Michigan State Wheat Variety Trial: 2003

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Comments on the 2003 Wheat Crop

The 2002/2003 Michigan wheat crop appears to have produced a range from good to excellent yields and generally excellent test weight. Winter survival was good to excellent despite long periods of extremely low temperatures in the absence of snow cover. Disease pressure was generally low. Stripe rust was seen again this year in Michigan. Lower than average spring and early summer temperatures caused flowering and harvest to be approximately ten days - two weeks later than normal.

Multi-Year Performance Summary (Tables 1 and 2)

Tables 1 and 2 summarize performance of 62 varieties from 13 organizations including Michigan State University wheat breeding program. 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 several 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 are only valid within a column**. Tables 1 and 2 are sorted in descending order on yield for 2003. In some instances (e.g. yield), data columns to the right of the 2003 data columns are multi-year averages. Only data for entries included in the relevant years' tests are found here. Not all entries have been tested in all years so the table has several blank cells. See the section titled 'Experimental' for details on how the trials were conducted and more detail on what the data in each column's data represent.

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 means that are greater than the LSD 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, you 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 3)

The first five columns in this table each contain yield (bushels/acre) data from one of the five sites harvested for yield this year. The last column contains the same across-site yield average found in Table 1. Each row in the table represents a single entry in the test.

Choosing Varieties

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

Experimental

The 2003 State Wheat Variety Trial was planted at seven county sites: Lenawee, Saginaw (2), Huron, Ionia (MSU Clarksville research station: disease nursery), Sanilac, and Ingham. The Huron and Ionia County Plots were not harvested. Appendix A (below) presents information on each of the county sites. Plots were 12 feet long and had 7 rows at 6" row spacing. The trial was designed and executed as four replication alpha-lattice (16 blocks of 4 plots each) at all sites except Ionia. All seed was treated but the chemicals and rates used varied according to the preferences of the organizations which sent seed. Seeding rates per linear foot of row were standardized to the rate that would achieve 1.8 million seeds per acre in a solid stand planted in 6" rows. Fall fertilizer application varied with cooperator 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. Yield was calculated using the entire area of the plot including the wheel tracks between plots. That approach tends to underestimate yield.

Yield, test weight, and grain moisture data were acquired electronically on the plot combine at the time of harvest. Data reported as scores are based on a 0-9 scale, where 0 is the best possible score. Lodging data was taken at the Sanilac and Saginaw (#1) locations and was given a score of 0-9 where 0 indicates that all plants were erect. Plant height is reported as the distance from the ground to the tip of average heads in a plot in inches and was taken in Saginaw (#2) and Ingham counties. Flowering date data was taken at the Saginaw (#2), Ingham, and Ionia County plots. The flowering date indicates the average number of days past January 1st in which that variety reached the point where ½ of its heads were flowering. Powdery mildew is reported as the average percent of the flag leaf infected. This data was recorded from Ionia County. Leaf Rust scores were observed at the Saginaw (#1) and Lenawee site. Stripe Rust scores are from the Lenawee County site. Wheat Spindle Streak data is reported from the Ingham County site. A Wheat Streak Mosaic Virus score was taken at the Lenawee County plot. Septoria Leaf Blotch scores were taken at the Ionia and Lenawee County plots. Note that what is reported here as Septoria may in fact be a composite of two or more leaf blotching diseases. Sprouting data is based on greenhouse evaluation of 5 heads from four replications at the Ingham and Saginaw (#2) county sites. Heads were collected between 24 and 48 hours prior to harvest and dried for seven days. Scores were taken after the heads were subjected to near-continuous misting for five days, where zero indicates that there was no sprouting present. "Greenhouse FHB Severity" reflects the response of an entry to point inoculation with spores of the pathogen that causes Fusarium head blight (Scab). Each wheat head is comprised of roughly 14-22 "spikelets", which bear the developing seed and are the site of visible scab infection. Here, we report **scab severity** as the average percent of spikelets infected after a single floret within a spikelet was inoculated with FHB spores. This work was done in a greenhouse. The milling and baking quality data are based on grain from the 2002 State Variety trial. Flour yield is the ratio of the weight of extractable flour to the weight of milled grain, expressed as a percentage. "Softness Equivalent" is an indirect measure of the sample's grain hardness. Soft wheat varieties generally have softness equivalent values greater than 50.

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 Rick Ward (517-285-9725). This information, along with results from previous years, can also be accessed through the Web at http://www.msue.msu.edu/msuwheat/Variety_Results.html

2003 Michigan State Wheat Variety Trials

Table 1: Multi-Year Performance Summary (Part I)

Multi-year data are the most informative. MSU makes no endorsement of any variety or brand.

		Yield: Bushels/acre				Test Weight lbs/bu				% Grain Moisture @ Harvest		Lodging Score (0-9)		Plant Height (inches)		Flowering Date (days past Jan. 1)		Powdery Mildew % on the Flag		Septoria tritici (Leaf Blotch) Score (0-9)		Leaf Rust Score (0-9)	Stripe Rust Score (0-9)
			Multi-Year Averages				Multi-Year vaerages																
	Grain		2 YR	3 YR	4 YR		2 YR	3 YR	4 YR		2 YR		2 YR		2 YR		2 YR		2 YR		2 YR		
NAME	Color	2003	02 - 03	01 - 03	00 - 03	2003	02 - 03	01 - 03	00 - 03	2003	02 - 03	2003	02 - 03	2003	02 - 03	2003	02 - 03	2003	02 - 03	2003	02 - 03	2003	2003
Pioneer Brand 25R47	R	102.9	-----	-----	-----	58.2	-----	-----	-----	15.7	-----	5.0	-----	34.5	-----	163.0	-----	3.0	-----	6.5	-----	1.0	1.0
Hopewell	R	94.5	89.8	84.6	86.2	59.5	59.6	59.8	59.6	14.2	13.3	2.2	1.8	37.0	38.6	166.3	163.3	2.0	1.3	4.5	4.4	4.5	1.0
MSU Line D8006	W	94.4	87.1	84.5	-----	58.9	58.4	58.3	-----	14.2	13.0	4.5	4.6	38.9	40.4	163.8	161.8	5.0	3.1	6.0	5.5	3.0	0.0
MSU Line E1007	R	93.7	-----	-----	-----	60.1	-----	-----	-----	15.5	-----	3.4	-----	37.2	-----	166.3	-----	2.0	-----	4.5	-----	2.5	6.0
Bravo	R	93.3	89.7	84.8	84.1	60.4	60.7	60.8	60.2	14.7	13.6	3.6	4.2	38.7	39.8	162.1	160.1	6.0	3.0	5.5	4.8	5.0	3.0
MSU Line D9044	W	93.3	-----	-----	-----	59.4	-----	-----	-----	14.7	-----	3.5	-----	36.4	-----	165.9	-----	6.0	-----	5.0	-----	4.0	4.0
Cedar	R	93.2	89.2	86.7	-----	58.8	59.0	59.0	-----	15.4	14.2	5.7	6.2	38.7	40.2	166.7	163.5	1.0	0.5	4.5	3.6	1.5	1.0
Douglas	R	92.6	-----	-----	-----	57.4	-----	-----	-----	14.6	-----	6.2	-----	38.4	-----	167.4	-----	3.0	-----	5.5	-----	1.5	8.0
Vigoro Tribute	R	92.2	88.8	-----	-----	62.1	62.2	-----	-----	16.8	15.5	4.0	4.4	33.9	35.8	163.0	160.4	1.0	0.5	5.0	3.6	1.5	9.0
MSU Line D6234	W	91.9	85.7	81.8	82.8	59.9	60.2	60.0	59.8	15.2	14.1	6.4	6.4	40.4	41.0	167.1	163.9	3.0	2.0	3.5	3.5	5.5	8.0
Pioneer Brand 25W60	W	91.7	86.8	85.0	87.1	59.8	59.7	59.9	59.6	14.3	13.1	5.9	5.6	38.0	39.7	164.6	162.2	2.0	2.0	5.5	5.4	3.0	1.0
AC Mountain	W	91.6	85.8	81.3	82.3	58.4	58.2	58.2	58.0	14.0	12.9	4.7	4.3	41.6	42.6	166.5	163.7	2.0	2.0	6.0	5.4	7.5	4.0
VA97W-375WS	W	91.5	85.8	-----	-----	59.5	59.8	-----	-----	14.8	13.4	4.6	4.9	32.5	34.3	163.6	161.6	0.0	0.0	2.5	2.6	2.0	4.0
AC Ron	W	90.7	83.5	80.0	81.7	58.5	58.4	58.2	58.0	14.3	13.2	5.1	4.8	43.2	44.1	168.4	164.7	3.0	2.0	4.0	4.4	3.5	5.0
Benton	R	90.6	-----	-----	-----	58.2	-----	-----	-----	13.8	-----	2.8	-----	35.4	-----	165.2	-----	6.0	-----	6.5	-----	4.5	1.0
M98 - 2023	R	90.6	-----	-----	-----	59.2	-----	-----	-----	14.4	-----	2.5	-----	34.0	-----	164.8	-----	4.0	-----	6.0	-----	2.5	5.0
Pioneer Brand 25R37	R	90.6	87.1	85.1	-----	60.3	60.3	60.6	-----	15.7	14.4	2.2	2.2	35.2	36.7	165.1	162.5	3.0	1.5	5.5	4.8	5.5	1.0
Kristy	R	90.5	87.2	-----	-----	59.5	59.8	-----	-----	14.3	13.3	5.1	4.9	37.8	39.3	163.5	160.8	2.0	1.4	7.5	5.8	3.0	0.0
Autumn	R	90.4	87.4	85.0	-----	58.8	58.8	58.9	-----	13.5	12.6	4.5	5.5	35.4	37.3	164.2	162.1	2.0	1.3	6.5	4.4	8.0	3.0
OH 645	R	90.3	-----	-----	-----	59.4	-----	-----	-----	15.1	-----	2.5	-----	38.8	-----	164.1	-----	3.0	-----	8.0	-----	2.5	1.0
B 950943	R	90.1	-----	-----	-----	57.9	-----	-----	-----	16.9	-----	5.1	-----	36.6	-----	168.1	-----	3.0	-----	4.5	-----	0.5	1.0
Genesis R022 Exp	R	90.0	83.9	-----	-----	59.1	60.0	-----	-----	14.3	13.4	4.3	4.7	38.8	39.9	162.5	160.5	9.0	5.8	8.0	6.6	2.5	8.0
Pearl	W	89.9	86.0	83.1	83.9	59.8	59.4	59.4	59.2	15.2	13.6	6.8	7.1	37.9	39.5	166.1	163.1	0.0	0.0	4.0	4.0	1.0	0.0
Rupp RS 931	R	89.8	86.8	-----	-----	58.7	58.7	-----	-----	13.5	12.5	4.6	5.4	35.9	37.1	164.4	162.2	3.0	1.5	7.0	4.8	8.5	3.0
Bouillon	R	89.7	83.1	-----	-----	58.5	58.6	-----	-----	14.0	12.9	7.2	6.3	39.5	40.4	165.3	162.4	3.0	1.8	4.0	4.8	1.0	1.0
Genesis 9953	R	88.9	82.6	79.5	81.6	58.5	58.6	58.8	58.4	14.0	12.9	7.7	6.7	39.0	40.1	165.0	162.2	2.0	1.3	4.0	4.3	2.5	0.0
Genesis R035	R	88.7	-----	-----	-----	59.2	-----	-----	-----	14.6	-----	3.7	-----	37.9	-----	164.4	-----	3.0	-----	7.5	-----	1.0	1.0
Vigoro V9314W	W	88.7	-----	-----	-----	58.8	-----	-----	-----	14.9	-----	6.1	-----	41.9	-----	167.7	-----	3.0	-----	4.5	-----	5.5	1.0
Kelley	W	88.6	-----	-----	-----	58.8	-----	-----	-----	14.8	-----	6.5	-----	42.0	-----	167.5	-----	4.0	-----	5.5	-----	5.0	1.0
Pioneer Brand 25R44	R	88.6	80.2	77.9	-----	60.5	60.5	60.7	-----	15.0	13.6	3.3	2.8	35.9	36.6	164.9	162.7	8.0	5.3	5.0	5.4	3.0	7.0
HS 243 R	R	88.5	-----	-----	-----	59.1	-----	-----	-----	14.3	-----	4.4	-----	36.6	-----	163.5	-----	4.0	-----	4.5	-----	3.0	8.0
Aurora	W	88.5	-----	-----	-----	59.4	-----	-----	-----	14.5	-----	3.9	-----	41.9	-----	167.9	-----	2.0	-----	5.5	-----	4.0	2.0
Aubrey	W	88.4	-----	-----	-----	60.5	-----	-----	-----	15.0	-----	3.0	-----	37.6	-----	164.6	-----	1.0	-----	7.0	-----	7.5	1.0
Coker 9184	R	88.3	-----	-----	-----	60.8	-----	-----	-----	17.5	-----	3.5	-----	34.3	-----	165.6	-----	1.0	-----	5.0	-----	2.0	1.0
Genesis R036	R	88.3	-----	-----	-----	60.8	-----	-----	-----	17.5	-----	3.5	-----	34.3	-----	165.6	-----	1.0	-----	5.0	-----	2.0	1.0
HS 222 R	R	87.9	-----	-----	-----	59.4	-----	-----	-----	14.0	-----	6.3	-----	37.3	-----	163.4	-----	7.0	-----	7.5	-----	2.5	1.0
Rupp RS 909	R	87.9	85.9	82.4	-----	59.8	59.5	59.9	-----	14.9	13.6	4.2	3.8	38.6	40.6	164.4	162.2	7.0	4.0	5.5	4.9	4.0	1.0
Roane	R	87.8	85.6	83.1	85.2	61.4	61.8	62.0	61.6	15.5	14.3	7.4	7.3	34.3	36.4	164.8	162.2	4.0	2.2	5.5	4.1	1.5	1.0
McCormick	R	87.7	84.7	-----	-----	62.0	62.3	-----	-----	16.1	14.8	2.3	2.6	32.0	33.9	164.5	161.8	1.0	0.6	5.0	4.0	4.5	1.0
Venture	R	87.6	80.1	-----	-----	59.3	59.5	-----	-----	14.4	13.2	5.6	5.0	37.0	38.7	164.2	162.0	1.0	0.7	6.0	5.1	2.0	1.0
Jacob	R	87.6	-----	-----	-----	59.4	-----	-----	-----	14.2	-----	5.1	-----	33.1	-----	164.1	-----	4.0	-----	6.5	-----	3.5	1.0
Coker 9663	R	87.6	80.7	-----	-----	60.5	60.2	-----	-----	16.3	14.6	7.5	7.6	42.0	42.4	165.0	162.4	2.0	1.4	2.5	3.0	0.0	0.0
Caledonia	W	87.3	84.9	81.3	83.7	58.3	58.7	58.2	58.0	14.1	13.2	3.0	2.5	36.6	38.2	165.9	163.1	4.0	2.7	5.5	4.9	6.0	1.0
Coyote	R	87.3	-----	-----	-----	60.9	-----	-----	-----	15.2	-----	3.3	-----	36.4	-----	163.3	-----	2.0	-----	5.5	-----	2.5	1.0
Sisson	R	87.3	84.0	81.8	85.1	58.5	59.3	59.3	59.2	14.3	13.2	5.7	4.6	33.5	34.9	164.0	161.0	3.0	1.6	8.0	6.7	1.5	1.0
Jasper	R	87.2	85.7	-----	-----	59.6	60.5	-----	-----	14.5	13.6	2.3	2.2	33.3	35.4	163.1	160.6	4.0	2.3	6.0	4.7	1.5	4.0
VAN98W-170WS	W	87.0	-----	-----	-----	59.9	-----	-----	-----	15.9	-----	3.7	-----	35.9	-----	162.4	-----	2.0	-----	4.5	-----	1.0	1.0
CM 98091	R	86.8	-----	-----	-----	61.6	-----	-----	-----	15.4	-----	3.3	-----	35.0	-----	163.5	-----	-----	-----	6.4	-----	1.5	1.0
B 960457	R	86.2	-----	-----	-----	57.5	-----	-----	-----	13.7	-----	5.1	-----	38.2	-----	164.4	-----	5.0	-----	4.5	-----	4.5	1.0
Harus	W	85.8	82.1	78.8	80.1	59.1	59.2	59.0	58.8	14.3	13.1	3.4	3.2	42.2	43.2	167.2	164.1	5.0	2.9	4.0	3.9	5.5	0.0
Richland	W	84.3	81.6	-----	-----	59.8	59.7	-----	-----	14.8	13.8	3.0	3.0	40.6	42.1	166.5	163.4	6.0	3.2	5.0	4.4	5.0	0.0
Coker 9474	R	81.0	74.7	-----	-----	62.5	62.4	-----	-----	15.6	14.2	4.5	3.5	36.0	36.5	162.9	160.9	3.0	2.1	6.5	6.3	0.5	0.0
Frankenmuth	W	79.9	72.6	70.1	71.0	59.5	59.0	58.7	58.6	15.1	14.0	7.8	7.1	48.8	48.2	170.4	166.5	2.0	1.4	3.0	3.4	6.0	4.0
	Mean	88.8	84.4	81.8	82.7	59.4	59.7	59.5	59.2	14.8	13.6	4.2	4.6	37.5	39.2	165.3	162.5	3.4	2.0	5.4	4.6	3.5	2.5
	LSD	4.6	5.4	4.5	4.1	0.9	1.0	0.8	0.7	1.0	0.6	1.6	1.5	1.6	1.7	2.0	1.4	-----	2.7	3.3	2.2	4.0	-----
	C.V.	4.2	3.1	3.4	3.5	1.2	0.8	0.9	0.8	5.5	2.3	19.1	16.1	2.1	2.1	1.9	0.4	-----	67.6	30.2	23.6	56.3	-----

LSD =Least significant difference, i.e., differences smaller than the LSD are probably due to chance. CV - Low values mean higher precision.

2003 Michigan State Wheat Variety Trials

Table 2: Multi-Year Performance Summary (Part 2)

Multi-year data are the most informative. MSU makes no endorsement of any variety or brand.

NAME	Grain Color	Wheat Spindle Streak Score (0-9) 2003	Wheat Streak Mosaic Score (0-9) 2003	Greenhouse FHB Severity 2003	In Head Pre-Harvest Sprout Score (0-9) 2003	2 YR 02 - 03	3 YR 01 - 03	Milling and Baking Propoerties (2002 Crop) % Flour Yield	% Protein in Flour	Alkaline H20 Retention	Softness Equivelant	Milling Quality Score	Baking Quality Score	Lactic Acid Retention	Submitted by:
Pioneer Brand 25R47	R	1.0	1.0	85.8	5.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	Pioneer - A Dupont Company
Hopewell	R	1.0	7.0	91.4	1.1	1.5	1.2	71.5	8.2	56.3	60.0	95.1	92.2	105.4	Michigan Crop Improvement Association
MSU Line D8006	W	1.0	6.0	92.4	5.9	6.0	5.0	73.8	8.6	54.7	56.1	101.2	83.0	106.0	Michigan State University
MSU Line E1007	R	1.0	1.0	87.1	2.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	Michigan State University
Bravo	R	1.0	5.0	100.0	2.9	3.0	2.6	72.1	9.0	54.5	52.9	93.1	88.4	87.3	Michigan Crop Improvement Association
MSU Line D9044	W	1.0	2.0	72.4	8.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	Michigan State University
Cedar	R	1.0	5.0	50.7	1.0	2.5	2.2	70.5	7.4	58.8	54.8	87.9	80.2	101.4	Michigan Crop Improvement Association
Douglas	R	5.0	1.0	91.9	7.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	Agripro Wheat
Vigoro Tribute	R	1.0	9.0	100.0	1.5	3.3	-----	71.9	8.8	61.0	47.4	89.6	49.6	105.7	Royster Clark
MSU Line D6234	W	1.0	8.0	74.1	8.2	7.8	6.5	72.0	8.4	54.7	53.7	93.2	88.8	76.2	Michigan State University
Pioneer Brand 25W60	W	1.0	4.0	84.6	7.0	5.6	5.0	72.8	8.1	55.4	54.5	96.2	91.9	75.0	Pioneer - A Dupont Company
AC Mountain	W	3.0	6.0	91.3	8.4	8.6	7.7	73.8	8.7	53.1	55.3	100.1	94.6	85.3	Michigan Crop Improvement Association
VA97W-375WS	W	1.0	1.0	88.8	7.4	7.2	-----	70.0	9.3	57.2	47.4	81.2	72.5	92.6	VPI & SU / Virginia Crop Improvement Assn.
AC Ron	W	1.0	7.0	99.0	9.0	8.8	7.8	71.2	8.2	53.3	55.4	90.4	103.4	86.3	Michigan Crop Improvement Association
Benton	R	2.0	3.0	88.5	6.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	Agripro Wheat
M98 - 2023	R	1.0	7.0	93.6	1.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	Agripro Wheat
Pioneer Brand 25R37	R	3.0	4.0	91.8	2.8	4.4	3.6	70.6	8.5	59.3	54.5	89.2	74.9	101.6	Pioneer - A Dupont Company
Kristy	R	4.0	2.0	100.0	8.2	7.9	-----	75.4	8.9	59.7	47.0	99.0	43.4	104.1	C & M Seeds
Autumn	R	1.0	1.0	69.9	5.5	6.8	5.5	73.5	8.4	54.2	54.5	98.7	94.7	69.7	Michigan Crop Improvement Association
OH 645	R	1.0	2.0	100.0	7.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	Michigan Crop Improvement Association
B 950943	R	1.0	8.0	100.0	5.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	Syngenta Seeds, Inc.
Genesis R022 Exp	R	1.0	3.0	98.4	4.2	4.9	-----	71.5	9.7	56.1	51.2	89.7	82.9	85.2	Genesis Brand Seed
Pearl	W	4.0	3.0	98.8	7.6	6.8	6.3	72.7	8.6	55.5	55.8	97.0	89.3	100.5	Michigan Crop Improvement Association
Rupp RS 931	R	1.0	1.0	100.0	7.1	7.2	-----	73.6	8.0	53.9	55.7	99.9	93.7	73.6	Rupp Seeds, Inc.
Bouillon	R	3.0	2.0	98.8	6.2	5.9	-----	70.7	8.3	59.1	55.9	89.2	67.8	106.1	Steyer Seeds
Genesis 9953	R	9.0	2.0	95.9	5.1	5.9	5.0	70.4	8.3	59.2	54.6	87.0	66.7	108.9	Genesis Brand Seed
Genesis R035	R	2.0	2.0	82.4	5.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	Genesis Brand Seed
Vigoro V9314W	W	1.0	1.0	91.3	8.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	Royster Clark
Kelley	W	1.0	3.0	81.9	8.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	Harrington Seeds, Inc.
Pioneer Brand 25R44	R	1.0	1.0	88.8	5.1	5.7	4.9	71.3	8.4	58.3	58.4	93.8	71.7	115.3	Pioneer - A Dupont Company
HS 243 R	R	1.0	1.0	100.0	3.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	Harrington Seeds, Inc.
Aurora	W	7.0	7.0	63.1	8.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	Michigan Crop Improvement Association
Aubrey	W	4.0	4.0	80.9	8.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	Genesis Brand Seed
Coker 9184	R	1.0	1.0	99.2	4.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	Syngenta Seeds, Inc.
Genesis R036	R	1.0	1.0	99.2	4.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	Genesis Brand Seed
HS 222 R	R	5.0	2.0	91.9	6.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	Harrington Seeds, Inc.
Rupp RS 909	R	1.0	6.0	95.5	8.4	8.2	7.0	73.2	8.2	55.9	57.9	100.3	94.5	94.7	Rupp Seeds, Inc.
Roane	R	5.0	6.0	91.0	5.2	3.6	3.5	69.8	8.3	59.0	57.1	87.7	67.8	112.4	Michigan Crop Improvement Association
McCormick	R	1.0	3.0	65.7	0.7	1.6	-----	72.9	9.3	58.4	59.0	101.1	75.2	101.2	VPI & SU / Virginia Crop Improvement Assn.
Venture	R	7.0	5.0	100.0	8.8	8.4	-----	74.0	9.7	54.9	51.4	99.2	77.3	106.1	Genesis Brand Seed
Jacob	R	1.0	2.0	100.0	6.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	Steyer Seeds
Coker 9663	R	7.0	0.0	100.0	1.7	3.4	-----	70.7	8.5	57.7	48.1	84.3	59.8	103.4	Syngenta Seeds, Inc.
Caledonia	W	1.0	5.0	100.0	8.3	8.5	7.2	73.4	8.2	53.5	56.6	100.0	100.1	95.5	Genesis Brand Seed & Harrington Seeds, Inc.
Coyote	R	8.0	5.0	78.3	1.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	JGL, Inc.
Sisson	R	2.0	1.0	92.8	6.7	5.7	4.5	70.9	8.7	58.2	48.3	85.9	67.8	83.4	Michigan Crop Improvement Association
Jasper	R	3.0	1.0	100.0	1.8	2.7	-----	70.4	8.2	58.0	53.2	87.3	65.6	108.6	Michigan Crop Improvement Association
VAN98W-170WS	W	1.0	1.0	97.2	7.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	VPI & SU / Virginia Crop Improvement Assn.
CM 98091	R	1.0	1.0	92.3	4.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	C & M Seeds
B 960457	R	4.0	2.0	100.0	5.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	Syngenta Seeds, Inc.
Harus	W	2.0	9.0	86.5	8.7	8.7	7.6	71.9	8.5	54.3	54.6	92.8	89.4	80.9	Michigan Crop Improvement Association
Richland	W	2.0	5.0	73.6	8.8	8.7	-----	72.2	8.8	58.1	56.6	95.7	89.2	98.5	Genesis Brand Seed
Coker 9474	R	5.0	6.0	64.9	2.5	4.0	-----	71.8	10.0	55.6	49.9	90.5	67.1	102.9	Syngenta Seeds, Inc.
Frankenmuth	W	5.0	7.0	81.1	8.9	8.9	7.4	72.4	8.8	54.6	52.9	93.8	86.5	85.8	Michigan State University
Mean		2.2	3.7	88.5	5.7	5.8	5.1	72.0	8.6	56.5	53.9	93.2	79.7	95.5	
LSD		2.8	-----	-----	2.1	2.4	1.9	-----	-----	-----	-----	-----	-----	-----	
C.V.		62.9	-----	-----	18.3	20.7	23.3	-----	-----	-----	-----	-----	-----	-----	

LSD =Least significant difference, i.e., differences smaller than the LSD are probably due to chance. CV - Low values mean higher precision.

2003 Michigan Wheat Variety Trials

Table 3. Single Site Yield Performance Summary

Multi-year data are the most informative. MSU makes no endorsement of any variety or brand.

Caution: multi-year data are more informative than single year averages. Single site/single year data should not be used to make variety choice decisions.

NAME	Grain Color	YIELD: BUSHELS / ACRE						
		Locations (county)						Average all sites
		Ingham	Lenawee	Saginaw (#1)	Saginaw (#2)	Sanilac	Company	
Benton	R	86.9	83.3	97.8	91.5	93.5	Agripro Wheat	90.6
M98 - 2023	R	84.8	85.3	100.8	88.9	93.3	Agripro Wheat	90.6
Douglas	R	92.0	83.9	88.5	98.6	99.8	Agripro Wheat	92.6
CM 98091	R	85.1	75.8	94.1	88.1	90.8	C & M Seeds	86.8
Kristy	R	86.0	77.1	95.4	92.8	101.3	C & M Seeds	90.5
Aubrey	W	88.3	76.9	97.0	85.6	94.1	Genesis Brand Seed	88.4
Genesis R036	R	79.4	80.4	96.8	87.9	86.3	Genesis Brand Seed	86.2
Genesis 9953	R	85.3	82.1	90.3	92.4	94.2	Genesis Brand Seed	88.9
Genesis R022 Exp	R	85.9	80.3	96.7	90.3	96.7	Genesis Brand Seed	90.0
Genesis R035	R	84.7	77.8	93.7	91.5	95.7	Genesis Brand Seed	88.7
Richland	W	73.4	80.4	92.4	86.2	89.0	Genesis Brand Seed	84.3
Venture	R	83.6	79.4	90.4	88.2	96.6	Genesis Brand Seed	87.6
Caledonia	W	85.4	75.2	95.4	88.9	91.6	Genesis Brand Seed & Harrington Seeds, Inc.	87.3
HS 222 R	R	82.7	82.7	94.4	90.8	89.0	Harrington Seeds, Inc.	87.9
HS 243 R	R	85.9	75.0	97.1	87.0	97.4	Harrington Seeds, Inc.	88.5
Kelley	W	85.9	80.8	90.5	93.9	92.0	Harrington Seeds, Inc.	88.6
Coyote	R	85.5	78.4	90.7	84.5	97.6	JGL, Inc.	87.3
AC Mountain	W	88.7	84.6	96.9	93.3	94.3	Michigan Crop Improvement Association	91.6
AC Ron	W	88.9	82.3	92.2	91.0	99.3	Michigan Crop Improvement Association	90.7
Autumn	R	89.6	75.9	104.5	91.7	90.4	Michigan Crop Improvement Association	90.4
Bravo	R	93.3	78.9	100.7	95.3	98.3	Michigan Crop Improvement Association	93.3
Cedar	R	89.9	87.4	93.5	93.8	101.4	Michigan Crop Improvement Association	93.2
Harus	W	85.5	73.2	86.9	88.8	94.6	Michigan Crop Improvement Association	85.8
Hopewell	R	89.0	85.2	100.8	98.2	99.2	Michigan Crop Improvement Association	94.5
Jasper	R	79.6	70.0	97.0	92.9	96.3	Michigan Crop Improvement Association	87.2
OH 645	R	88.9	85.1	97.4	94.2	86.1	Michigan Crop Improvement Association	90.3
Pearl	W	87.9	84.6	92.1	93.7	91.2	Michigan Crop Improvement Association	89.9
Roane	R	82.1	83.8	89.5	89.8	93.8	Michigan Crop Improvement Association	87.8
Sisson	R	91.4	62.7	100.0	86.2	96.1	Michigan Crop Improvement Association	87.3
Aurora	W	87.1	79.3	89.5	89.1	97.5	Michigan Crop Improvement Association	88.5
MSU Line D6234	W	91.2	76.7	95.1	95.0	101.6	Michigan State University	91.9
MSU Line D8006	W	91.5	87.8	99.9	95.7	96.9	Michigan State University	94.4
MSU Line D9044	W	92.8	80.9	96.7	96.8	99.2	Michigan State University	93.3
MSU Line E1007	R	94.8	79.5	99.1	93.2	101.8	Michigan State University	93.7
Frankenmuth	W	80.8	77.1	81.6	79.8	80.0	Michigan State University	79.9
Pioneer Brand 25R37	R	88.8	84.2	96.0	89.2	94.6	Pioneer - A Dupont Company	90.6
Pioneer Brand 25R44	R	82.0	82.6	95.2	88.6	94.6	Pioneer - A Dupont Company	88.6
Pioneer Brand 25R47	R	99.7	91.4	110.0	105.6	107.7	Pioneer - A Dupont Company	102.9
Pioneer Brand 25W60	W	82.7	85.4	98.9	93.7	97.8	Pioneer - A Dupont Company	91.7
Vigoro Tribute	R	92.1	86.1	92.4	89.4	101.2	Royster Clark	92.2
Vigoro V9314W	W	86.8	81.3	91.8	89.2	94.3	Royster Clark	88.7
Rupp RS 909	R	78.2	82.7	93.2	90.0	95.4	Rupp Seeds, Inc.	87.9
Rupp RS 931	R	87.1	78.8	100.2	89.4	93.7	Rupp Seeds, Inc.	89.8
Bouillon	R	81.8	83.0	94.8	92.0	96.9	Steyer Seeds	89.7
Jacob	R	85.7	77.7	94.5	88.6	91.6	Steyer Seeds	87.6
B 950943	R	83.5	87.3	93.1	87.4	99.4	Syngenta Seeds, Inc.	90.1
B 960457	R	84.2	79.0	92.2	84.2	91.5	Syngenta Seeds, Inc.	86.2
Coker 9184	R	82.2	75.5	94.7	91.8	97.2	Syngenta Seeds, Inc.	88.3
Coker 9474	R	74.5	71.6	82.4	80.9	95.4	Syngenta Seeds, Inc.	81.0
Coker 9663	R	82.5	83.0	88.4	85.1	99.2	Syngenta Seeds, Inc.	87.6
McCormick	R	86.5	77.6	91.0	89.6	93.6	VPI & SU / Virgina Crop Improvement Assn.	87.7
VA97W-375WS	W	96.0	72.5	98.4	90.9	99.6	VPI & SU / Virgina Crop Improvement Assn.	91.5
VAN98W-170WS	W	88.7	69.9	96.7	83.2	96.3	VPI & SU / Virgina Crop Improvement Assn.	87.0
	Mean	85.7	79.3	94.3	89.9	94.6		88.8
	LSD	6.8	5.7	5.5	4.6	5.1		4.6
	C.V.	5.0	4.7	3.8	3.3	3.7		4.2

Appendix A. Trial Site Descriptions for 2003 MSU Wheat Variety Trials.

	Ingham County	Ionia County	Lenawee County	Sanilac County	Saginaw County #1	Saginaw County #2
Cooperator	Oesterle Brothers	Michigan State University	Woods Seed Farm	Stoughtenburg Farms	Stuart Bierlein	Fred Siler
Nearest City	Mason	Clarksville	Britton	Sandusky	Gera	Merrill
Date planted	09/30/02	10/17/02	10/09/02	09/27/02	09/28/02	10/01/02
Date harvested	07/23/03	07/31/03	07/20/03	07/29/03	07/25/03	07/27/03
Pre-Plant Fertilizer	350# 6-24-24	150# 46-0-0	250# 6-15-30+ 1%Mg+2.3%S+ 3%C	200# Potash + 150# 10-20-20	300# 5-13-33+ 1% Mg+0.4Cu	200# 10-13-36+ 1%Mn
Comments	Low disease	Mist irrigated	Very heavy foliar and head disease pressure		Low disease pressure	Low disease pressure
Avg. yield (bu/acre)	85.7	N / A	79.3	94.6	94.3	89.9
Avg. test weight (lbs/bu)	60.2	N / A	59.3	59.0	59.5	59.0
Avg. grain moisture (%)	14.4	N / A	14.9	17.0	13.4	14.4
Other data (# of reps)*	PltHt (4), WSSV (3), FD (3), SPROUT (4)	FD (1), Sept. (1), PMF% (1)	LRust (1), Sept. (1), WSMV (1), SRst (1)	Lod (4)	LRust (1), Lod (4)	PltHt (4), FD (4), SPROUT (4)

*** FD** – Flowering Date, **LRust** – Leaf Rust Score, **Lod** – Lodging Score, **PltHt** - Plant Height in Inches, **PM%F** – Percentage of Flag Leaf Covered with Powdery Mildew, **SPROUT** – In-Head Pre-Harvest Sprouting Score, **Sept.** – Septoria Score, **SRust** – Stripe Rust Score, **WSSV** – Wheat Spindle Streak Virus Score, **WSMV** – Wheat Streak Mosaic Virus Score

ORGANIZATIONS ENTERING VARIETIES IN THE 2003 MICHIGAN WHEAT VARIETY TRIALS

Agripro Wheat
P.O. Box 411, 520 E. 1050 South
Brookston, IN 47923
Phone: 765-563-3111

C & M Seeds
RR#3
Palmerston, ON NOG 2PO
CANADA
Phone: 519-343-2126

Genesis Ag Ltd
P.O. Box 21085
Lansing, MI 48909
Phone: 517-887-1684

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

J G L, Inc.
3540 S. US 231
G-Castle, IN 46135
765-653-5402

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

Pioneer – A Dupont Company
210 Westfield Drive
Archbold, OH 43502
Phone: 800-611-9569

Royster-Clark
717 Robinson Rd. SE
Washington C.H., Ohio 43160
Phone: 740-869-2181

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

Steyer Seeds, Inc.
6154 North County Road 33
Tiffin, OH 44883
Phone: 419-992-4570

Syngenta Seeds, Inc.
P.O. Box 1240
Winterville, N.C. 28590
Phone: 252-746-3004

Virginia Polytechnic Institute & State University / Virginia Crop Improvement
P.O. Box 338
Warsaw, VA 22572
Phone: 804-333-3485