.2	8	---	---	82.0	10	---	---	111.9	6	---	---	107.4	9	---	---	82.5	10	---	66.5	9	91.1	16	---	---	
KWS428	KWS Cereals	CruiserMaxx Vibrance Cereals	W	90.0	9	---	---	76.3	19	---	---	104.4	14	---	---	107.2	10	---	---	91.4	1	---	67.2	8	93.7	10	---	---	
DF 261 W	DF Seeds, LLC	DFender	W	89.5	10	90.4	---	85.0	6	90	---	102.3	15	85.3	---	109.4	6	89.9	---	79.3	15	89.0	62.1	18	99.0	2	98.2	---	
M120W0121	MSU	Dividend Extreme	W	89.5	11	---	---	87.5	4	---	---	100.4	20	---	---	107.8	8	---	---	81.5	12	---	69.9	7	89.8	18	---	---	
M118W1170	MSU	Dividend Extreme	W	89.3	12	---	---	81.6	12	---	---	104.9	12	---	---	98.4	20	---	---	82.8	8	---	72.6	4	95.5	5	---	---	
DF 292 W	DF Seeds, LLC	DFender	W	88.9	13	---	---	81.9	11	---	---	106.0	10	---	---	103.2	15	---	---	83.8	7	---	65.4	11	93.3	11	---	---	
Whitetail	MCIA	Vibrance Extreme	W	87.8	14	89.3	93.5	81.4	13	87	94.5	112.1	5	92.0	97.1	102.4	16	86.8	87.2	75.3	21	88.0	66.1	10	89.6	19	92.3	95.0	
KWS431	KWS Cereals	CruiserMaxx Vibrance Cereals	W	87.4	15	---	---	83.2	8	---	---	100.9	19	---	---	102.3	17	---	---	82.1	11	---	63.6	15	92.0	12	---	---	
Dyna-Gro 9242W	Dyna-Gro	Dyna Shield Foothold/Awaken ST	W	86.9	16	88.3	92.5	84.7	7	87	97.2	101.6	17	85.6	92.1	104.3	14	86.5	86.6	75.9	20	89.5	60.6	20	94.6	9	92.4	94.3	
Moonlight	MCIA	Vibrance Extreme	W	86.8	17	88.8	91.2	77.7	17	85	91.4	107.5	8	89.9	95.8	97.7	21	84.0	81.9	82.8	9	90.8	63.0	16	91.9	13	94.5	95.6	
Dyna-Gro 9082W	Dyna-Gro	Dyna Shield Foothold/Awaken ST	W	86.5	18	87.5	87.4	88.4	3	91	96.1	110.6	16	82.3	87.8	104.4	13	83.5	79.4	76.7	19	91.4	59.4	21	88.5	20	89.2	86.1	
M116W0133	MCIA	Vibrance Extreme	W	85.9	19	88.5	92.4	74.7	21	83	91.8	108.4	7	91.0	95.4	106.7	11	90.7	91.2	77.9	18	90.6	64.3	13	83.2	21	87.9	91.1	
AgriMAXX Piston	AgriMAXX Wheat Company	PRIME ST	W	85.6	20	---	---	75.8	20	---	---	101.5	18	---	---	100.8	19	---	---	79.5	14	---	65.0	12	91.1	15	---	---	
AC Mountain	MCIA	Vibrance Extreme	W	85.2	21	86.0	88.0	77.0	18	84	88.3	96.6	21	82.5	89.7	102.1	18	84.5	83.8	84.2	6	90.3	60.7	19	90.4	17	88.6	90.0	
MCIA MARLIN	MCIA	Vibrance Extreme	R	97.2	1	95.5	99.8	93.9	10	96	105.6	115.5	3	96.7	104.3	106.0	39	88.9	86.0	88.0	5	98.1	79.4	1	100.6	7	98.4	103.3	
W 318	Wellman Seeds, Inc	Encase for Wheat	R	96.3	2	---	---	99.2	2	---	---	117.0	1	---	---	104.5	51	---	---	85.5	15	---	69.4	21	102.1	2	---	---	
W 328	Wellman Seeds, Inc	Encase for Wheat	R	95.8	3	---	---	95.3	5	---	---	113.7	8	---	---	116.8	1	---	---	84.1	25	---	69.5	20	95.6	27	---	---	
WX22741	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	95.7	4	---	---	100.7	1	---	---	109.8	19	---	---	112.5	11	---	---	83.0	29	---	67.6	31	100.7	6	---	---	
MCIA Wharf	MCIA	Vibrance Extreme	R	95.6	5	95.6	98.3	90.9	21	93	99.4	114.9	4	93.3	99.7	112.3	13	95.0	94.1	81.9	38	95.2	76.3	3	97.4	20	101.3	100.1	
DF 119 R	DF Seeds, LLC	DFender	R	95.4	6	93.5	95.6	90.4	22	93	98.4	111.7	14	90.9	99.1	112.2	14	90.6	86.7	92.3	1	98.0	73.1	9	92.5	45	95.2	98.2	
KWS415	KWS Cereals	CruiserMaxx Vibrance Cereals	R	95.1	7	---	---	93.4	12	---	---	116.3	2	---	---	107.3	34	---	---	85.9	13	---	74.3	5	93.4	39	---	---	
Dyna-Gro 9070	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	94.7	8	94.3	96.3	87.7	34	86	93.9	110.6	16	92.7	98.8	116.4	2	95.6	91.0	82.2	35	94.9	73.2	8	97.8	17	102.3	101.5	
KWS394	KWS Cereals	CruiserMaxx Vibrance Cereals	R	94.4	9	---	---	91.4	20	---	---	113.7	7	---	---	115.3	3	---	---	85.3	18	---	70.3	15	90.3	51	---	---	
SY Viper	Grow Pro Genetics	CruiserMaxx Vibrance Cereals	R	94.2	10	92.2	96.1	81.3	53	84	96.2	109.7	20	93.7	100.0	110.2	30	91.8	90.4	85.4	17	95.9	77.9	2	100.7	5	95.6	97.7	
9xp051	Rupp Seeds, Inc	CruiserMaxx Vibrance Cereals	R	93.8	11	---	---	94.8	8	---	---	110.2	18	---	---	110.9	25	---	---	85.2	20	---	65.5	46	96.5	24	---	---	
DF 131 R	DF Seeds, LLC	DFender	R	93.7	12	94.9	95.8	89.7	26	90	95.7	106.8	35	92.1	97.7	111.8	17	93.4	89.8	89.8	4	97.9	63.9	51	100.2	8	100.7	99.9	
MCIA Flipper	MCIA	Vibrance Extreme	R	93.6	13	93.9	97.5	88.0	30	91	101.5	109.3	23	87.8	97.0	110.7	27	91.4	89.5	85.4	16	97.0	63.3	57	104.9	1	102.2	102.0	
W 324	Wellman Seeds, Inc	Encase for Wheat	R	93.5	14	94.2	---	95.0	7	94	---	106.6	38	85.2	---	114.9	4	95.8	---	77.1	60	94.8	67.9	29	99.9	11	101.3	---	
801	Albert Lea Seed - Viking	None	R	93.4	15	---	---	89.3	27	---	---	108.9	26	---	---	111.2	20	---	---	80.9	46	---	75.1	4	95.1	31	---	---	
Synergy EXP2125	Synergy Ag	Surestand	R	93.3	16	---	---	93.9	11	---	---	114.3	6	---	---	105.8	40	---	---	85.0	21	---	64.8	48	96.3	25	---	---	
WX22793	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	93.1	17	---	---	97.5	3	---	---	111.0	15	---	---	104.9	48	---	---	84.2	24	---	74.2	6	86.9	58	---	---	
W 322	Wellman Seeds, Inc	Encase for Wheat	R	93.0	18	94.0	---	85.8	41	90	---	109.4	22	92.0	---	112.8	10	92.1	---	81.2	42	94.6	69.0	23	99.6	13	101.2	---	
RS 977	Rupp Seeds, Inc	Rancona 100V	R	92.7	19	92.4	94.5	86.3	38	89	96.1	110.5	17	90.5	94.8	111.9	16	94.3	95.2	86.3	10	95.0	70.6	13	90.5	50	92.6	91.9	
DF 121 R	DF Seeds, LLC	DFender	R	92.4	20	95.9	---	92.3	15	91	---	106.4	41	95.6	---	111.4	18	94.7	---	81.3	41	95.9	65.1	47	98.1	15	102.7	---	
AgriMAXX EXP 2222	AgriMAXX Wheat Company	PRIME ST	R	92.4	21	---	---	85.9	39	---	---	112.2	11	---	---	113.7	6	---	---	79.1	56	---	71.3	11	---	---	---	---	
Haubert	Synergy Ag	Surestand	R	92.2	22	93.5	---	83.7	48	91	---	101.6	58	86.7	---	113.6	7	95.4	---	91.2	2	97.8	67.5	33	95.5	29	97.1	---	
Synergy EXP2141	Synergy Ag	Surestand	R	92.0	23	---	---	87.8	33	---	---	108.8	27	---	---	104.4	52	---	---	83.5	28	---	69.7	18	97.9	16	---	---	
Dyna-Gro 9002	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	91.7	24	93.2	95.1	90.2	24	93	98.7	109.6	21	90.9	97.3	106.3	37	90.7	89.1	87.4	7	96.6	63.8	52	93.1	40	94.8	95.2	
W 313	Wellman Seeds, Inc	Encase for Wheat	R	91.7	25	90.6	93.9	88.7	28	89	98.3	108.5	29																

# 2022 Michigan State University Wheat Performance Trials

Table 1 : Multi-Year Performance Summary (Note: Tables sorted by 2022 High Management Yield, white wheat's grouped before red)

Line	Company	Seed Treatment	Seed Color	Yield (Bu/A adjusted to 13.5% Moisture)				Hillman				Huron				Ingham				Isabella			Montcalm		Tuscola							
				2022	2 Yr Avg	3 Yr Avg	20-22	2022	2 Yr Avg	3 Yr Avg	20-22	2022	2 Yr Avg	3 Yr Avg	20-22	2022	2 Yr Avg	3 Yr Avg	20-22	2022	2 Yr Avg	2022	Bu/A	Rank	21-22	2022	Rank	21-22	2022	Rank	21-22	20-22
				Overall	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	20-22	Bu/A	Rank	21-22	Bu/A	Rank	21-22	Bu/A	Rank	21-22	Bu/A	Rank	21-22	20-22
DF 121 R	DF Seeds, LLC	DFender Plus	R	90.4	46	---	---	80.7	56	---	---	106.1	43	---	---	112.3	12	---	---	78.2	59	---	69.7	19	95.2	30	---	---				
MCIA Jonah	MCIA	Vibrance Extreme	R	89.9	47	90.9	94.4	82.8	50	86	95.2	108.3	31	91.4	95.3	111.2	20	92.4	92.3	83.0	31	93.2	63.0	60	91.1	49	91.4	94.8				
MI20R0012	MSU	Dividend Extreme	R	89.6	48	---	---	91.9	18	---	---	105.0	47	---	---	97.6	64	---	---	84.9	22	---	64.1	50	94.4	34	---	---				
GP 381	Grow Pro Genetics	CruiserMaxx Vibrance Cereals	R	89.6	49	---	---	92.7	14	---	---	102.6	56	---	---	105.7	42	---	---	81.2	43	---	63.8	53	91.9	46	---	---				
KWS405	KWS Cereals	CruiserMaxx Vibrance Cereals	R	89.6	50	---	---	95.1	6	---	---	95.5	65	---	---	110.8	26	---	---	86.4	9	---	58.2	64	91.9	47	---	---				
MI20R0210	MSU	Dividend Extreme	R	89.6	51	---	---	78.9	62	---	---	106.7	36	---	---	113.8	5	---	---	74.9	65	---	67.8	30	95.5	28	---	---				
Dyna-Gro 9151	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	89.4	52	90.7	93.8	87.8	32	88	96.6	107.2	34	86.5	93.0	105.2	46	90.7	91.5	79.7	52	92.6	66.7	37	89.7	54	95.2	94.3				
HS 338 R	Harrington Seeds, Inc	CruiserMaxx Vibrance Cereals	R	89.2	53	90.8	93.9	85.7	42	89	97.3	100.7	60	84.9	92.3	100.6	59	88.7	87.9	86.0	12	95.3	67.4	34	94.7	32	96.0	98.1				
KWS414	KWS Cereals	CruiserMaxx Vibrance Cereals	R	89.1	54	---	---	79.7	60	---	---	105.5	45	---	---	104.5	50	---	---	81.9	37	---	67.0	36	95.7	26	---	---				
MCIA 2000	MCIA	Vibrance Extreme	R	88.7	55	92.1	---	80.9	54	85	---	104.2	50	90.0	---	105.1	47	91.3	---	80.4	51	94.7	67.5	32	94.1	36	99.5	---				
Dyna-Gro 9182	Dyna-Gro	Dyna Shield Foothold/Awaken ST	R	88.7	56	90.7	94.1	80.2	58	87	96.6	106.4	40	90.5	96.1	103.0	54	87.9	88.7	79.2	54	91.8	65.5	44	97.7	19	96.1	95.0				
AgriMAXX 513	AgriMAXX Wheat Company	PRIME ST	R	88.2	57	90.9	---	91.8	19	92	---	101.0	59	87.6	---	105.5	44	90.9	---	81.0	45	92.8	64.5	49	85.5	61	91.4	---				
9xp216	Rupp Seeds, Inc	CruiserMaxx Vibrance Cereals	R	87.9	58	---	---	80.8	55	---	---	108.3	32	---	---	90.5	65	---	---	87.3	8	---	68.0	27	92.8	42	---	---				
SY 576	Grow Pro Genetics	CruiserMaxx Vibrance Cereals	R	87.8	59	88.6	89.4	90.3	23	91	95.1	103.8	51	85.8	90.9	99.3	61	84.0	83.7	82.5	34	91.4	60.9	63	90.0	52	90.5	87.9				
W 300	Wellman Seeds, Inc	Encase for Wheat	R	87.7	60	87.8	---	88.4	29	90	---	103.6	52	84.6	---	99.0	63	85.6	---	79.0	57	85.8	63.8	55	92.7	44	93.5	---				
MCIA Whale	MCIA	Vibrance Extreme	R	87.7	61	87.8	91.3	79.8	59	83	92.7	98.0	63	84.4	92.2	111.0	23	89.2	91.0	87.8	6	96.1	63.2	59	86.6	59	86.6	89.3				
MI16R0906	MSU	Dividend Extreme	R	86.9	62	90.7	93.7	76.3	64	82	91.7	106.5	39	91.3	97.5	105.6	43	91.2	90.8	85.7	14	95.3	63.8	54	83.2	62	93.4	94.9				
Sunburst	MCIA	Vibrance Extreme	R	86.6	63	88.9	92.4	79.3	61	86	94.4	99.9	61	87.4	92.6	101.9	57	86.3	89.0	80.6	50	92.0	68.1	26	89.9	53	93.1	93.8				
SY 547	Grow Pro Genetics	CruiserMaxx Vibrance Cereals	R	86.5	64	89.6	93.1	82.5	52	88	97.4	104.2	49	85.0	92.2	106.2	38	87.5	87.8	76.3	63	92.4	61.4	62	88.1	57	94.8	94.8				
KWS411	KWS Cereals	CruiserMaxx Vibrance Cereals	R	86.3	65	---	---	73.8	65	---	---	104.3	48	---	---	102.8	55	---	---	80.9	47	---	66.5	38	89.5	55	---	---				
			Mean	90.9		91.9	94.2	86.1		88.9	96.2	107.7		89.7	95.6	107.1		90.3	88.9	82.8		93.9	67.5		94.2		96.6	96.1				
			CV	2.9		3.0	2.5	6.4		3.4	2.6	3.3		3.8	3.0	2.7		1.7	1.7	7.0		2.5	7.2		4.4		3.0	2.6				
			LSD	3.0		2.2	2.1	8.9		4.2	3.9	5.8		5.0	3.8	4.6		4.6	3.8	9.3		4.5	7.9		6.7		4.7	4.2				

## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Overall		Hillman		Huron		Ingham		Isabella		Montcalm		Tuscola	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
AgriMAXX 498	Red	17.9	56.4	29.0	51.5	20.1	57.6	15.2	59.9	15.9	55.7	11.4	55.2	16.0	58.5
AgriMAXX 505	Red	15.5	60.4	19.9	60.2	18.2	61.2	13.6	62.8	14.7	58.2	12.2	58.0	14.6	61.8
AgriMAXX 513	Red	14.7	59.0	18.9	60.7	17.2	61.5	13.2	60.0	14.2	56.2	11.0	55.7	13.9	60.1
AgriMAXX 516	Red	17.0	58.3	21.7	58.0	23.7	57.6	15.4	60.8	14.4	56.5	11.9	57.2	14.9	59.6
AgriMAXX EXP 2105	Red	15.4	59.0	20.6	59.4	15.8	61.4	13.8	60.7	14.8	56.5	12.0	56.9	---	---
AgriMAXX EXP 2110	Red	15.7	58.1	21.7	56.8	17.2	60.8	14.0	60.9	14.6	56.7	11.0	55.4	---	---
AgriMAXX EXP 2222	Red	17.4	58.6	26.1	54.7	18.7	61.2	14.6	61.7	15.3	57.2	12.0	57.9	---	---
AgriMAXX Mackinac	White	14.0	58.6	16.0	60.0	15.7	60.1	13.3	61.0	14.5	56.5	10.1	53.8	14.5	60.1
AgriMAXX Piston	White	17.0	55.6	29.0	52.0	17.9	57.3	13.6	60.3	14.8	53.7	9.8	52.5	16.8	58.0
801	Red	15.8	59.5	19.7	59.0	18.5	60.5	14.5	61.0	14.3	57.1	12.8	58.6	14.9	60.8
Ambassador	White	15.2	57.7	19.8	58.3	18.1	58.7	14.0	60.5	13.6	53.9	10.5	55.2	15.1	59.8
DF 112 R	Red	14.6	58.1	18.2	58.6	16.9	59.4	13.7	59.3	13.8	55.6	11.2	55.8	13.9	59.9
DF 119 R	Red	16.0	59.1	20.4	59.6	18.6	60.5	15.1	60.7	14.8	57.3	12.0	56.4	14.7	59.9
DF 121 R	Red	16.2	59.2	20.3	59.5	18.9	60.6	16.1	60.0	15.0	58.1	11.7	56.6	14.9	60.5
DF 131 R	Red	16.6	58.8	22.6	57.9	21.2	58.8	14.4	60.4	15.1	58.6	11.3	56.4	14.9	60.8
DF 261 W	White	16.9	56.0	26.6	53.2	20.8	56.1	13.5	60.3	14.3	54.7	9.8	52.8	16.3	58.7
DF 271 W	White	14.3	58.7	16.1	59.2	16.3	59.5	13.8	61.0	14.2	56.6	11.0	55.4	14.4	60.5
DF 292 W	White	15.0	57.6	22.0	56.0	15.3	59.3	14.2	60.1	13.6	56.3	9.7	54.3	15.3	59.4
DF 121 R	Red	16.1	59.4	20.4	59.2	19.0	60.6	14.6	60.6	15.0	56.8	12.8	58.8	14.8	60.6
DF 271 W	White	14.5	58.3	15.2	59.5	17.3	59.4	14.4	60.6	14.9	56.0	10.6	54.3	14.6	60.1
Dyna-Gro 9002	Red	15.8	58.4	20.7	58.4	19.1	59.9	13.5	60.0	14.8	58.2	11.4	55.6	15.3	58.2
Dyna-Gro 9070	Red	15.9	58.6	21.1	57.9	19.8	59.1	14.0	60.4	14.1	57.1	11.7	56.9	14.4	60.3
Dyna-Gro 9151	Red	15.4	60.2	20.0	59.5	17.6	62.0	13.7	61.7	14.6	59.0	12.0	57.4	14.6	61.6
Dyna-Gro 9172	Red	17.1	58.6	25.3	56.4	20.5	59.7	14.6	60.1	15.0	57.9	11.8	56.8	15.1	60.7
Dyna-Gro 9182	Red	16.0	59.1	20.7	59.6	18.4	61.0	15.3	61.1	14.6	55.2	12.1	56.7	14.9	60.8
Dyna-Gro 9352	Red	15.7	57.5	18.8	56.1	20.4	59.2	13.9	59.3	14.1	54.9	11.3	55.2	15.9	60.1
Dyna-Gro 9082W	White	16.8	58.1	23.3	56.5	22.2	59.0	14.7	62.2	15.5	54.6	10.2	54.5	15.0	61.5



## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Overall		Hillman		Huron		Ingham		Isabella		Montcalm		Tuscola	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
Dyna-Gro 9242W	White	14.9	58.9	19.7	59.3	15.3	61.7	14.6	61.7	14.0	54.0	11.3	54.8	14.8	61.9
WX22741	Red	14.6	57.0	16.6	58.6	18.2	58.8	13.5	58.0	14.4	54.6	10.2	53.7	14.8	58.0
WX22793	Red	15.1	59.3	17.1	60.3	18.2	60.7	13.5	60.1	14.4	56.7	12.4	57.6	14.8	60.1
GP 381	Red	14.2	58.6	15.2	61.5	16.7	60.5	14.2	59.2	14.1	55.5	10.9	54.7	14.3	60.0
GP 747	Red	16.1	56.0	22.3	54.6	21.7	56.6	13.4	58.3	14.3	54.6	10.8	54.9	13.8	57.3
SY 547	Red	15.6	57.8	22.4	56.1	18.0	60.3	13.5	59.8	13.9	53.9	11.2	55.7	14.7	60.8
SY 576	Red	15.9	56.9	23.2	55.7	20.4	57.6	13.7	60.3	14.3	54.5	9.2	52.8	14.7	60.7
SY Viper	Red	17.8	58.0	29.0	53.5	19.6	59.6	14.5	60.8	15.0	56.1	12.7	58.3	16.2	59.8
HS 338 R	Red	14.7	59.6	15.7	62.2	18.0	60.8	14.0	62.0	13.7	54.6	11.9	56.6	15.0	61.1
HS358R EXP	Red	16.3	59.2	24.2	57.0	17.4	61.4	14.2	60.6	15.1	57.9	12.2	57.9	14.9	60.5
ISF 1115	White	14.7	58.3	15.9	59.4	19.0	58.5	13.3	61.1	15.2	56.8	10.3	53.7	14.5	60.4
KWS394	Red	15.6	57.0	21.2	56.4	18.9	58.3	14.2	60.5	14.0	53.1	10.8	54.1	14.5	59.5
KWS398	Red	19.4	55.7	30.5	49.2	25.2	54.4	14.4	61.2	17.5	55.7	11.1	54.7	17.5	58.8
KWS405	Red	17.5	58.4	27.9	54.6	21.4	59.4	14.0	61.5	15.2	57.9	11.8	56.3	15.0	61.0
KWS411	Red	17.8	58.1	31.7	52.3	17.6	61.5	15.5	60.9	14.9	56.6	11.4	56.5	15.5	60.9
KWS414	Red	16.1	55.7	26.8	51.2	16.6	58.3	14.0	58.4	13.7	54.9	9.8	53.7	15.4	57.5
KWS415	Red	18.9	54.4	31.1	48.2	23.1	54.9	13.9	58.5	16.0	53.4	11.4	54.7	17.8	56.7
KWS428	White	15.7	58.6	22.0	55.6	17.1	60.7	14.1	60.0	14.4	56.9	11.7	57.4	14.6	61.1
KWS430	White	18.1	57.9	27.8	53.5	20.1	60.2	15.4	60.8	15.3	55.4	12.6	58.3	17.4	58.9
KWS431	White	17.1	57.4	29.9	51.8	17.0	60.8	15.6	61.4	14.1	54.8	10.5	54.5	15.6	61.0
AC Mountain	White	16.1	56.6	21.3	55.6	20.1	57.3	14.3	60.1	15.4	53.3	10.4	54.2	15.2	59.1
Jupiter	White	15.6	57.2	19.5	56.7	19.9	59.7	13.4	58.7	14.1	54.8	10.2	53.9	16.2	59.5
MCIA 2000	Red	15.7	59.1	19.9	59.6	19.1	60.0	13.4	60.2	14.8	57.8	11.8	56.6	15.3	60.1
MCIA Wharf	Red	14.5	57.7	17.9	57.7	16.0	60.3	13.5	58.2	13.8	56.1	10.7	55.0	15.1	59.0
MCIA Flipper	Red	15.4	58.3	19.6	56.9	16.9	60.2	14.5	60.1	14.6	57.0	11.7	55.9	15.2	59.8
MCIA Jonah	Red	18.1	55.7	27.9	52.3	25.8	54.6	14.0	60.5	14.1	55.2	10.4	53.0	16.3	58.5
MCIA MARLIN	Red	17.3	57.9	22.1	56.3	22.1	58.2	15.0	61.0	14.5	55.3	12.8	57.8	17.2	59.0

## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Overall		Hillman		Huron		Ingham		Isabella		Montcalm		Tuscola	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
MCIA Red Dragon	Red	14.8	58.7	17.4	58.6	17.7	59.9	13.7	61.5	14.5	56.4	11.2	55.3	14.6	60.3
MCIA Whale	Red	18.9	56.0	30.3	51.4	23.4	56.5	14.8	61.4	14.7	54.4	10.9	55.0	19.6	57.0
MI16W0133	White	15.5	56.2	20.9	54.0	16.5	59.4	14.4	60.6	13.8	52.8	9.4	52.8	17.7	57.4
MCIA .357	Red	15.8	57.9	18.5	57.9	19.6	59.1	15.6	59.6	14.2	54.8	11.9	56.2	15.3	60.0
Moonlight	White	14.6	57.1	18.6	56.5	16.9	58.6	14.3	60.1	13.2	54.2	10.1	53.8	14.6	59.6
Sunburst	Red	19.2	57.9	33.7	51.4	22.4	60.4	15.1	61.8	14.6	54.8	12.7	58.0	16.8	61.2
Whitetail	White	14.9	57.2	19.5	57.0	16.3	60.0	14.1	60.9	14.3	51.5	10.0	54.2	15.3	59.5
MI16R0906	Red	17.0	55.7	21.3	53.8	22.8	56.1	14.4	59.9	14.5	53.7	10.5	53.9	18.4	56.7
MI18W1170	White	15.4	60.7	17.7	61.3	17.6	61.7	14.4	61.5	15.2	57.7	13.0	59.2	14.7	62.7
MI20R0011	Red	13.7	56.7	14.7	59.1	16.5	58.1	13.7	59.3	13.5	53.3	9.3	52.6	14.4	57.8
MI20R0012	Red	16.5	58.6	24.3	57.5	18.5	60.6	15.1	61.1	14.2	56.3	11.0	55.7	16.0	60.5
MI20R0013	Red	14.5	58.5	16.3	58.5	16.9	60.7	13.9	61.5	14.3	54.1	11.0	55.1	14.4	60.9
MI20R0210	Red	15.8	56.6	22.9	55.5	17.7	58.9	13.9	59.6	15.0	52.4	10.5	54.5	15.0	58.8
MI20W0035	White	15.9	58.4	21.3	56.9	18.7	60.0	14.4	61.2	14.6	56.7	11.3	54.9	15.0	60.8
MI20W0121	White	18.2	58.3	26.7	54.6	23.0	57.8	14.4	61.9	16.2	56.8	12.8	57.6	16.3	61.1
RS 977	Red	14.7	58.2	18.7	58.5	16.4	59.4	13.7	59.7	14.1	55.9	11.1	56.1	14.1	59.8
RS 912	Red	16.2	59.1	20.3	59.2	19.9	60.3	14.8	61.0	14.6	56.1	12.1	57.2	15.3	61.1
9xp051	Red	17.2	58.1	24.0	56.3	23.5	57.5	14.5	59.3	15.0	58.2	11.1	56.3	15.1	60.6
9xp216	Red	16.1	57.8	17.5	58.0	21.0	58.4	14.9	59.5	15.0	56.4	11.7	55.1	16.3	59.4
Synergy EXP2125	Red	14.6	56.8	15.2	59.8	19.7	58.1	14.1	57.7	14.1	56.3	8.9	52.0	15.6	57.0
Synergy EXP2141	Red	16.1	57.4	20.8	55.6	21.1	59.2	14.6	60.4	13.9	54.7	11.3	54.8	15.0	59.6
Haubert	Red	16.2	58.8	21.7	56.9	19.8	59.5	14.5	60.8	15.1	58.4	12.0	56.8	14.3	60.6
Tyson	Red	16.5	58.3	23.4	57.8	20.4	58.9	13.6	60.7	15.2	56.9	11.1	55.5	15.4	60.2
W 300	Red	14.5	58.7	17.8	58.8	16.2	60.4	13.8	60.6	14.0	56.7	10.6	55.2	14.4	60.5
W 304	Red	16.9	58.2	23.3	55.5	22.5	58.5	14.0	61.0	14.9	56.5	12.0	57.1	14.6	60.3
W 305	Red	16.0	58.7	18.9	59.3	22.8	58.5	14.3	61.9	13.9	55.4	11.3	56.0	14.6	61.1
W 313	Red	16.2	59.6	19.5	59.7	19.8	60.8	14.8	60.7	15.1	57.7	12.4	57.5	15.3	61.1

## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Overall		Hillman		Huron		Ingham		Isabella		Montcalm		Tuscola	
		% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW	% Moist	TW
W 318	Red	15.5	58.0	20.6	58.0	17.0	59.7	14.5	58.6	14.7	56.8	10.9	55.1	14.9	59.8
W 322	Red	15.3	59.4	19.7	59.4	16.9	61.0	13.8	61.1	14.8	57.0	12.0	57.1	14.6	60.8
W 324	Red	17.3	58.6	24.2	57.0	22.7	58.0	14.3	60.9	15.1	57.2	11.9	57.9	15.3	60.7
W 326	Red	14.0	56.5	15.8	58.8	15.1	59.2	13.7	56.6	14.3	54.9	10.0	52.7	15.3	57.0
W 328	Red	16.3	57.9	23.9	55.7	17.8	59.5	14.0	59.9	15.0	57.5	11.1	56.0	16.1	58.6
	Mean	16.1	57.8	22.0	56.6	19.1	59.3	14.2	60.3	14.7	55.7	11.2	55.4	15.4	59.8
	CV	4.0	1.0	5.7	1.5	10.4	1.7	5.8	1.0	3.8	1.6	2.9	0.9	5.3	2.5
	LSD	1.3	1.1	2.0	1.4	3.2	1.7	1.3	1.0	0.9	1.4	0.5	0.8	1.3	2.4

# 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Awn	Chaff Color	Fusarium Head Blight					% Lodging (0-100)**	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 2022	Incidence 2022	Index 2022	DON ppm 2022	FHB Rating*						
MI18W1170	White	Awnletted	White	50.0	60.0	30.0	37.9	S	10	2.8	39.3	150	174	24
Ambassador	White	Awnletted	White	87.0	55.0	47.9	18.9	MS	1.7	5.8	37.2	151	179	28
DF 292 W	White	Awned	White	35.0	63.0	22.1	51.1	S	3.3	6.0	35.3	152	182	30
Moonlight	White	Awnletted	White	80.0	72.0	57.6	40.0	VS	0	6.0	36.4	151	177	26
MI20W0035	White	Awnletted	White	52.0	72.0	37.4	53.2	VS	0	6.3	36.6	150	181	31
MI20W0121	White	Awnletted	White	57.0	62.0	35.3	43.1	VS	6.7	6.3	37.4	152	182	30
AgriMAXX Piston	White	Awnless	White	35.0	52.0	18.2	31.4	MS	0	6.5	35.3	152	180	28
Dyna-Gro 9082W	White	Awned	White	35.0	53.0	18.6	45.9	MS	0	6.8	34.5	150	182	32
Dyna-Gro 9242W	White	Awnletted	White	52.0	60.0	31.2	60.0	VS	0	7.3	37.1	151	181	30
Jupiter	White	Awnletted	Bronze	65.0	57.0	37.1	23.3	MS	1.7	7.3	35.4	152	182	30
DF 261 W	White	Awnletted	White	38.0	55.0	20.9	26.9	MS	16.7	7.5	35.6	151	180	29
AgriMAXX Mackinac	White	Awnletted	White	35.0	62.0	21.7	41.3	MS	5	7.8	34	152	181	29
DF 271 W	White	Awnletted	White	42.0	53.0	22.3	48.0	MS	0	7.8	34.1	152	182	30
DF 271 W	White	Awnletted	White	32.0	55.0	17.6	48.0	MS	0	8.0	33.3	152	181	29
ISF 1115	White	Awnletted	White	52.0	55.0	28.6	36.8	S	0	8.0	33.7	152	181	29
KWS431	White	Awned	White	48.0	57.0	27.4	31.5	MS	0	8.0	34.3	152	183	31
MI16W0133	White	Awned	White	68.0	48.0	32.6	19.8	MS	0	8.0	34.7	152	183	31
KWS430	White	Awnless	White	65.0	45.0	29.3	57.9	VS	0	8.3	33.6	152	182	30
AC Mountain	White	Awnletted	White	62.0	40.0	24.8	26.4	MS	0	8.3	38.4	152	181	29
KWS428	White	Awnletted	White	35.0	57.0	20.0	53.9	S	20	8.5	35.9	151	181	30
Whitetail	White	Awnletted	White	65.0	60.0	39.0	11.2	MS	11.7	8.8	35.7	151	181	30
Sunburst	Red	Awnless	White	60.0	48.0	28.8	55.9	VS	0	0.0	33	152	182	30
W 300	Red	Awned	White	35.0	67.0	23.5	26.9	MS	3.3	0.0	35	151	181	30
MCIA Red Dragon	Red	Awnless	White	38.0	47.0	17.9	27.9	MR	0	0.5	40.8	151	176	25
MI20R0013	Red	Awnless	Bronze	42.0	62.0	26.0	37.1	S	1.7	0.5	37	150	182	32
W 304	Red	Awned	White	32.0	60.0	19.2	26.1	MR	0	0.5	34.8	152	181	29
DF 121 R	Red	Awned	White	42.0	65.0	27.3	40.5	MS	0	0.8	33.6	152	181	29
Dyna-Gro 9151	Red	Awned	White	38.0	60.0	22.8	51.1	S	0	0.8	34.9	151	179	28
SY Viper	Red	Awnletted	White	35.0	63.0	22.1	30.6	MS	53.3	0.8	38.4	150	177	27
KWS398	Red	Awnless	White	32.0	40.0	12.8	38.5	MS	0	0.8	35.2	152	183	31
MCIA Jonah	Red	Awnletted	White	62.0	53.0	32.9	34.6	S	5	0.8	36.1	150	182	32
KWS415	Red	Awnletted	White	37.0	50.0	18.5	21.5	MR	23.3	1.0	35.3	150	181	31

## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Awn	Chaff Color	Fusarium Head Blight					% Lodging (0-100)**	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 2022	Incidence 2022	Index 2022	DON ppm 2022	FHB Rating*						
SY 576	Red	Awned	White	43.0	45.0	19.4	42.4	MS	0	1.3	37.1	152	182	30
HS 338 R	Red	Awnletted	White	33.0	53.0	17.5	45.0	MS	36.7	1.3	36.2	150	179	29
RS 912	Red	Awnless	White	52.0	57.0	29.6	36.4	S	23.3	1.3	35.7	151	180	29
W 318	Red	Awned	White	43.0	42.0	18.1	18.9	MR	20	1.3	35.7	151	180	29
AgriMAXX 498	Red	Awnletted	White	52.0	53.0	27.6	49.8	VS	43.3	1.5	37.3	150	181	31
AgriMAXX 513	Red	Awned	White	33.0	53.0	17.5	28.8	MR	5	1.5	35.5	151	179	28
AgriMAXX EXP 2110	Red	Awned	White	38.0	65.0	24.7	25.7	MS	26.7	1.5	34.4	152	181	29
DF 119 R	Red	Awnletted	White	33.0	77.0	25.4	34.7	MS	0	1.5	36	151	179	28
DF 131 R	Red	Awned	White	33.0	52.0	17.2	28.5	MR	20	1.5	34.8	151	182	31
DF 121 R	Red	Awned	White	33.0	50.0	16.5	40.5	MS	0	1.5	33.5	152	182	30
KWS405	Red	Awnless	White	30.0	60.0	18.0	19.1	MR	1.7	1.5	37	151	182	31
9xp051	Red	Awned	White	33.0	62.0	20.5	51.8	S	1.7	1.5	35.1	151	181	30
W 322	Red	Awned	White	37.0	58.0	21.5	37.1	MS	16.7	1.5	36.7	151	180	29
801	Red	Awned	White	30.0	43.0	12.9	34.2	MR	38.3	1.8	37.4	151	182	31
MI20R0012	Red	Awned	White	40.0	62.0	24.8	48.5	S	66.7	1.8	36.8	151	183	32
W 305	Red	Awnletted	White	42.0	68.0	28.6	16.5	MS	0	1.8	34.7	151	181	30
AgriMAXX 505	Red	Awned	White	35.0	47.0	16.5	30.2	MR	0	2.0	35.6	151	180	29
Dyna-Gro 9172	Red	Awned	White	33.0	50.0	16.5	45.3	MS	0	2.0	34.9	151	180	29
Dyna-Gro 9182	Red	Awnless	White	28.0	48.0	13.4	36.1	MR	18.3	2.0	34.9	152	181	29
WX22741	Red	Awned	White	37.0	63.0	23.3	37.8	MS	16	2.0	36.7	151	182	31
KWS394	Red	Awnless	White	25.0	47.0	11.8	32.5	MR	8.3	2.0	34.9	150	181	31
MCIA 2000	Red	Awned	White	47.0	63.0	29.6	45.2	VS	20	2.0	34.1	153	182	29
MI16R0906	Red	Awnletted	White	73.0	55.0	40.2	15.4	MS	16.7	2.0	34.4	150	183	33
MI20R0011	Red	Awnless	White	52.0	68.0	35.4	18.4	MS	3.3	2.0	36	150	181	31
9xp216	Red	Awnletted	White	41.0	58.0	23.8	36.3	MS	20	2.0	35.2	150	179	29
Dyna-Gro 9070	Red	Awned	White	33.0	50.0	16.5	26.5	MR	16.7	2.3	36.1	150	179	29
HS358R EXP	Red	Awned	White	43.0	62.0	26.7	36.4	S	16.7	2.3	34.2	152	181	29
KWS414	Red	Awned	White	62.0	58.0	36.0	51.7	VS	6.7	2.3	33.3	152	182	30
MCIA Flipper	Red	Awnletted	White	52.0	63.0	32.8	32.9	S	3.3	2.3	33.9	150	179	29
Synergy EXP2141	Red	Awnless	White	33.0	58.0	19.1	30.0	MS	1.7	2.3	35	150	180	30
W 313	Red	Awnless	White	38.0	45.0	17.1	27.0	MR	10	2.3	35.1	152	181	29
AgriMAXX 516	Red	Awned	White	32.0	57.0	18.2	48.9	MS	3.3	2.5	35.1	151	182	31

## 2022 Michigan State University Wheat Performance Trials

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

Line	Seed Color	Awn	Chaff Color	Fusarium Head Blight					% Lodging (0-100)**	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 2022	Incidence 2022	Index 2022	DON ppm 2022	FHB Rating*						
GP 747	Red	Awned	White	42.0	65.0	27.3	49.5	VS	0	2.5	35.6	151	181	30
MCIA MARLIN	Red	Awnletted	White	43.0	75.0	32.3	38.4	VS	65	2.5	35.5	151	179	28
MCIA .357	Red	Awnletted	White	40.0	60.0	24.0	13.4	MS	0	2.5	31.4	150	179	29
MI20R0210	Red	Awned	White	45.0	58.0	26.1	41.8	S	0	2.5	33.8	151	181	30
Haubert	Red	Awned	White	38.0	58.0	22.0	36.7	MS	16.7	2.5	36.2	152	182	30
Tyson	Red	Awned	White	28.0	50.0	14.0	38.0	MS	0	2.5	34.6	150	181	31
W 324	Red	Awned	White	30.0	53.0	15.9	31.1	MR	1.7	2.5	34.6	151	181	30
KWS411	Red	Awned	White	37.0	60.0	22.2	47.1	S	16.7	2.8	36.1	151	182	31
MCIA Wharf	Red	Awnletted	White	28.0	52.0	14.6	29.9	MR	23.3	2.8	31.1	150	182	32
MCIA Whale	Red	Awnletted	White	53.0	63.0	33.4	57.6	VS	0	2.8	36.3	152	182	30
Synergy EXP2125	Red	Awned	White	37.0	57.0	21.1	27.2	MS	25	2.8	36.2	151	182	31
W 326	Red	Awned	White	37.0	63.0	23.3	33.0	MS	21.7	2.8	36.4	151	181	30
AgriMAXX EXP 2105	Red	Awned	White	42.0	57.0	23.9	61.0	VS	26.7	3.0	36.1	152	181	29
DF 112 R	Red	Awned	White	40.0	52.0	20.8	45.7	MS	41.7	3.0	36	151	180	29
SY 547	Red	Awnless	White	32.0	52.0	16.6	29.8	MR	0	3.0	37.3	150	175	25
WX22793	Red	Awned	White	38.0	65.0	24.7	57.9	VS	5	3.3	35.5	152	180	28
AgriMAXX EXP 2222	Red	Awned	White	38.0	67.0	25.5	38.9	S	6.7	3.5	35.3	151	182	31
W 328	Red	Awned	White	27.0	48.0	13.0	35.6	MR	8.3	3.5	36.3	151	181	30
RS 977	Red	Awned	White	48.0	67.0	32.2	60.7	VS	6	4.0	34.7	152	183	31
Dyna-Gro 9352	Red	Awnletted	White	48.0	42.0	20.2	31.4	MS	40	4.3	36.1	150	179	29
GP 381	Red	Awnless	White	43.0	52.0	22.4	28.3	MS	0	4.8	33.4	151	180	29
Dyna-Gro 9002	Red	Awned	White	35.0	58.0	20.3	31.8	MS	23.3	5.3	36.9	151	180	29
<b>Mean</b>				42.0	57.0				12.1		35.4	151.0	181.0	
<b>CV</b>				16.3	15.4				147.5		2.7	0.3	0.5	
<b>LSD</b>				11.0	14.0				28.7		1.5	1.0	2.0	

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

Line	Seed 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
AgriMAXX 498	Red	91.5	16.0	58.5	88.9	15.9	58.8	2.7	49	81.5	15.9	55.7	73.8	14.0	53.4	7.8	21
AgriMAXX 505	Red	96.7	14.6	61.8	91.7	15.1	61.8	5.1	26	81.3	14.7	58.2	82.6	14.8	58.8	-1.3	53
AgriMAXX 513	Red	85.5	13.9	60.1	87.3	14.1	61.6	-1.8	75	81.0	14.2	56.2	90.7	14.5	57.5	-9.7	85
AgriMAXX 516	Red	89.4	14.9	59.6	94.8	15.5	63.4	-5.4	79	80.6	14.4	56.5	88.7	14.9	58.4	-8.1	83
AgriMAXX EXP 2105	Red	---	---	---	---	---	---	---	---	76.5	14.8	56.5	83.4	14.8	58.6	-6.9	79
AgriMAXX EXP 2110	Red	---	---	---	---	---	---	---	---	79.4	14.6	56.7	68.9	14.9	57.7	10.4	14
AgriMAXX EXP 2222	Red	---	---	---	---	---	---	---	---	79.1	15.3	57.2	81.3	15.1	59.6	-2.3	59
AgriMAXX Mackinac	White	96.6	14.5	60.1	91.6	15.1	59.7	5.0	27	84.4	14.5	56.5	63.4	15.1	56.9	21.0	1
AgriMAXX Piston	White	91.1	16.8	58.0	87.9	15.9	58.6	3.2	47	79.5	14.8	53.7	84.2	13.5	53.6	-4.7	74
801	Red	95.1	14.9	60.8	93.2	14.7	61.2	1.8	54	80.9	14.3	57.1	86.2	14.5	57.7	-5.3	75
Ambassador	White	94.8	15.1	59.8	91.4	15.2	59.9	3.4	45	89.9	13.6	53.9	91.0	13.0	54.5	-1.1	51
DF 112 R	Red	93.7	13.9	59.9	90.2	14.6	59.8	3.5	44	85.2	13.8	55.6	79.1	14.0	55.6	6.2	25
DF 119 R	Red	92.5	14.7	59.9	88.4	16.0	59.4	4.2	40	92.3	14.8	57.3	80.6	14.3	55.9	11.7	12
DF 121 R	Red	98.1	14.9	60.5	87.6	16.0	59.3	10.5	3	81.3	15.0	58.1	88.8	15.2	59.0	-7.4	81
DF 131 R	Red	100.2	14.9	60.8	94.2	15.2	60.6	5.9	21	89.8	15.1	58.6	78.3	15.2	58.5	11.5	13
DF 261 W	White	99.0	16.3	58.7	91.7	14.9	60.1	7.3	9	79.3	14.3	54.7	81.7	14.0	55.3	-2.5	61
DF 271 W	White	100.6	14.4	60.5	95.8	14.5	60.6	4.8	28	78.0	14.2	56.6	73.2	14.1	57.0	4.8	30
DF 292 W	White	93.3	15.3	59.4	87.5	15.1	59.8	5.8	22	83.8	13.6	56.3	74.9	13.9	56.0	8.9	15
DF 121 R	Red	95.2	14.8	60.6	94.8	14.9	61.0	0.4	65	78.2	15.0	56.8	84.5	14.8	58.2	-6.3	77
DF 271 W	White	94.7	14.6	60.1	98.6	14.5	61.0	-3.9	78	78.2	14.9	56.0	72.7	14.0	56.2	5.5	27
Dyna-Gro 9002	Red	93.1	15.3	58.2	93.9	14.6	61.3	-0.8	72	87.4	14.8	58.2	84.8	14.9	57.9	2.6	38
Dyna-Gro 9070	Red	97.8	14.4	60.3	93.3	14.5	60.3	4.5	33	82.2	14.1	57.1	84.0	14.5	57.9	-1.8	55
Dyna-Gro 9151	Red	89.7	14.6	61.6	90.8	14.6	62.0	-1.0	73	79.7	14.6	59.0	77.8	15.1	59.1	1.9	41
Dyna-Gro 9172	Red	98.3	15.1	60.7	94.2	15.8	60.3	4.1	41	86.2	15.0	57.9	74.4	15.1	57.3	11.8	11
Dyna-Gro 9182	Red	97.7	14.9	60.8	91.7	15.2	61.0	6.0	20	79.2	14.6	55.2	75.8	14.5	55.6	3.3	34
Dyna-Gro 9352	Red	99.8	15.9	60.1	91.3	16.5	59.6	8.5	5	83.8	14.1	54.9	65.2	14.3	54.9	18.6	3
Dyna-Gro 9082W	White	88.5	15.0	61.5	87.9	13.9	59.8	0.6	63	76.7	15.5	54.6	78.8	14.3	57.9	-2.1	58
Dyna-Gro 9242W	White	94.6	14.8	61.9	88.2	15.7	61.1	6.4	15	75.9	14.0	54.0	84.8	13.4	54.4	-8.9	84
WX22741	Red	100.7	14.8	58.0	94.0	14.9	58.0	6.6	12	83.0	14.4	54.6	82.7	14.1	56.3	0.4	45
WX22793	Red	86.9	14.8	60.1	94.3	14.8	61.3	-7.5	82	84.2	14.4	56.7	76.9	16.1	55.9	7.3	24
GP 381	Red	91.9	14.3	60.0	86.6	13.9	60.5	5.4	23	81.2	14.1	55.5	85.3	14.0	56.8	-4.1	69
GP 747	Red	96.7	13.8	57.3	97.3	15.0	58.0	-0.6	71	75.6	14.3	54.6	77.6	14.0	55.7	-2.0	56
SY 547	Red	88.1	14.7	60.8	87.9	15.5	60.6	0.2	67	76.3	13.9	53.9	72.7	13.6	52.8	3.7	33
SY 576	Red	90.0	14.7	60.7	82.3	15.0	60.5	7.7	7	82.5	14.3	54.5	74.2	14.6	56.0	8.3	18

# 2022 Michigan State University Wheat Performance Trials

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

Line	Seed 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
SY Viper	Red	100.7	16.2	59.8	95.9	17.3	58.9	4.8	29	85.4	15.0	56.1	89.3	13.8	55.6	-3.9	66
HS 338 R	Red	94.7	15.0	61.1	93.6	14.4	61.6	1.1	59	86.0	13.7	54.6	88.1	14.1	56.6	-2.1	57
HS358R EXP	Red	94.2	14.9	60.5	88.0	15.8	60.1	6.3	16	82.1	15.1	57.9	82.8	15.5	57.7	-0.7	50
ISF 1115	White	96.8	14.5	60.4	90.0	14.5	60.9	6.8	11	81.0	15.2	56.8	64.8	14.2	55.0	16.2	4
KWS394	Red	90.3	14.5	59.5	88.9	15.2	58.8	1.4	57	85.3	14.0	53.1	84.6	13.2	52.9	0.7	44
KWS398	Red	86.0	17.5	58.8	88.2	17.0	59.4	-2.2	77	90.9	17.5	55.7	82.2	16.4	55.5	8.8	16
KWS405	Red	91.9	15.0	61.0	91.2	15.3	61.2	0.6	62	86.4	15.2	57.9	77.8	14.0	54.0	8.5	17
KWS411	Red	89.5	15.5	60.9	88.8	15.4	61.3	0.7	61	80.9	14.9	56.6	73.0	14.4	55.9	7.9	20
KWS414	Red	95.7	15.4	57.5	91.4	14.8	58.7	4.3	37	81.9	13.7	54.9	68.1	15.1	53.5	13.8	8
KWS415	Red	93.4	17.8	56.7	88.3	17.8	56.8	5.1	25	85.9	16.0	53.4	85.6	14.6	55.0	0.3	46
KWS428	White	93.7	14.6	61.1	86.8	14.9	60.9	6.8	10	91.4	14.4	56.9	76.5	14.0	53.9	14.9	7
KWS430	White	91.5	17.4	58.9	88.6	16.6	60.0	2.9	48	89.4	15.3	55.4	86.5	14.1	54.2	3.0	36
KWS431	White	92.0	15.6	61.0	92.1	15.2	61.7	0.0	68	82.1	14.1	54.8	79.1	14.6	55.5	3.0	35
AC Mountain	White	90.4	15.2	59.1	85.1	15.6	59.1	5.2	24	84.2	15.4	53.3	79.4	13.5	54.8	4.8	28
Jupiter	White	94.7	16.2	59.5	94.3	16.9	59.3	0.5	64	85.7	14.1	54.8	88.9	13.4	54.2	-3.1	65
MCIA 2000	Red	94.1	15.3	60.1	88.0	15.7	59.8	6.1	17	80.4	14.8	57.8	79.4	15.3	58.7	0.9	43
MCIA Wharf	Red	97.4	15.1	59.0	97.1	15.0	59.0	0.3	66	81.9	13.8	56.1	86.1	14.8	53.3	-4.2	70
MCIA Flipper	Red	104.9	15.2	59.8	102.5	14.8	61.2	2.3	51	85.4	14.6	57.0	79.7	14.1	56.8	5.8	26
MCIA Jonah	Red	91.1	16.3	58.5	97.5	16.0	59.1	-6.4	81	83.0	14.1	55.2	81.2	14.1	53.7	1.8	42
MCIA MARLIN	Red	100.6	17.2	59.0	102.5	17.2	59.4	-2.0	76	88.0	14.5	55.3	87.7	14.2	55.2	0.3	47
MCIA Red Dragon	Red	93.0	14.6	60.3	88.8	15.2	59.9	4.3	38	83.7	14.5	56.4	80.9	14.6	56.2	2.8	37
MCIA Whale	Red	86.6	19.6	57.0	78.0	18.6	57.9	8.6	4	87.8	14.7	54.4	90.2	14.1	53.5	-2.5	60
MI16W0133	White	83.2	17.7	57.4	81.0	17.1	58.0	2.1	52	77.9	13.8	52.8	78.2	13.6	52.9	-0.3	49
MCIA .357	Red	99.9	15.3	60.0	88.4	15.3	59.9	11.5	2	79.1	14.2	54.8	81.7	14.0	54.3	-2.7	62
Moonlight	White	91.9	14.6	59.6	85.4	15.8	58.7	6.5	14	82.8	13.2	54.2	75.3	12.9	53.2	7.5	23
Sunburst	Red	89.9	16.8	61.2	85.5	16.3	62.4	4.4	35	80.6	14.6	54.8	85.1	13.7	53.9	-4.5	72
Whitetail	White	89.6	15.3	59.5	88.7	15.1	59.8	0.9	60	75.3	14.3	51.5	82.6	13.1	53.4	-7.3	80
MI16R0906	Red	83.2	18.4	56.7	90.8	17.7	57.8	-7.6	83	85.7	14.5	53.7	81.8	14.4	54.3	3.9	32
MI18W1170	White	95.5	14.7	62.7	89.5	14.7	62.5	6.0	19	82.8	15.2	57.7	67.5	14.4	54.8	15.4	6
MI20R0011	Red	93.6	14.4	57.8	94.0	14.7	60.1	-0.5	70	83.0	13.5	53.3	69.7	12.7	53.2	13.4	10
MI20R0012	Red	94.4	16.0	60.5	89.9	15.7	60.8	4.5	34	84.9	14.2	56.3	82.8	14.3	56.9	2.2	40
MI20R0013	Red	96.7	14.4	60.9	94.9	15.0	60.7	1.8	55	82.9	14.3	54.1	87.0	14.2	56.4	-4.1	68
MI20R0210	Red	95.5	15.0	58.8	91.0	15.6	59.3	4.6	31	74.9	15.0	52.4	82.4	13.9	54.9	-7.5	82
MI20W0035	White	91.1	15.0	60.8	86.9	15.1	61.0	4.2	39	82.5	14.6	56.7	83.7	13.9	55.0	-1.2	52



# 2022 Michigan State University Wheat Performance Trials

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

Line	Seed 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
MI20W0121	White	89.8	16.3	61.1	85.5	17.8	60.0	4.3	36	81.5	16.2	56.8	86.0	14.7	56.9	-4.5	71
RS 977	Red	90.5	14.1	59.8	90.8	14.5	60.0	-0.3	69	86.3	14.1	55.9	78.8	14.1	56.0	7.5	22
RS 912	Red	101.1	15.3	61.1	93.1	15.3	61.0	8.0	6	84.4	14.6	56.1	76.3	13.9	53.8	8.1	19
9xp051	Red	96.5	15.1	60.6	89.9	14.9	60.5	6.6	13	85.2	15.0	58.2	84.9	14.9	58.3	0.2	48
9xp216	Red	92.8	16.3	59.4	94.0	15.8	59.9	-1.2	74	87.3	15.0	56.4	68.5	14.6	55.7	18.8	2
Synergy EXP2125	Red	96.3	15.6	57.0	94.7	14.9	58.1	1.6	56	85.0	14.1	56.3	80.2	13.7	55.5	4.8	28
Synergy EXP2141	Red	97.9	15.0	59.6	93.8	15.0	60.1	4.0	42	83.5	13.9	54.7	79.3	14.1	55.1	4.2	31
Haubert	Red	95.5	14.3	60.6	90.9	15.3	60.3	4.6	30	91.2	15.1	58.4	75.1	14.4	57.1	16.1	5
Tyson	Red	99.9	15.4	60.2	95.4	15.3	60.0	4.6	32	78.5	15.2	56.9	93.7	15.0	58.5	-15.2	86
W 300	Red	92.7	14.4	60.5	86.6	14.5	60.7	6.1	18	79.0	14.0	56.7	83.6	14.4	58.3	-4.6	73
W 304	Red	97.7	14.6	60.3	94.4	15.2	60.3	3.3	46	80.8	14.9	56.5	86.1	14.9	57.4	-5.3	76
W 305	Red	94.7	14.6	61.1	93.4	14.9	61.0	1.3	58	81.2	13.9	55.4	82.8	14.0	56.0	-1.6	54
W 313	Red	101.4	15.3	61.1	88.5	15.1	61.0	12.9	1	82.8	15.1	57.7	85.7	14.1	56.4	-2.9	64
W 318	Red	102.1	14.9	59.8	98.4	14.5	60.1	3.7	43	85.5	14.7	56.8	72.1	14.5	56.6	13.4	9
W 322	Red	99.6	14.6	60.8	97.1	14.9	61.6	2.5	50	81.2	14.8	57.0	84.1	14.7	58.7	-2.9	63
W 324	Red	99.9	15.3	60.7	92.6	15.6	61.9	7.3	8	77.1	15.1	57.2	81.1	14.9	56.8	-4.0	67
W 326	Red	92.7	15.3	57.0	98.4	14.9	58.2	-5.7	80	76.8	14.3	54.9	74.2	14.7	56.6	2.5	39
W 328	Red	95.6	16.1	58.6	93.4	16.2	60.8	2.1	53	84.1	15.0	57.5	90.5	14.9	57.9	-6.4	78
	Mean	94.2	15.4	59.8	91.2	15.5	60.0	3.0		82.8	14.7	55.7	80.6	14.4	55.9	2.1	
	CV	4.4	5.3	2.5	2.9	7.1	2.4			7.0	3.8	1.6	9.1	5.2	3.0		
	LSD	6.7	1.3	2.4	4.3	1.8	2.3			9.3	0.9	1.4	11.8	1.2	2.7		

## 2022 Michigan State University Wheat Performance Trials

Table 5. Milling and baking qualities.

Line	Seed 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)
AgriMAXX 498	Red	11.1	19.0	70.2	63.4	9.1	123.7	66.5	18.5
AgriMAXX 505	Red	10.7	17.2	67.9	60.3	8.7	137.4	75.1	17.8
AgriMAXX 513	Red	11.1	55.7	70.9	47.9	10.0	118.6	80.8	16.1
AgriMAXX 516	Red	10.6	20.6	70.2	62.3	8.8	123.8	69.3	18.5
AgriMAXX EXP 2105	Red	10.6	10.2	70.0	67.2	8.5	116.8	71.0	18.8
AgriMAXX EXP 2110	Red	10.8	15.1	67.7	66.9	8.8	127.8	72.7	18.5
AgriMAXX EXP 2222	Red	11.0	20.0	69.3	61.6	8.8	125.5	68.8	18.5
AgriMAXX Mackinac	White	11.4	8.7	70.0	63.3	9.2	120.9	68.8	18.1
AgriMAXX Piston	White	10.6	16.5	69.7	57.3	9.1	130.0	67.8	17.9
801	Red	10.3	12.7	68.3	65.2	8.5	127.2	72.6	18.1
Ambassador	White	11.1	12.1	71.7	56.7	9.1	102.4	65.3	18.2
DF 112 R	Red	10.7	11.8	72.3	61.7	8.7	120.3	70.1	18.4
DF 119 R	Red	10.4	6.7	70.8	64.4	8.4	107.0	69.4	18.7
DF 121 R	Red	10.7	20.1	69.3	62.5	8.6	103.2	67.5	18.2
DF 131 R	Red	10.4	17.0	70.4	62.6	8.4	118.5	69.1	18.5
DF 261 W	White	10.7	13.3	70.4	57.7	8.9	121.2	67.7	18.6
DF 271 W	White	10.5	10.2	70.4	62.9	8.5	115.8	68.4	18.6
DF 292 W	White	11.2	23.8	68.7	54.2	9.3	128.3	68.2	17.9
DF 121 R	Red	10.7	20.1	69.3	62.5	8.6	103.2	67.5	18.2
DF 271 W	White	10.5	10.2	70.4	62.9	8.5	115.8	68.4	18.6
Dyna-Gro 9002	Red	10.7	2.4	68.9	64.8	8.7	125.4	68.7	18.7
Dyna-Gro 9070	Red	10.5	18.0	69.0	60.1	8.6	119.3	70.7	18.5
Dyna-Gro 9151	Red	10.6	12.9	67.8	62.3	8.9	143.5	76.2	17.7
Dyna-Gro 9172	Red	10.1	13.7	70.5	65.0	8.2	120.4	67.9	18.9
Dyna-Gro 9182	Red	11.7	21.0	69.0	57.7	9.4	121.3	66.8	18.0
Dyna-Gro 9352	Red	10.4	8.4	67.8	65.5	8.5	103.3	72.4	18.3
Dyna-Gro 9082W	White	11.6	35.6	68.4	55.9	9.7	102.6	67.9	18.0
Dyna-Gro 9242W	White	10.3	22.8	68.2	60.4	8.6	105.6	66.6	18.7
WX22741	Red	10.9	6.5	69.9	67.3	8.8	110.0	69.4	18.7
WX22793	Red	11.2	19.9	68.7	64.2	8.8	112.8	68.1	18.6
GP 381	Red	11.4	12.3	68.2	63.7	9.0	119.8	71.4	18.6
GP 747	Red	9.6	10.6	70.7	67.5	7.8	108.8	67.7	19.0
SY 547	Red	10.9	30.2	68.4	55.4	8.8	99.7	67.7	18.2
SY 576	Red	11.2	22.6	66.4	58.9	9.3	102.9	70.6	18.6
SY Viper	Red	11.3	11.1	67.9	59.4	8.9	105.8	74.7	18.2
HS 338 R	Red	10.5	15.1	71.2	61.1	8.6	118.5	70.0	18.6
HS358R EXP	Red	10.8	21.5	69.4	60.3	8.3	97.9	66.7	18.7
ISF 1115	White	10.6	8.8	70.3	61.1	8.6	118.0	66.2	18.8
KWS394	Red	10.8	23.3	67.6	57.5	8.9	126.5	70.1	18.1
KWS398	Red	11.5	22.5	67.7	56.4	9.4	108.8	66.4	19.2
KWS405	Red	12.0	9.3	70.4	62.9	9.9	119.5	68.5	18.4
KWS411	Red	11.0	36.0	65.4	57.2	9.1	94.5	78.2	17.3
KWS414	Red	10.1	20.9	69.4	63.1	8.3	97.7	72.1	19.2
KWS415	Red	10.2	17.4	69.9	62.5	8.3	115.8	66.9	19.3
KWS428	White	11.3	17.9	70.7	58.1	9.3	85.4	69.9	18.3
KWS430	White	10.4	20.0	71.1	58.7	9.0	74.2	70.1	18.9
KWS431	White	11.5	22.1	68.0	55.5	9.4	116.0	72.7	18.6
AC Mountain	White	10.9	20.0	69.7	56.2	9.2	92.1	64.6	18.7
Jupiter	White	11.3	20.7	69.0	57.9	9.2	107.6	69.7	18.9
MCIA 2000	Red	10.4	22.2	69.2	61.7	8.3	98.1	65.9	19.1
MCIA Wharf	Red	10.6	1.9	69.4	59.0	8.4	90.8	67.1	19.6
MCIA Flipper	Red	10.2	16.3	72.1	61.2	8.1	98.9	65.8	18.9
MCIA Jonah	Red	10.3	13.4	71.3	61.4	8.4	113.7	67.0	19.7
MCIA MARLIN	Red	10.7	17.0	70.9	60.4	8.3	118.8	73.1	18.9
MCIA Red Dragon	Red	11.5	2.1	70.5	61.8	9.3	126.5	70.7	18.5
MCIA Whale	Red	11.3	24.4	69.1	56.0	9.1	114.5	71.4	18.4
MI16W0133	White	11.1	25.4	68.8	58.4	8.9	112.5	70.5	18.8
MCIA .357	Red	10.8	20.2	70.7	56.7	8.4	101.4	65.0	19.1
Moonlight	White	11.3	14.0	69.7	56.6	9.2	99.5	66.2	18.5

## 2022 Michigan State University Wheat Performance Trials

Table 5. Milling and baking qualities.

Line	Seed 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)
Sunburst	Red	10.8	42.5	65.2	52.0	9.1	109.2	73.6	17.8
Whitetail	White	11.5	11.8	69.6	60.8	9.4	115.1	68.7	18.2
MI16R0906	Red	10.7	21.4	68.5	59.8	8.6	123.7	70.5	18.6
MI18W1170	White	11.0	17.8	68.1	59.6	8.5	107.1	66.9	18.5
MI20R0011	Red	10.2	6.3	68.3	56.9	8.4	99.1	64.0	19.7
MI20R0012	Red	11.0	23.3	68.8	60.7	8.6	102.7	69.0	19.4
MI20R0013	Red	11.0	8.4	69.3	62.5	8.5	113.8	69.8	19.7
MI20R0210	Red	10.6	10.9	69.6	60.7	8.7	101.0	70.1	19.3
MI20W0035	White	10.7	19.4	68.2	55.8	8.8	124.6	67.6	19.0
MI20W0121	White	11.4	19.2	67.3	60.5	9.1	96.3	67.4	18.8
RS 977	Red	10.4	21.8	68.3	52.6	8.7	96.1	64.2	19.5
RS 912	Red	11.4	17.8	68.4	56.9	9.4	118.9	65.4	18.8
9xp051	Red	9.9	14.3	70.2	62.0	8.1	118.3	67.7	19.1
9xp216	Red	10.9	6.1	67.1	65.2	8.8	107.7	75.5	18.6
Synergy EXP2125	Red	10.6	7.3	70.1	65.1	8.7	104.7	68.8	19.9
Synergy EXP2141	Red	10.5	9.6	67.6	63.7	8.7	102.2	72.8	19.1
Haubert	Red	10.8	5.4	71.0	67.7	8.7	115.5	70.8	19.5
Tyson	Red	10.7	13.1	70.2	62.9	8.8	128.1	68.0	19.6
W 300	Red	10.2	23.7	72.1	57.3	8.9	100.2	63.8	19.5
W 304	Red	10.3	8.3	71.3	65.7	8.4	109.4	68.9	19.2
W 305	Red	10.7	53.6	73.0	49.8	9.7	102.5	75.6	17.7
W 313	Red	11.8	21.7	68.9	55.6	9.6	118.2	67.5	18.6
W 318	Red	10.4	8.2	69.1	66.8	8.5	124.1	73.2	18.7
W 322	Red	10.2	7.9	68.6	65.4	8.4	130.7	74.7	19.1
W 324	Red	10.3	17.0	70.8	61.7	8.4	121.8	70.4	18.7
W 326	Red	11.4	5.8	69.5	66.7	9.4	115.5	72.9	18.3
W 328	Red	9.6	12.5	71.1	62.6	7.9	108.5	67.9	19.5

# Commercially Available Varieties entered in the 2022 Michigan State University Wheat Performance Trials

## AgriMAXX Wheat Company

AgriMAXX 498  
AgriMAXX 505  
AgriMAXX 513  
AgriMAXX 516  
AgriMAXX EXP 2105  
AgriMAXX EXP 2110  
AgriMAXX EXP 2222  
AgriMAXX Mackinac  
AgriMAXX Piston

## Albert Lea Seeds

801

## DF Seeds Inc.

Ambassador  
DF 112 R  
DF 119 R  
DF 121 R  
DF 131 R  
DF 261 W  
DF 271 W

## Dyna-Gro Seed

Dyna-Gro 9002  
Dyna-Gro 9070  
Dyna-Gro 9151  
Dyna-Gro 9172  
Dyna-Gro 9182  
Dyna-Gro 9352  
Dyna-Gro 9082W  
Dyna-Gro 9242W  
WX22741  
WX22793

## Grow Pro Genetics

GP 381  
GP 463  
GP 747  
SY 100

SY 547  
SY 576  
SY Viper

## Harrington Seeds Inc.

HS338R  
HS358R EXP

## Irrer Seed Farm

ISF 12205

## KWS Cereals

KWS394  
KWS398  
KWS405  
KWS411  
KWS414  
KWS415  
KWS428  
KWS430  
KWS431

## Michigan Crop Improvement Association

AC Mountain  
Jupiter  
MCIA 2000  
MCIA 2004  
MCIA 21001  
MCIA 21002  
MCIA 21003  
MCIA 21004  
MCIA 21005  
MCIA 21006  
MCIA Wharf  
MCIA 21008  
MCIA Flipper  
MCIA Jonah  
MCIA MARLIN  
MCIA Red Dragon  
MCIA Whale

MI16W0133  
MI17R0357  
Moonlight  
Sunburst  
Whitetail

## Michigan State University

MI16R0906  
MI18W1170  
MI20R0011  
MI20R0012  
MI20R0013  
MI20R0210  
MI20W0035  
MI20W0121

## Rupp Seeds Inc.

RS 977  
RS 912  
9xp051  
9xp216

## Synergy Ag

Synergy EXP2125  
Synergy EXP2141  
Haubert  
Tyson

## Wellman Seeds Inc.

W 300  
W 304  
W 305  
W 313  
W 318  
W 322  
W 324  
W 326  
W 328

# Organizations Participating in the 2022 Michigan State University Wheat Performance Trials

AgriMAXX Wheat Company  
7167 Highbanks Road  
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

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