

Michigan State Wheat Performance Trials: 2009

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Comments on the 2009 Wheat Crop

This year's crop came out of the winter having good stands. Very cool temperatures throughout the spring months and into the summer resulted in slow drop development. Throughout the earlier part of the growing season the wheat crop was disease free. Foliar diseases such as powdery mildew, leaf and stripe rusts arrived late, and though they progressed during and after flowering, they did not appear to have a large impact on yield loss. Flowering was spread across a long period of time due to the cool conditions. In addition, these cool temperatures during grainfill likely contributed to some very high yields observed in the state. Fusarium head blight was not significant factor again this year. Rains near harvest resulted in extensive pre-harvest sprouting in the thumb of Michigan. Stem rust was observed again this year. Stem rust was light at all Ingham, Lenawee, and Tuscola counties, and moderate at the Saginaw county location. The USDA/NASS office reported on July 1 a state wide average yield projection of 68 bushels per acre. This would be a decrease of one bushel per acre from 2008.

Multi-Year Performance Summary (Tables 1 - 4)

Tables 1 through 5 summarize performance of the trial. The full trial included 80 varieties and experimental lines from 14 organizations including Michigan State University, and data analyses were conducted using all of these entries. For ease of viewing, two versions of the report are available. The "commercial only" version (available online and in the "Michigan Farm News" publication) includes the data of 49 commercially available varieties from 11 organizations only. The "including experimentals" version (online only) includes all 80 commercial and experimental lines. Attached to this narrative is a list of the names and contact information for those organizations. Each line 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 through 4 are sorted first by entry grain color, and then in descending order by yield for 2009. In some instances (e.g. yield), data columns to the right of the 2009 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' 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 both tables is the 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. The CV is indicative of a trial's precision. Trials with low levels of error variation have lower CV values. Traits for which scores on a 0-9 scale are employed generally have very high CV values.

Single Site Yield Performance Summary (Table 5)

Table 5 contains yield, test weight, and harvest moisture data from each of the six sites harvested for yield in 2009. Each row in the table represents a single entry in the test. It is recommended that single site / single year data should not be used to make variety choice decisions. Table 5 is sorted first by organization and then by variety or brand name.

Choosing Varieties

Growers should be aware that the grain of varieties with equal yield and test weight are not necessarily of equal value when delivered for sale. DON content and shriveled grain can result in significant discounts at the point of sale. This report provides across site and single site data for test weight which gives some indication of the degree to which a variety avoided shriveled grain. It is, however, possible for two varieties to have identical and acceptable test weight but differ in degree of grain shriveling.

Although wheat producers are always interested in how varieties perform in a given year and location, performance in a single year and location should never be used in selecting a variety to plant. It is best to select a variety on the basis of data from at least three years of testing. Varieties selected with such comparisons are more likely to perform well under a wide range of conditions. In any given year or at any given site, several varieties will usually fall into the group of 'highest yielding' varieties. The composition of that group, and the identity of the absolute "winner", can and does change from location to location and year to year. This means that the single best variety cannot be determined in advance for a specific site. However, you can identify a group of varieties that is likely to contain the winners in the upcoming season. We recommend that you plant two or more varieties, and where possible, choose varieties which will flower at different times in order to reduce the risk of scab infection which is most likely to occur when rain coincides with flowering.

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

Experimental

The 2009 State Wheat Performance Trial entries were planted at seven sites in 6 counties: Huron, Lenawee, Tuscola, Sanilac, Saginaw, and Ingham (2). Appendix A (below) presents information on each of these sites. Each plot was 6 rows at 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. The trial was designed and executed as four replication alpha-lattice (20 blocks of 4 plots each) at all sites. 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 2.0 million seeds per acre in a solid stand planted in 7.5" rows. Fall fertilizer application varied with cooperators practice. Spring nitrogen was applied as urea (90 lbs/acre actual N) at green-up. No foliar fungicides were applied at any site. Weeds were chemically controlled as needed. All plots at a site were harvested on a single day. For all sites, yield was calculated using the entire area of the plot including the wheel tracks between plots. This approach tends to underestimate yield. Data reported as scores are based on a 0-9 scale, where 0 is the best possible score.

Table 1 contains data for yield, test weight, and grain moisture. These data were acquired electronically on the plot combine at the time of harvest. Yield data is standardized to 13% moisture. In addition, grain color, chaff color and awnedness are indicated. This year, in contrast to previous years, we have indicated the degree of awnedness to specify if cultivars were "tip awned" (known as "apically awnletted" elsewhere, awns only present at the tip of the spike), "awnletted" (short awns on the spike), , or "awned" (long awns on the entire spike). In previous years, "tip awned" and "awnletted" were recorded as "awnless".

Table 2 contains data for lodging, flowering date, plant height, leaf rust, stripe rust, stem rust, powdery mildew, and leaf blotch. The lodging score is based on 0=plants fully erect; 9=plot completely lodged. 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. Plant height is reported as the distance in inches from the ground to the tip of average heads in a plot. Leaf rust, stripe rust, stem rust, powdery mildew, and leaf blotch scores are recorded as “0 = no visual symptoms of disease present”. Leaf and stripe rust scores are based primarily on infection observations on the flag leaf. Stem rust scores were scored based on the severity of the rust pustules on the stems. Powdery mildew scores are based on observations of the entire plant including the flag leaf. The causal organism(s) of the leaf blotching were not identified, but were likely a combination of *Stagonospora tritici*, (formerly known as *Septoria tritici*), and *S. nordorum*.

Table 3 contains data for in-head sprouting, black point, and Fusarium head blight. In-head sprouting data reported here is based on a greenhouse evaluation of 5 heads from each plot for entries included in 2008 and prior. Heads were collected within 6 hours of harvest. Following harvest, heads were dried for 3 and 5 days. Scores were taken after the heads were subjected to near-continuous misting for 3 to 4 days. A score of zero indicates that sprouting was not present. A score of 9 indicates many shoots and roots observed in the heads during scoring. In 2009, both naturally occurring sprouted samples and induced misted sprouted samples were collected for evaluation. Naturally occurring sprouted samples were acquired from Sanilac and Huron counties (one replication at each site) for a sprout count and a falling number. On the day of harvest (Sanilac County August 28th, Huron County August 30), from the original ~7 lbs of sample harvested from each plot, a single sub-sample was taken (approximately 300 grams) for sprout count. These subsamples were taken to Star of the West Milling Co., Frankenmuth, MI, where sprouting was assessed on 15 grams (~250 seeds) from each. The remainder of the 7lb sample was dried at 100°F and removed August 4th, when samples were at or below 12% moisture (samples ranged from 7% - 12% moisture). To obtain a falling number from these naturally sprouted samples, ~1lb subsamples were taken from each of the dried plot samples and analyzed for falling number by Star of the West Milling Co. Induced sprouting samples were acquired from Ingham and Midland counties prior to plot harvest and prior to extensive sprouting conditions in the field. For each plot, physiological maturity was visually assessed on plots by determining when 80% of the plot was completely lacking in chlorophyll. Three to four days following physiological maturity of the plot, ~ 100 heads were collected and placed upright in tubes in the greenhouse. The following morning, the heads were misted in the tubes the greenhouse for 20 seconds every 6 minutes for 7 hours. Following misting, plants were air-dried overnight in the greenhouse and then placed in paper sacks in a drier at 90°F. After all samples were sufficiently dry (~10.4% moisture), they were threshed (gas powered bulk threshing machine) and sent to the USDA-ARS Soft Wheat Quality Laboratory, Wooster, Ohio, for falling number and alpha amylase analysis. Although both data sets (naturally occurring sprouted samples and induced sprouting samples) are being evaluated, these data sets are not completed by the printing of this report and will be reported on our website (see below) as soon as possible.

Black point is the discoloration of the embryo (germ) end and surrounding areas of the wheat kernel. The embryo tip shows a black to brown discoloration that may extend into the crease of the kernel. Visual observations consisted of 500 seed lots from one rep at each location observed. The data presented is the average percent of kernels discolored from the 2008 and prior harvest seasons. Data on Fusarium head blight (FHB, scab) were obtained from the Ingham misted/inoculated scab screening nursery. The Ingham scab nursery was inoculated (from lab-produced infected grain spread onto the field), and artificial misting was employed throughout the entire flowering period. Each wheat head (i.e., ‘spike’) is comprised of roughly 14-22 “spikelets”, which bear the developing seed. Spikelets that prematurely die because of scab infection are called “scabby” spikelets. Field symptom data reported here are based on: 1)

the percent of spikes showing any scabby spikelets (incidence); 2) the percent of scabby spikelets within infected spikes (severity); and 3) the percent of scabby spikelets considering all spikes (scab index). The scab index is derived from multiplying the incidence and severity, and is a measure of the extent of damage to entire plots due to scab infection, Deoxynivalenol (DON) data is from harvested grain in the inoculated, mist irrigated, scab screening nursery. DON data in table 3 is presented in parts per million (ppm). The grain was analyzed for DON at the University of Minnesota using gas chromatography mass spectrometry, DON data is from the 2008 and prior crop years.

Table 4 contains data for milling quality. All data in table 4 is from the 2008 harvest season and prior. The milling and baking quality data were generated by the USDA Eastern Soft Wheat Quality Laboratory in Wooster, Ohio, and are based on grain harvested from the 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. Lactic Acid Retention is used by some soft wheat processors as a measure of protein strength. Higher “softness equivalent percents” indicate softer grained wheats.

Six 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. Questions and comments regarding the research reported here should be directed to Janet Lewis (517-355-0271 ext. 1185). This information, along with results from previous years, may also be accessed through the Web at http://www.css.msu.edu/varietytrials/wheat/Variety_Results.html.

2009 Michigan State University Wheat Performance Trials (Commercially Available Only)

Multi-year data are the most informative.

Table 1 : Multi-Year Performance Summary (Note: Tables sorted by 2009 Yield, red wheats grouped before white)

MSU makes no endorsement of any variety or brand.

Name	Grain Color	Chaff Color	Awns	Yield: Bushels/Acre (Adjusted to 13% Moisture)				Test Weight: lbs/Bushel				Percent Grain Moisture at Harvest				Organization	
				Multi-Year Averages				Multi-Year Averages				Multi-Year Averages					
				2009	2 YR 08-09	3 YR 07-09	4 YR 06-09	2009	2 YR 08-09	3 YR 07-09	4 YR 06-09	2009	2 YR 08-09	3 YR 07-09	4 YR 06-09		
				2009	08-09	07-09	06-09	2009	08-09	07-09	06-09	2009	08-09	07-09	06-09		
Dyna-Gro Shirley	Red	White	Awnletted	99.0	93.1	-----	-----	57.2	58.6	-----	-----	15.6	15.5	-----	-----	Dyna-Gro Seed	
Sunburst	Red	White	Tip Awned	96.6	91.3	91.0	-----	60.6	61.5	61.0	-----	16.3	16.1	15.3	-----	Michigan Crop Improvement Association	
AgriPro Branson	Red	White	Awnletted	96.3	91.8	91.4	92.7	58.3	59.4	58.9	58.6	14.5	14.4	14.0	14.3	Syngenta / AgriPro Wheat	
RO75	Red	White	Awnletted	96.0	94.4	-----	-----	59.1	60.3	-----	-----	15.4	15.3	-----	-----	D.F. Seeds, Inc.	
Red Ruby	Red	White	Awned	96.0	93.7	93.4	94.7	57.7	60.0	59.8	59.4	15.3	15.1	14.5	14.8	Michigan Crop Improvement Association	
Pioneer Brand 25R47	Red	White	Awned	95.7	94.4	94.6	96.0	56.7	58.7	58.3	57.9	14.8	14.9	14.5	14.8	Pioneer Hi-Bred International	
RO45	Red	White	Tip Awned	95.4	94.9	94.6	94.5	58.7	60.2	59.6	59.3	15.3	15.5	14.7	14.9	D.F. Seeds, Inc.	
RS 978	Red	White	Tip Awned	94.8	92.8	-----	-----	57.2	58.8	-----	-----	13.9	14.0	-----	-----	Rupp Seeds, Inc.	
Dyna-Gro V9723	Red	White	Awnletted	94.6	92.7	-----	-----	57.2	58.8	-----	-----	14.0	14.1	-----	-----	Dyna-Gro Seed	
RO65	Red	White	Awnletted	94.3	93.4	-----	-----	58.8	60.4	-----	-----	15.7	15.4	-----	-----	D.F. Seeds, Inc.	
Excel 234	Red	White	Awnletted	94.3	-----	-----	-----	59.4	-----	-----	-----	15.7	-----	-----	-----	Excel Brand Seed	
RO55	Red	White	Tip Awned	94.2	88.8	89.5	91.8	59.0	60.1	59.5	59.2	15.3	15.5	14.7	14.9	D.F. Seeds, Inc.	
Emmit	Red	White	Awnletted	94.1	91.9	91.4	92.5	57.9	59.3	59.2	58.7	15.4	15.2	14.7	15.0	Hyland Seeds	
Pioneer Brand 25R62	Red	White	Awned	93.4	92.7	-----	-----	56.1	57.8	-----	-----	13.3	13.3	-----	-----	Pioneer Hi-Bred International	
Hopewell	Red	Bronze	Awnletted	93.3	92.3	92.3	92.8	57.6	59.1	59.0	58.6	14.2	14.3	13.9	14.3	Michigan Crop Improvement Association	
MCIA Oasis	Red	White	Awnletted	93.2	91.7	92.5	93.7	57.0	58.8	58.3	58.0	16.0	15.6	14.7	14.9	Michigan Crop Improvement Association	
AG 2738	Red	White	Awnletted	92.7	-----	-----	-----	56.5	-----	-----	-----	14.5	-----	-----	-----	Michigan Crop Improvement Association	
Dyna-Gro V9812	Red	White	Tip Awned	92.4	-----	-----	-----	57.8	-----	-----	-----	13.9	-----	-----	-----	Dyna-Gro Seed	
AgriPro W1566	Red	White	Awnletted	92.2	-----	-----	-----	57.1	-----	-----	-----	15.1	-----	-----	-----	Syngenta / AgriPro Wheat	
Pioneer Brand 25R39	Red	White	Tip Awned	92.1	-----	-----	-----	58.4	-----	-----	-----	15.2	-----	-----	-----	Pioneer Hi-Bred International	
MCIA Butch	Red	White	Awnletted	92.0	93.0	92.9	-----	56.5	57.9	57.6	-----	13.8	14.1	13.6	-----	Michigan Crop Improvement Association	
RO85	Red	White	Tip Awned	91.5	88.3	-----	-----	58.3	60.0	-----	-----	15.9	16.0	-----	-----	D.F. Seeds, Inc.	
Red Amber	Red	White	Awned	91.3	89.9	90.4	91.7	57.9	59.5	59.1	58.6	15.9	15.4	14.7	14.9	Michigan Crop Improvement Association	
Excel 180	Red	White	Awnletted	90.2	-----	-----	-----	60.0	-----	-----	-----	14.4	-----	-----	-----	Excel Brand Seed	
RS 908	Red	White	Tip Awned	90.0	91.0	90.9	-----	58.3	60.0	59.3	-----	14.2	14.6	13.9	-----	Rupp Seeds, Inc.	
Roane	Red	White	Awnletted	89.8	86.2	85.6	85.3	60.2	61.3	61.0	60.7	15.9	15.8	15.1	15.5	Michigan Crop Improvement Association	
9XP51	Red	White	Awned	89.7	-----	-----	-----	58.3	-----	-----	-----	14.9	-----	-----	-----	Rupp Seeds, Inc.	
Dyna-Gro 9911	Red	White	Awnletted	89.6	-----	-----	-----	59.2	-----	-----	-----	14.7	-----	-----	-----	Dyna-Gro Seed	
AgriPro W1377	Red	White	Tip Awned	87.0	87.2	-----	-----	60.0	61.2	-----	-----	15.4	15.5	-----	-----	Syngenta / AgriPro Wheat	
Ambassador	White	White	Awnletted	95.7	93.2	93.5	95.0	55.5	57.2	57.2	57.0	13.2	13.3	13.0	13.3	D.F. Seeds, Inc. / Cooperative Elevator Co.	
Ava	White	White	Awnletted	94.7	92.5	-----	-----	57.0	58.8	-----	-----	15.5	15.3	-----	-----	Hyland Seeds	
Pioneer Brand 25W43	White	White	Tip Awned	94.6	91.0	-----	-----	56.5	58.3	-----	-----	14.2	14.5	-----	-----	Pioneer Hi-Bred International	
Coral	White	Bronze	Awnletted	93.9	90.6	90.3	91.6	57.3	59.0	58.9	58.5	14.8	14.8	14.5	14.7	Michigan Crop Improvement Association	
Pioneer Brand 25W36	White	White	Awnletted	91.9	90.1	-----	-----	57.9	59.1	-----	-----	14.3	14.2	-----	-----	Pioneer Hi-Bred International	
Crystal	White	White	Awned	91.8	90.8	91.6	93.0	56.3	58.2	58.1	57.6	13.5	13.5	13.0	13.2	Michigan Crop Improvement Association	
Saftey-10 (4PHS-10 EXP)	White	White	Awnletted	91.4	-----	-----	-----	57.3	-----	-----	-----	14.9	-----	-----	-----	D.F. Seeds, Inc.	
Envoy	White	White	Awned	91.1	88.9	89.1	89.6	58.1	59.8	59.8	59.4	14.7	14.4	14.0	14.3	D.F. Seeds, Inc. / Cooperative Elevator Co.	
Jewel	White	White	Awned	90.9	89.3	89.9	91.1	57.0	58.9	58.9	58.5	14.0	14.0	13.7	14.0	Michigan Crop Improvement Association	
AC Mountain	White	White	Awnletted	90.7	88.7	87.6	89.2	56.6	58.3	58.0	57.7	13.5	13.7	13.4	13.7	Michigan Crop Improvement Association	
MSU D8006	White	White	Awned	90.2	89.9	91.5	93.1	56.9	58.9	58.6	58.0	14.5	14.4	13.7	13.9	Michigan Crop Improvement Association	
MSU D6234	White	White	Tip Awned	90.1	89.4	88.5	89.1	57.6	59.3	59.3	59.0	15.0	15.1	14.5	14.7	Michigan State University	
AgriPro W1062	White	White	Tip Awned	89.9	90.2	90.2	-----	56.1	58.3	57.9	-----	15.8	15.6	15.0	-----	Syngenta / AgriPro Wheat	
Aubrey	White	White	Awnletted	89.5	88.0	87.9	87.9	58.7	60.0	59.8	59.6	14.3	14.5	14.1	14.5	D.F. Seeds, Inc. / Co-op Elevator Co. / Farmers Co-op Grain Co.	
Caledonia	White	White	Awnletted	89.0	86.0	85.0	87.5	56.5	58.7	58.3	57.8	14.4	14.3	13.8	14.1	Harrington Seeds, Inc.	
Linebacker 180 (180-10 EXP)	White	White	Awnletted	87.1	-----	-----	-----	55.9	-----	-----	-----	16.0	-----	-----	-----	D.F. Seeds, Inc.	
Augusta	White	White	Awnletted	86.2	85.7	84.8	-----	55.6	57.7	57.3	-----	15.0	14.8	14.5	-----	Michigan State University	
Lowell	White	White	Awnletted	83.4	83.3	83.5	-----	55.5	57.5	57.1	-----	13.4	13.6	13.1	-----	Michigan State University	
FHB-12 EXP	White	White	Awnletted	80.9	82.7	-----	-----	56.0	57.9	-----	-----	14.2	14.3	-----	-----	D.F. Seeds, Inc.	
Frankenmuth	White	Bronze	Awnletted	77.2	78.6	77.9	-----	58.0	59.3	59.1	-----	14.6	14.5	14.3	-----	Michigan State University	
Trial Mean (2009=80 Entries)				90.6	90.1	89.8	91.6	57.6	59.1	58.8	58.6	14.8	14.8	14.2	14.4		
				LSD (0.05)	5.8	4.9	3.3	2.9	1.0	1.0	0.8	0.7	1.0	0.7	0.6	0.5	
				CV (%)	5.6	2.7	2.3	2.3	1.6	0.9	0.9	0.8	6.0	2.3	2.7	2.4	

2009 Michigan State University Wheat Performance Trials (Commercially Available Only)

Multi-year data are the most informative.

Table 2 : Multi-Year Performance Summary (Note: Tables sorted by 2009 Yield, red wheats grouped before white)

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Name	Grain Color	Lodging Score (0-9) (0=None) 2009	Flowering Date (Days Past Jan. 1)			Plant Height (Inches)			Powdery Mildew Score (0-9)			Leaf Blotch Score (0-9)		Leaf Rust Score (0-9)			Stripe Rust Score (0-9) 2009	Stem Rust Score (0-9) 2009
			Multi-Year Averages			Multi-Year Averages			Multi-Year Averages			Multi-Year		Multi-Year Averages				
			2 YR 08-09	3 YR 07-09	-----	2 YR 08-09	3 YR 07-09	-----	2 YR 08-09	3 YR 07-09	-----	2 YR 08-09	-----	2 YR 08-09	3 YR 07-09	-----		
			2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009		
Dyna-Gro Shirley	Red	7.7	157.4	157.0	-----	37.1	33.5	-----	0.7	0.4	-----	1.7	1.4	0.0	0.0	-----	1.5	0.0
Sunburst	Red	4.2	158.0	157.2	155.5	34.2	31.9	30.9	0.7	0.5	0.5	4.0	3.0	1.0	1.5	2.5	0.0	0.0
AgriPro Branson	Red	6.0	154.9	155.1	153.5	38.1	35.1	33.8	1.2	1.7	1.6	2.9	2.8	3.0	3.3	3.2	0.0	0.0
RO75	Red	4.0	156.7	155.9	-----	38.6	35.5	-----	3.7	4.5	-----	3.0	2.8	3.0	3.5	-----	2.3	1.0
Red Ruby	Red	6.8	157.6	156.7	155.3	40.0	36.8	35.3	2.3	2.3	2.7	2.7	2.6	3.0	4.3	3.7	0.5	5.0
Pioneer Brand 25R47	Red	5.0	156.5	155.7	154.4	36.7	34.0	32.9	3.6	4.1	4.2	2.9	3.1	2.0	2.8	2.5	0.5	4.0
RO45	Red	5.7	156.7	155.9	154.4	38.4	35.5	34.4	3.8	4.6	4.0	3.5	3.1	3.0	3.8	3.5	0.5	1.0
RS 978	Red	8.2	155.9	155.1	-----	44.4	40.3	-----	2.6	3.2	-----	2.7	2.5	3.0	4.3	-----	0.2	3.0
Dyna-Gro V9723	Red	6.2	155.6	155.1	-----	43.9	39.9	-----	2.5	3.1	-----	2.7	2.4	3.0	3.8	-----	0.3	2.0
RO65	Red	4.8	157.2	156.1	-----	39.3	36.1	-----	3.7	4.6	-----	3.4	3.2	3.0	3.8	-----	1.0	1.0
Excel 234	Red	8.4	154.9	-----	-----	41.1	-----	-----	1.2	-----	-----	3.2	-----	1.0	-----	-----	0.7	0.0
RO55	Red	8.3	157.2	156.4	154.7	40.6	36.2	34.8	1.3	1.6	1.8	3.0	3.0	1.0	2.0	2.0	0.3	0.0
Emmit	Red	8.0	157.8	157.0	155.5	42.0	37.6	36.5	2.3	3.1	3.5	2.9	2.6	4.0	4.8	4.0	0.7	2.0
Pioneer Brand 25R62	Red	7.7	157.9	157.2	-----	37.7	34.8	-----	1.5	2.5	-----	3.0	3.3	3.0	4.0	-----	0.2	4.0
Hopewell	Red	3.6	157.5	156.8	154.9	39.6	36.9	36.2	2.4	2.9	3.0	2.5	2.9	4.0	5.5	4.7	0.0	1.0
MCIA Oasis	Red	6.1	157.8	156.7	154.9	44.4	40.7	39.6	1.2	1.4	1.5	2.0	1.7	1.0	1.0	1.0	0.0	4.0
AG 2738	Red	6.8	157.5	-----	-----	36.8	-----	-----	1.4	-----	-----	3.2	-----	1.0	-----	-----	0.3	3.0
Dyna-Gro V9812	Red	5.7	156.2	-----	-----	38.0	-----	-----	1.9	-----	-----	3.7	-----	3.0	-----	-----	0.0	4.0
AgriPro W1566	Red	7.1	156.8	-----	-----	46.7	-----	-----	0.6	-----	-----	2.7	-----	3.0	-----	-----	0.6	0.0
Pioneer Brand 25R39	Red	8.3	158.5	-----	-----	40.2	-----	-----	3.4	-----	-----	2.7	-----	2.0	-----	-----	0.3	1.0
MCIA Butch	Red	6.3	157.7	157.0	155.2	35.7	32.9	32.0	2.0	2.0	2.0	3.4	3.2	4.0	5.0	4.7	0.2	0.0
RO85	Red	7.2	157.4	156.5	-----	44.8	40.3	-----	3.0	3.0	-----	3.4	3.1	2.0	2.8	-----	0.0	4.0
Red Amber	Red	8.3	157.7	157.3	155.5	41.8	38.4	37.5	0.9	1.2	1.4	3.2	3.7	2.0	3.3	3.0	0.0	5.0
Excel 180	Red	7.5	153.6	-----	-----	41.6	-----	-----	6.1	-----	-----	4.5	-----	3.0	-----	-----	0.0	0.0
RS 908	Red	5.5	155.9	155.2	153.8	38.6	35.1	34.4	2.1	2.7	3.0	3.0	2.8	3.0	3.5	3.0	0.2	4.0
Roane	Red	8.4	157.2	156.1	154.3	38.3	34.7	33.7	2.9	2.5	3.3	3.2	3.2	2.0	3.5	3.0	0.2	2.0
9XP51	Red	6.9	157.6	-----	-----	44.0	-----	-----	4.5	-----	-----	3.4	-----	2.0	-----	-----	0.1	1.0
Dyna-Gro 9911	Red	7.1	155.6	-----	-----	39.7	-----	-----	1.4	-----	-----	2.7	-----	2.0	-----	-----	0.0	0.0
AgriPro W1377	Red	7.9	156.5	155.7	-----	40.9	38.1	-----	5.1	5.6	-----	3.0	2.9	3.0	4.0	-----	0.3	4.0
Ambassador	White	8.4	156.9	156.4	154.8	40.3	36.4	35.5	2.8	2.9	2.8	3.7	3.9	4.0	5.3	4.5	0.5	4.0
Ava	White	6.9	158.6	157.7	-----	44.7	39.9	-----	2.7	3.4	-----	3.0	2.9	3.0	4.3	-----	0.0	4.0
Pioneer Brand 25W43	White	9.0	157.1	156.3	-----	38.5	35.8	-----	4.4	4.3	-----	3.2	3.4	2.0	3.3	-----	0.0	0.0
Coral	White	7.0	157.8	157.6	156.0	41.9	38.0	37.3	3.5	4.1	4.1	3.7	3.6	2.0	3.3	3.0	1.5	7.0
Pioneer Brand 25W36	White	8.9	158.6	157.3	-----	39.5	36.5	-----	2.7	2.8	-----	3.7	3.3	3.0	4.0	-----	0.8	4.0
Crystal	White	7.4	157.8	157.0	155.6	39.9	35.9	35.2	1.2	1.7	2.1	3.0	3.3	4.0	4.5	3.8	0.8	5.0
Saftey-10 (4PHS-10 EXP)	White	7.5	157.1	-----	-----	40.3	-----	-----	3.8	-----	-----	3.4	-----	4.0	-----	-----	0.9	3.0
Envoy	White	6.7	157.8	156.7	155.2	38.2	35.4	33.8	2.2	1.8	2.1	3.2	3.0	3.0	4.3	3.8	1.0	4.0
Jewel	White	5.3	156.9	156.4	154.8	40.5	37.3	36.2	3.2	3.8	3.5	4.2	3.3	3.0	4.3	3.5	0.3	4.0
AC Mountain	White	8.1	157.4	156.9	155.4	44.8	41.0	39.9	3.6	3.4	3.4	3.0	2.6	3.0	4.5	4.2	0.7	4.0
MSU D8006	White	7.4	157.0	156.1	154.5	40.9	36.9	36.0	1.4	1.9	2.1	3.4	3.3	2.0	3.8	3.3	0.3	4.0
MSU D6234	White	7.2	157.8	157.2	155.7	41.8	37.9	36.7	2.7	2.6	2.8	3.0	2.5	1.0	2.5	2.5	1.5	0.0
AgriPro W1062	White	8.9	157.8	157.0	155.5	42.0	37.9	36.3	2.4	3.2	3.8	3.4	3.1	2.0	3.0	2.7	0.5	4.0
Aubrey	White	6.3	155.4	155.0	153.8	42.2	37.0	36.3	1.4	1.7	1.8	3.2	2.9	3.0	4.5	4.2	0.5	5.0
Caledonia	White	7.2	157.4	156.8	155.3	40.0	36.1	34.6	2.6	3.2	3.5	3.5	3.6	4.0	5.0	4.7	0.1	5.0
Linebacker 180 (180-10 EXP)	White	8.7	158.2	-----	-----	42.0	-----	-----	3.4	-----	-----	3.7	-----	4.0	-----	-----	0.6	4.0
Augusta	White	8.5	159.3	158.4	156.9	48.0	43.3	42.4	3.7	4.0	4.2	4.0	3.1	2.0	3.8	3.3	1.0	5.0
Lowell	White	8.6	157.3	156.5	154.9	45.5	41.5	40.4	3.4	4.1	4.1	3.2	3.4	4.0	5.3	5.2	0.5	5.0
FHB-12 EXP	White	7.8	157.9	157.2	-----	39.9	36.5	-----	4.7	5.5	-----	3.9	3.5	4.0	5.0	-----	0.8	6.0
Frankenmuth	White	7.7	159.3	158.4	157.0	51.8	46.6	45.1	2.1	2.9	3.2	3.2	3.1	2.0	3.8	3.7	1.2	4.0
Trial Mean (2009=80 Entries)		6.9	157.2	156.7	155.1	40.2	36.9	36.2	2.4	2.8	2.8	3.2	3.0	2.5	3.7	3.5	0.5	2.6
LSD (0.05)		2.3	1.0	0.8	0.7	1.7	2.0	1.4	1.4	1.1	0.9	1.3	0.9	1.3	1.5	1.3	0.9	1.3
CV (%)		22.0	0.9	0.7	0.7	2.2	2.7	2.4	34.9	19.4	19.9	20.4	15.4	38.4	19.9	22.3	119.2	26.8

2009 Michigan State University Wheat Performance Trials (Commercially Available Only)

Multi-year data are the most informative.

MSU makes no endorsement of any variety or brand.

Table 3 : Multi-Year Performance Summary (Note: Tables sorted by 2009 Yield, red wheats grouped before white)

Name	Grain Color	In Head Sprouting Score (0-9)			Black Point Percent			Fusarium Head Blight (Scab) Data : Field Observation Symptoms									DON (ppm) in grain		
		Multi-Year Averages			Multi-Year Averages			Incidence (% of spikes)			Severity (% within spikes)			Index (% overall infection)			Multi-Year Averages		
		2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08	2009	2 YR 08-09	3 YR 07-09	2009	2 YR 08-09	3 YR 07-09	2009	2 YR 08-09	3 YR 07-09	2008	2 YR 07-08	3 YR 06-08
		2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08	2009	2 YR 08-09	3 YR 07-09	2009	2 YR 08-09	3 YR 07-09	2009	2 YR 08-09	3 YR 07-09	2008	2 YR 07-08	3 YR 06-08
Dyna-Gro Shirley	Red	0.4	-----	-----	7.4	-----	-----	89.9	89.5	-----	45.9	43.8	-----	40.0	39.0	-----	9.6	-----	-----
Sunburst	Red	0.4	1.4	-----	11.6	9.1	-----	83.4	90.0	80.6	20.6	27.3	35.0	18.6	25.5	27.3	6.1	5.2	-----
AgriPro Branson	Red	0.6	2.1	2.2	2.6	5.6	5.9	79.7	82.6	73.3	32.1	33.2	33.7	26.2	27.7	25.4	5.8	5.3	3.8
RO75	Red	1.0	-----	-----	27.5	-----	-----	70.1	70.1	-----	36.9	31.8	-----	27.4	23.2	-----	5.3	-----	-----
Red Ruby	Red	1.6	4.2	3.9	12.2	9.2	8.8	96.8	95.0	85.2	34.4	40.1	46.5	32.4	37.9	39.3	10.7	8.8	6.3
Pioneer Brand 25R47	Red	3.8	5.3	5.0	9.0	12.9	12.1	82.5	79.6	77.8	30.3	26.3	35.9	26.2	21.8	28.4	6.6	6.3	4.6
RO45	Red	1.0	3.3	4.6	24.2	25.7	22.6	61.6	74.7	67.3	35.6	31.6	34.1	23.7	24.1	23.8	7.5	6.6	4.9
RS 978	Red	4.1	-----	-----	2.4	-----	-----	65.5	70.5	-----	36.6	38.2	-----	24.3	26.7	-----	5.5	-----	-----
Dyna-Gro V9723	Red	3.3	-----	-----	2.5	-----	-----	64.9	67.9	-----	38.5	39.7	-----	27.2	28.3	-----	6.1	-----	-----
RO65	Red	0.7	-----	-----	31.8	-----	-----	71.0	72.5	-----	30.0	30.9	-----	22.5	23.0	-----	6.3	-----	-----
Excel 234	Red	-----	-----	-----	-----	-----	-----	52.7	-----	-----	19.7	-----	-----	13.2	-----	-----	-----	-----	-----
RO55	Red	3.0	5.4	4.6	4.5	10.5	14.5	82.7	83.5	76.3	31.4	29.0	35.4	27.7	25.2	26.6	4.9	4.6	3.5
Emmit	Red	1.5	4.3	5.0	23.0	21.8	22.4	76.6	74.2	65.4	35.6	34.8	38.9	28.0	26.7	25.4	5.5	5.0	3.6
Pioneer Brand 25R62	Red	3.5	-----	-----	2.6	-----	-----	82.1	87.0	-----	21.5	25.9	-----	17.6	22.6	-----	11.3	-----	-----
Hopewell	Red	0.5	1.7	2.1	1.6	2.6	2.8	85.5	86.7	80.1	34.3	36.5	44.2	31.2	32.8	36.2	7.5	7.2	5.3
MCIA Oasis	Red	1.2	2.0	2.0	25.6	34.4	33.8	73.6	83.9	75.5	34.7	39.2	41.1	25.8	33.7	31.2	7.3	5.8	4.2
AG 2738	Red	-----	-----	-----	-----	-----	-----	82.3	-----	-----	28.9	-----	-----	25.5	-----	-----	-----	-----	-----
Dyna-Gro V9812	Red	-----	-----	-----	-----	-----	-----	88.8	-----	-----	37.3	-----	-----	32.9	-----	-----	-----	-----	-----
AgriPro W1566	Red	-----	-----	-----	-----	-----	-----	76.7	-----	-----	46.9	-----	-----	36.4	-----	-----	-----	-----	-----
Pioneer Brand 25R39	Red	-----	-----	-----	-----	-----	-----	65.4	-----	-----	43.2	-----	-----	28.9	-----	-----	-----	-----	-----
MCIA Butch	Red	1.5	3.6	-----	6.7	6.6	-----	90.6	93.0	86.0	54.0	53.8	57.8	50.2	50.5	49.4	11.7	12.3	-----
RO85	Red	1.9	-----	-----	5.6	-----	-----	72.5	80.4	-----	33.1	36.0	-----	24.7	29.5	-----	5.3	-----	-----
Red Amber	Red	0.6	2.9	3.3	7.8	11.1	10.2	88.9	89.4	80.5	57.0	55.2	55.4	51.0	49.9	44.6	10.0	8.9	6.5
Excel 180	Red	-----	-----	-----	-----	-----	-----	55.2	-----	-----	23.8	-----	-----	16.4	-----	-----	-----	-----	-----
RS 908	Red	1.6	2.0	-----	2.8	4.9	-----	91.3	91.4	81.1	52.3	49.2	51.3	46.6	44.5	40.9	6.9	6.8	-----
Roane	Red	0.6	4.1	3.8	2.3	2.7	3.8	62.3	66.6	65.1	17.7	16.5	24.9	12.8	12.0	16.9	3.4	3.6	2.6
9XP51	Red	-----	-----	-----	-----	-----	-----	63.1	-----	-----	30.9	-----	-----	18.4	-----	-----	-----	-----	-----
Dyna-Gro 9911	Red	-----	-----	-----	-----	-----	-----	52.7	-----	-----	18.8	-----	-----	13.3	-----	-----	-----	-----	-----
AgriPro W1377	Red	1.5	-----	-----	5.8	-----	-----	60.2	74.8	-----	18.2	19.0	-----	13.6	15.6	-----	4.6	-----	-----
Ambassador	White	6.7	7.7	7.9	2.7	5.8	-----	84.1	87.3	78.0	51.5	56.7	53.1	42.4	49.7	42.2	12.9	12.3	10.0
Ava	White	6.1	-----	-----	10.8	-----	-----	60.4	71.7	-----	34.1	30.3	-----	18.9	20.7	-----	5.0	-----	-----
Pioneer Brand 25W43	White	4.8	-----	-----	6.4	-----	-----	65.3	70.5	-----	20.2	20.3	-----	15.6	16.4	-----	6.2	-----	-----
Coral	White	6.2	7.3	7.8	2.9	5.8	5.9	71.1	79.6	65.3	41.7	42.6	39.0	27.6	32.9	26.7	9.4	6.2	5.3
Pioneer Brand 25W36	White	6.9	-----	-----	1.1	-----	-----	77.7	86.0	-----	41.2	47.1	-----	31.9	41.2	-----	9.7	-----	-----
Crystal	White	7.0	7.7	7.8	0.8	0.9	-----	90.4	94.9	77.6	45.8	47.0	53.8	41.8	43.8	39.5	12.8	13.4	10.4
Saftey-10 (4PHS-10 EXP)	White	-----	-----	-----	-----	-----	-----	82.2	-----	-----	39.9	-----	-----	33.1	-----	-----	-----	-----	-----
Envoy	White	3.0	5.3	5.6	5.6	7.0	-----	92.1	82.3	78.8	34.6	29.0	39.1	32.8	25.6	31.3	8.7	9.0	7.0
Jewel	White	6.1	7.2	7.4	1.7	3.7	3.5	96.7	90.4	83.8	25.4	30.5	39.6	23.6	27.5	32.0	16.4	11.2	9.6
AC Mountain	White	7.8	8.4	8.3	3.7	8.1	9.7	73.2	77.6	64.8	44.6	46.5	50.6	32.1	35.9	32.1	8.3	6.0	4.9
MSU D8006	White	4.9	6.0	6.3	27.7	20.1	22.1	78.8	86.5	78.6	35.5	43.0	46.2	28.5	38.2	37.3	8.8	9.2	7.9
MSU D6234	White	5.4	7.0	7.6	28.0	29.8	27.1	65.5	79.6	73.8	31.6	33.7	43.2	21.2	27.6	31.4	10.7	7.4	6.0
AgriPro W1062	White	3.7	5.1	-----	2.7	8.1	-----	89.4	91.1	75.8	36.2	46.8	46.3	31.8	42.2	35.1	10.6	7.6	-----
Aubrey	White	7.7	8.1	8.3	9.6	7.2	7.3	60.8	71.2	67.1	37.4	30.9	32.4	24.6	22.3	22.3	5.8	4.7	4.1
Caledonia	White	4.7	6.7	7.3	3.9	5.9	5.6	77.7	86.1	76.2	47.9	53.4	54.2	40.1	48.1	43.0	14.9	10.8	8.3
Linebacker 180 (180-10 EXP)	White	-----	-----	-----	-----	-----	-----	81.0	-----	-----	39.1	-----	-----	32.1	-----	-----	-----	-----	-----
Augusta	White	4.6	6.4	-----	3.8	6.6	-----	64.0	73.2	63.2	51.0	53.1	45.4	31.3	37.9	29.9	9.6	6.0	-----
Lowell	White	7.8	8.2	-----	1.0	1.9	-----	53.2	69.3	66.6	46.6	52.4	45.4	27.6	38.6	32.5	7.0	6.1	-----
FHB-12 EXP	White	5.9	-----	-----	6.2	-----	-----	75.2	83.9	-----	25.9	33.4	-----	20.5	28.6	-----	9.8	-----	-----
Frankenmuth	White	6.2	7.5	-----	8.1	9.5	-----	70.2	72.7	60.4	41.8	44.1	40.8	27.1	30.2	24.8	10.4	6.3	-----
Trial Mean (2009=80 Entries)		3.2	4.7	4.9	8.5	10.3	12.8	78.0	81.9	74.4	34.5	37.5	43.0	27.8	31.5	32.5	8.7	7.1	3.8
LSD (0.05)		1.9	2.2	1.8	13.9	8.7	7.6	17.4	15.5	14.8	10.8	12.0	15.7	10.6	12.9	14.4	4.1	6.1	5.6
CV (%)		29.1	23.2	22.1	82.4	41.9	35.9	-----	9.4	12.1	-----	15.9	22.4	-----	20.3	27.0	27.7	42.2	42.0

2009 Michigan State University Wheat Performance Trials (Commercially Available Only)

Multi-year data are the most informative.

Table 4 : Multi-Year Performance Summary (Note: Tables sorted by 2009 Yield, red wheats grouped before white)

MSU makes no endorsement of any variety or brand.

Name	Grain Color	Milling and Baking Properties (2008 Crop and Earlier)												Quality Lab Test Weight		
		Percent Flour Yield			Percent Protein In Flour			Lactic Acid Retention			Softness Equivalent Percent					
		Multi-Year Averages			Multi-Year Averages			Multi-Year Averages			Multi-Year Averages					
		2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08	2008	2 YR 07-08	3 YR 06-08
Dyna-Gro Shirley	Red	70.7	-----	-----	7.2	-----	-----	95.8	-----	-----	53.6	-----	-----	64.3	-----	-----
Sunburst	Red	65.3	66.2	-----	7.5	8.0	-----	110.1	114.4	-----	46.4	50.1	-----	66.5	65.6	-----
AgriPro Branson	Red	70.7	70.4	70.6	7.7	8.4	8.0	111.5	117.8	118.1	59.7	61.7	62.8	63.4	62.6	61.8
RO75	Red	71.8	-----	-----	6.9	-----	-----	93.2	-----	-----	58.8	-----	-----	65.6	-----	-----
Red Ruby	Red	70.6	70.7	70.8	6.7	7.7	7.4	112.5	117.1	115.5	59.5	60.9	61.8	64.3	63.9	63.0
Pioneer Brand 25R47	Red	71.9	72.3	72.2	6.9	7.4	7.1	106.8	108.6	108.8	59.0	61.5	63.5	63.5	62.3	61.2
RO45	Red	71.4	71.8	71.8	7.0	7.6	7.5	94.2	94.9	99.7	58.6	60.2	60.4	65.6	64.7	63.2
RS 978	Red	71.3	-----	-----	6.9	-----	-----	111.1	-----	-----	58.5	-----	-----	63.5	-----	-----
Dyna-Gro V9723	Red	71.6	-----	-----	7.3	-----	-----	115.3	-----	-----	58.7	-----	-----	63.0	-----	-----
RO65	Red	71.4	-----	-----	6.9	-----	-----	93.5	-----	-----	58.3	-----	-----	65.6	-----	-----
Excel 234	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
RO55	Red	71.9	72.0	71.8	7.7	8.1	7.6	114.0	113.7	108.7	54.1	55.4	58.7	64.8	63.9	63.2
Emmit	Red	72.0	72.3	72.1	6.5	7.6	7.3	94.2	94.4	91.9	57.2	56.9	58.4	63.8	63.2	62.4
Pioneer Brand 25R62	Red	70.7	-----	-----	7.0	-----	-----	100.8	-----	-----	55.0	-----	-----	62.5	-----	-----
Hopewell	Red	69.1	69.6	69.2	7.5	8.0	7.7	114.6	120.3	120.1	57.8	59.7	60.8	63.9	63.0	62.2
MCIA Oasis	Red	70.2	71.5	71.8	7.2	7.9	7.7	108.9	115.5	112.3	53.7	57.0	58.6	64.0	62.7	62.1
AG 2738	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dyna-Gro V9812	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
AgriPro W1566	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pioneer Brand 25R39	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MCIA Butch	Red	69.0	69.1	-----	7.2	7.8	-----	106.8	112.5	-----	58.2	59.3	-----	62.2	61.7	-----
RO85	Red	69.9	-----	-----	7.7	-----	-----	106.6	-----	-----	59.0	-----	-----	65.2	-----	-----
Red Amber	Red	69.9	70.6	70.9	7.6	8.2	7.9	104.6	110.4	110.1	49.1	53.1	55.4	64.7	63.4	62.3
Excel 180	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
RS 908	Red	71.1	71.5	-----	7.1	7.7	-----	111.0	113.9	-----	56.9	59.4	-----	65.1	63.8	-----
Roane	Red	68.5	68.4	68.2	7.3	8.0	7.8	111.7	115.9	115.4	55.5	57.6	58.4	66.2	65.3	64.7
9XP51	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dyna-Gro 9911	Red	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
AgriPro W1377	Red	68.5	-----	-----	7.5	-----	-----	112.4	-----	-----	50.4	-----	-----	65.7	-----	-----
Ambassador	White	71.9	72.9	72.8	7.1	7.6	7.3	94.9	99.0	97.8	55.4	58.1	59.1	61.9	61.6	60.7
Ava	White	69.8	-----	-----	6.6	-----	-----	93.6	-----	-----	58.3	-----	-----	64.0	-----	-----
Pioneer Brand 25W43	White	70.5	-----	-----	7.5	-----	-----	114.2	-----	-----	55.2	-----	-----	63.7	-----	-----
Coral	White	71.5	71.8	71.8	6.8	7.6	7.3	105.9	110.2	108.1	55.2	57.8	60.2	64.4	63.8	62.4
Pioneer Brand 25W36	White	70.4	-----	-----	7.2	-----	-----	100.8	-----	-----	55.7	-----	-----	64.3	-----	-----
Crystal	White	71.3	72.4	72.4	7.0	7.6	7.2	99.9	101.8	102.4	53.4	56.7	58.7	63.3	62.4	61.4
Saftey-10 (4PHS-10 EXP)	White	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Envoy	White	71.0	71.4	71.4	7.9	8.3	7.8	107.7	112.7	111.9	47.0	52.1	54.1	65.2	64.1	62.8
Jewel	White	70.5	71.0	71.3	7.5	7.9	7.6	105.7	112.2	111.2	50.7	55.0	56.9	64.1	63.3	62.2
AC Mountain	White	70.6	70.7	71.1	6.7	7.7	7.3	94.6	98.9	96.5	56.3	57.1	59.1	61.9	61.5	60.4
MSU D8006	White	72.9	73.2	73.0	6.9	7.7	7.4	111.9	116.3	115.2	58.7	60.9	61.7	63.5	62.8	61.6
MSU D6234	White	69.5	69.7	69.6	7.2	8.0	7.7	88.3	88.6	87.4	51.8	54.1	56.1	64.8	63.9	62.8
AgriPro W1062	White	72.4	72.7	-----	6.7	7.5	-----	114.7	117.0	-----	56.7	60.2	-----	65.3	63.9	-----
Aubrey	White	71.2	70.9	70.8	7.4	8.0	8.0	94.4	107.1	105.9	58.0	60.1	59.7	63.6	63.3	62.7
Caledonia	White	71.0	71.5	71.6	7.2	7.9	7.5	105.5	111.1	107.9	53.3	56.6	59.3	64.3	63.3	62.0
Linebacker 180 (180-10 EXP)	White	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Augusta	White	70.1	70.6	-----	6.8	7.7	-----	97.5	99.4	-----	56.3	56.8	-----	62.4	61.2	-----
Lowell	White	71.8	71.7	-----	7.2	7.8	-----	109.6	114.3	-----	58.4	60.8	-----	62.2	61.0	-----
FHB-12 EXP	White	70.4	-----	-----	7.0	-----	-----	98.6	-----	-----	53.2	-----	-----	63.5	-----	-----
Frankenmuth	White	68.9	69.8	-----	7.5	8.0	-----	99.0	97.9	-----	49.7	52.3	-----	64.2	63.7	-----
Trial Mean (2009=80 Entries)		70.2	70.6	70.8	7.3	7.9	7.6	105.1	109.3	108.0	54.5	56.6	58.3	64.3	63.4	62.5
LSD (0.05)		-----	1.1	0.8	-----	0.6	0.4	-----	9.0	6.7	-----	3.6	3.0	-----	0.9	0.9
CV (%)		-----	0.7	0.7	-----	3.6	3.5	-----	4.1	3.8	-----	3.1	3.2	-----	0.7	0.9

2009 Michigan State University Wheat Performance Trials (Commercially Available Only)

Multi-year data are the most informative.

Table 5 : Single Site: Yield, Test Weight and Moisture Performance Summary (Note: Tables sorted alphabetically by organization)

MSU makes no endorsement of any variety or brand.

Name	Grain Color	HURON			INGHAM			LENAWEE			SAGINAW			SANILAC			TUSCOLA			Organization
		Yield bu/acre	Test Weight	Moist.	Yield bu/acre	Test Weight	Moist.	Yield bu/acre	Test Weight	Moist.	Yield bu/acre	Test Weight	Moist.	Yield bu/acre	Test Weight	Moist.	Yield bu/acre	Test Weight	Moist.	
FHB-12 EXP	White	81.5	52.7	11.5	72.1	55.0	15.7	86.4	58.4	12.1	67.0	57.9	15.1	83.8	52.7	16.0	94.6	59.3	14.6	D.F. Seeds, Inc.
Genesis 180-10 EXP	White	87.0	52.5	11.9	75.7	55.0	16.3	95.2	60.1	12.8	82.2	57.1	18.3	84.4	53.1	20.1	98.0	57.7	16.3	D.F. Seeds, Inc.
Genesis PHS-10 EXP	White	93.8	54.8	12.4	75.2	54.5	16.2	93.3	59.7	12.8	87.5	59.4	15.8	94.3	55.8	17.2	104.3	59.8	15.2	D.F. Seeds, Inc.
Genesis RO85	Red	95.4	56.1	13.2	76.6	55.1	17.1	92.4	62.7	13.8	80.5	59.1	17.5	104.3	56.8	17.4	99.8	60.1	16.4	D.F. Seeds, Inc.
RO45	Red	102.5	57.1	13.1	76.3	55.3	17.2	97.9	61.6	13.2	84.0	60.0	16.4	108.2	56.5	16.8	103.4	61.7	14.9	D.F. Seeds, Inc.
RO55	Red	98.6	56.7	13.1	80.8	57.7	16.3	96.4	61.7	13.0	82.1	61.9	15.6	107.3	56.2	18.0	100.0	59.8	15.5	D.F. Seeds, Inc.
RO65	Red	103.2	57.2	13.0	78.3	55.8	17.1	97.5	62.1	13.4	76.3	59.0	18.6	105.5	57.2	17.0	104.9	61.3	15.2	D.F. Seeds, Inc.
RO75	Red	100.4	56.6	13.1	82.3	55.7	17.3	97.1	63.2	13.1	86.5	60.7	16.5	112.2	56.5	17.2	97.3	62.0	15.3	D.F. Seeds, Inc.
Aubrey	White	96.7	54.2	12.2	72.9	55.7	16.4	92.2	62.6	12.9	76.8	60.1	14.5	95.2	57.9	15.0	103.0	61.9	14.8	D.F. Seeds, Inc. / Co-op Elevator Co. / Farmers Co-op Grain Co.
Ambassador	White	97.6	51.7	11.4	89.1	54.2	14.4	96.5	57.5	12.1	80.0	58.0	14.0	102.3	53.9	13.9	108.6	57.6	13.6	D.F. Seeds, Inc. / Cooperative Elevator Co.
Envoy	White	98.5	56.1	11.9	84.7	56.0	15.5	92.8	60.9	12.6	75.0	60.7	15.6	95.2	54.4	18.5	100.2	60.3	14.2	D.F. Seeds, Inc. / Cooperative Elevator Co.
Dyna-Gro 9911	Red	92.4	57.1	12.9	69.9	56.8	16.2	90.6	62.3	12.9	85.1	60.8	14.8	101.5	57.6	16.7	98.2	60.7	14.9	Dyna-Gro Seed
Dyna-Gro Shirley	Red	99.3	56.4	13.1	76.2	54.6	16.0	101.8	59.6	12.8	85.2	58.7	16.6	126.9	54.3	20.4	104.8	59.7	14.9	Dyna-Gro Seed
Dyna-Gro V9723	Red	99.5	55.3	12.4	69.9	54.8	15.3	94.6	60.1	12.5	91.4	58.9	14.8	109.0	56.0	15.1	103.0	58.2	14.1	Dyna-Gro Seed
Dyna-Gro V9812	Red	94.8	54.3	12.2	63.5	53.3	15.5	95.5	60.2	12.6	83.6	61.0	14.6	109.0	57.3	14.7	108.1	60.4	13.9	Dyna-Gro Seed
Excel 180	Red	96.1	57.1	12.9	78.7	57.7	15.7	91.6	62.8	13.0	79.1	61.5	14.6	94.8	58.8	15.2	100.7	61.9	15.0	Excel Brand Seed
Excel 234	Red	97.2	57.0	13.3	79.5	56.1	17.6	87.7	62.4	13.6	83.3	60.9	15.7	108.2	58.2	18.1	110.1	61.7	16.0	Excel Brand Seed
Caledonia	White	86.9	52.4	11.7	75.2	54.7	15.4	91.9	60.3	12.6	81.4	58.1	15.8	96.1	54.2	16.2	102.6	59.1	14.9	Harrington Seeds, Inc.
Ava	White	96.9	54.8	12.4	78.7	55.4	16.1	96.4	59.5	13.2	87.4	58.6	17.2	102.9	54.8	18.3	106.0	58.6	15.6	Hyland Seeds
Emmit	Red	97.5	55.9	12.9	76.7	56.1	16.3	96.1	60.4	12.9	82.4	58.8	16.9	107.6	55.6	18.5	104.4	60.6	15.1	Hyland Seeds
AC Mountain	White	96.7	53.5	11.9	83.0	55.7	14.9	95.7	58.5	12.4	81.9	59.0	14.6	81.5	55.0	12.6	105.6	57.8	14.3	Michigan Crop Improvement Association
AG 2738	Red	97.8	54.8	12.5	83.1	53.2	15.5	94.8	59.4	12.4	74.4	57.7	16.0	100.8	55.4	16.7	105.5	58.4	13.6	Michigan Crop Improvement Association
Coral	White	99.9	55.3	12.4	81.6	55.5	16.4	98.3	59.5	12.8	85.2	58.9	15.4	94.6	55.2	16.5	103.8	59.5	15.2	Michigan Crop Improvement Association
Crystal	White	91.0	53.1	11.2	77.5	54.8	14.8	91.0	58.3	12.2	85.2	58.9	14.0	101.2	54.2	15.4	105.0	58.6	13.6	Michigan Crop Improvement Association
Hopewell	Red	99.5	54.9	12.3	77.6	54.0	15.8	93.2	61.3	12.5	83.0	59.6	14.1	104.0	56.6	16.3	102.5	59.4	13.9	Michigan Crop Improvement Association
Jewel	White	94.8	53.7	11.5	72.1	54.4	15.0	95.7	60.4	12.6	79.6	59.7	15.8	101.2	54.9	14.6	101.9	58.9	14.6	Michigan Crop Improvement Association
MCIA Butch	Red	93.1	53.1	11.9	80.5	53.0	14.8	94.7	58.1	12.3	85.8	59.6	14.7	96.3	56.8	15.6	101.6	58.2	13.6	Michigan Crop Improvement Association
MCIA Oasis	Red	97.1	56.5	12.9	69.2	54.2	17.0	94.0	59.4	12.8	78.7	57.7	18.2	113.0	55.2	19.3	107.2	58.9	15.5	Michigan Crop Improvement Association
MSU D8006	White	97.4	54.5	11.9	71.7	53.8	16.1	94.2	59.9	12.4	75.2	58.7	16.3	99.4	54.9	16.1	103.2	59.7	14.1	Michigan Crop Improvement Association
Red Amber	Red	99.4	57.4	12.7	78.5	55.6	16.5	93.4	60.0	12.9	80.4	58.4	18.9	89.5	55.6	18.9	106.7	60.3	15.6	Michigan Crop Improvement Association
Red Ruby	Red	98.7	55.6	12.7	84.4	55.0	16.4	96.3	60.7	12.8	83.2	59.5	16.2	106.3	55.7	19.0	106.8	59.8	14.9	Michigan Crop Improvement Association
Roane	Red	89.3	58.3	13.8	79.6	59.5	16.8	92.1	63.3	13.6	79.4	60.8	17.1	96.0	57.7	18.1	102.2	61.7	15.9	Michigan Crop Improvement Association
Sunburst	Red	103.3	59.3	12.9	81.8	58.6	16.8	92.6	63.5	13.4	79.2	60.8	18.4	116.0	58.3	20.1	106.4	62.8	16.0	Michigan Crop Improvement Association
Augusta	White	90.5	53.2	12.1	71.3	54.9	15.7	91.4	58.1	12.5	80.3	56.7	16.7	86.6	52.8	16.9	97.0	57.7	16.3	Michigan State University
Frankenmuth	White	84.8	55.7	12.4	57.8	55.8	15.6	84.0	62.1	12.8	71.0	59.0	15.9	77.0	56.0	15.7	88.8	59.2	15.2	Michigan State University
Lowell	White	86.9	52.6	11.8	77.7	53.1	15.0	90.8	58.6	12.3	76.1	57.7	14.5	70.2	53.2	12.7	98.4	58.0	14.2	Michigan State University
MSU D6234	White	93.6	55.2	12.3	82.2	55.5	16.3	95.2	61.4	13.1	79.3	59.2	16.5	90.8	54.5	16.4	99.2	59.8	15.3	Michigan State University
Pioneer Brand 25R39	Red	100.1	56.8	12.9	77.6	56.8	16.6	95.0	61.0	12.9	82.8	59.7	16.4	94.6	55.3	17.4	102.4	60.8	15.1	Pioneer Hi-Bred International
Pioneer Brand 25R47	Red	100.0	54.5	12.5	78.4	55.0	16.8	99.5	60.5	12.7	89.2	58.5	16.1	98.9	52.4	16.3	108.0	59.1	14.5	Pioneer Hi-Bred International
Pioneer Brand 25R62	Red	98.8	54.3	11.9	78.2	52.8	14.3	93.4	57.5	12.0	77.1	58.1	14.6	99.4	55.2	13.6	113.3	58.5	13.4	Pioneer Hi-Bred International
Pioneer Brand 25W36	White	97.6	54.6	11.8	75.1	55.2	15.7	95.9	60.9	12.7	81.3	60.6	15.0	92.7	55.4	15.9	108.6	60.5	14.6	Pioneer Hi-Bred International
Pioneer Brand 25W43	White	97.0	52.9	11.6	85.5	54.7	15.7	97.3	59.7	12.7	83.0	59.4	15.3	92.4	53.0	15.2	112.4	59.4	14.9	Pioneer Hi-Bred International
9XP51	Red	92.3	55.9	12.4	69.5	55.4	16.1	94.1	60.8	12.7	83.6	59.7	15.8	99.0	58.3	17.5	99.7	59.5	14.6	Rupp Seeds, Inc.
RS 908	Red	91.4	54.4	12.3	66.1	56.1	15.8	91.9	60.7	12.6	83.6	61.1	15.0	102.5	57.3	14.9	104.5	60.4	14.4	Rupp Seeds, Inc.
RS 978	Red	95.2	55.1	12.3	75.6	54.6	15.4	98.5	59.6	12.5	83.3	58.8	14.7	106.1	56.1	14.6	109.8	58.9	14.0	Rupp Seeds, Inc.
AgriPro Branson	Red	97.4	55.8	12.7	76.1	55.3	16.1	92.8	60.7	12.8	82.6	61.2	15.0	121.5	56.8	15.7	107.6	59.9	14.9	Syngenta / AgriPro Wheat
AgriPro W1062	White	93.1	55.9	12.6	77.9	53.4	16.2	94.9	59.0	12.9	85.7	57.1	20.4	75.3	52.3	17.0	112.3	59.1	15.9	Syngenta / AgriPro Wheat
AgriPro W1377	Red	90.9	57.8	13.3	69.9	57.4	16.8	86.9	62.6	13.1	84.7	61.8	15.9	89.3	58.4	17.7	100.0	62.1	15.4	Syngenta / AgriPro Wheat
AgriPro W1566	Red	95.6	54.7	12.5	70.8	53.7	15.9	93.8	60.4	12.8	79.7	58.9	16.3	107.7	54.7	17.4	105.3	59.9	15.4	Syngenta / AgriPro Wheat
Trial Mean (2009=80 Entries)		94.0	55.1	12.3	75.3	55.2	15.9	92.9	60.5	12.8	80.3	59.2	16.1	98.8	55.6	16.7	102.4	59.8	14.9	
LSD (0.05)		6.0	0.7	0.2	10.5	1.6	0.5	6.3	1.5	0.3	8.3	1.4	0.9	10.0	1.7	1.2	5.3	1.2	0.5	
CV (%)		4.5	0.9	1.2	9.3	2.1	1.9	4.4	1.8	1.4	6.7	1.6	3.5	6.7	2.0	4.6	3.3	1.3	2.2	

**ORGANIZATIONS ENTERING VARIETIES IN THE
2009 MICHIGAN WHEAT PERFORMANCE TRIALS**

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

Dyna-Gro Seed
6221 Riverside Drive, Suite One
Dublin, OH 43017
Phone: 614-761-4110

Excel Brand Seed
P.O. Box 320
Camp Point, IL 62320
Phone: 800-969-6717

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

Hyland Seeds
2 Hyland Drive
Blenheim, Ontario NOPIA0
Phone: 519-676-7056

Michigan Crop Improvement Association
P.O. Box 21008, 2905 Jolly Road
Lansing, MI 48909
Phone: 517-332-3546

Pioneer Hi-Bred, Intl.
59 Greif Parkway – Suite 200
Delaware, OH 43015
(740) 657-6120

Platinum Genetics, LLC
3490 Belle Chase Way, Suite 210
Lansing, MI 48911
Phone: 517-272-1514

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

AgriPro, business unit of Syngenta Seeds
P.O. Box 411, 520 E. 1050 South
Brookston, IN 47923
Phone: 765-563-3111

Cooperative Elevator Company
P.O. Box 619, 7211 Michigan Ave.
Pigeon, MI 48755
Phone: 989-453-4500

Farmers Cooperative Grain Company
P.O. Box 246, 338 Main Street
Kinde, MI 48445
Phone: 989-874-4200

Virginia Polytechnic Institute and State University / Virginia Crop Improvement
Association / Eastern Virginia Agricultural Research & Extension Center
2229 Menokin Road
Warsaw, VA 22572
Phone: 804-333-3485

2009 Michigan State University Wheat Performance Trials

Appendix A. Trial Site Descriptions for 2009 MSU Wheat Performance Trials.

	HURON COUNTY	INGHAM COUNTY		LENAWEE COUNTY	SAGINAW COUNTY	SANILAC COUNTY	TUSCOLA COUNTY
		YIELD TRIAL	SCAB NURSERY				
COOPERATOR	DARWIN SNELLER	TIM DIETZ	MICHIGAN STATE UNIVERSITY	WOODS SEED FARM	FRED SILER	STOUTENBURG FARMS	STUART BIERLEIN
NEAREST CITY	SEBEWAING	WEBBERVILLE	EAST LANSING	BRITTON	MERRILL	SANDUSKY	RICHVILLE
PLANTING DATE	OCT. 13, 2008	OCT. 11, 2008	OCT. 22, 2008	SEPT. 29, 2008	SEPT. 24, 2008	SEPT. 25, 2008	SEPT. 25, 2008
HARVEST DATE	July 29, 2009	July 27, 2009	N / A	July 15, 2009	July 20, 2009	July 28, 2009	July 21, 2009
PRE-PLANT FERTILIZER	200 # 6-15-36	200# 6-24-24	150# 6-24-24	200 # 9-23-30	225# 9-10-30	200# 6-16-32 + 3% S	200 # 8-10-28
COMMENTS	Light Powdery Mildew & Leaf Blotch	Winter Injury / Armyworms / Stem Rust Observed	Inoculated / Misted Scab Screening Nursery	Light Stem Rust Observed, Moderate Leaf & Stripe Rust	Moderate Stem Rust	Severe Lodging, Moderate Powdery Mildew & Leaf Blotch	Light Stem Rust Observed
AVERAGE YIELD (BUSHELS / ACRE)	94.0	75.3	N / A	92.9	80.3	98.8	102.4
AVERAGE TEST WEIGHT (LBS. / BUSHEL)	55.1	55.2	N / A	60.5	59.2	55.6	59.8
AVERAGE PERCENT GRAIN MOISTURE	12.3	15.9	N / A	12.8	16.1	16.7	14.9
2009 DATA RECORDED (NUMBER OF REPS)	PM (1); SEPT (1)	FD (4)	FHBI% (3); FHBS% (3); FHBX (3)	LRUST (4); SRUST (4)	FD (4); STEMR (4)	LODGE (4); PLHT (4); PM (3); SEPT (3)	PLHT (4); PM (2)

*OTHER DATA: **FD** – Flowering Date (Days Past Jan. 01), **PL_HT** - Plant Height in Inches, **LRUST** - Leaf Rust Score (0-9), **SRUST** - Stripe Rust Score (0-9), **STEMR** - Stem Rust Score (0-9), **LODGE** - Lodging Score (0-9), **PM** - Powdery Mildew Score (0-9), **SEPT** - Septoria Leaf Blotch Complex Scores (0-9), **FHBI%** - Fusarium Head Blight Incidence Percent (0-100%), **FHBS%** - Fusarium Head Blight Severity Percent (0-100%), **FHBX** - Fusarium Head Blight Index Percent (0-100%)

** SCORING INFORMATION: Score of 0 = Best Rating - Score of 9 = Poor Rating