1995 Wheat Variety and Seed Selection
Michigan State University Extension Service
Wheat Facts
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WHEAT FACTS

1995 WHEAT VARIETY AND SEED SELECTION

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The first step towards profitable wheat production is to identify varieties appropriate for your soil, climatic and market conditions. An increasing number of certified and uncertified public and private varieties are available. Variety selection can easily make a difference of 15 to 20 or more bushels per acre when combined with the best management practices. Varieties also differ widely in agronomic and quality characteristics. Some have better resistance to diseases, others have better milling and baking quality, while others are more resistant to lodging. Thus, it is important to select varieties carefully. The accompanying table shows agronomic characteristics of wheat varieties currently available in Michigan.

Wheat variety performance trials are conducted by Michigan State University (MSU) each year at five to seven locations throughout Michigan's winter wheat production area. Entries to the trials include MSU experimental lines, promising lines from neighboring states and commercial varieties from other universities and private seed companies. The primary objective of this testing program is to provide the agronomic data needed to determine which lines to release as commercial varieties. A second objective is to show Michigan wheat growers which varieties perform best in Michigan.

Although wheat producers are always interested in how varieties perform in a given year and location, such data should be used with caution. Performance in one given year and location should *never* be used in selecting a variety to plant. It is best to select a variety on the basis of at least three years or more of data across several different locations. Such comparisons are more likely to be reliable 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. What you can do is identify a group of varieties whose past performance and agronomic characteristics indicate that they are most likely to perform best in the upcoming season. It is a good idea to plant two or more varieties. That increases the chance of having the best adapted variety for the particular conditions during the ensuing season. Selecting two varieties can reduce losses from diseases and insects that occur when a given variety's pest resistance is overcome by a change in the pest population.

Soft White vs. Soft Red Wheat

About 70 to 75 percent of the wheat varieties planted in Michigan are in the soft white class. This class is unique to Michigan, Ontario, New York and the Pacific Northwest and its uses include cookies, crackers, cakes, pastries and soup thickeners. It is generally easier for wheat producers in central and northern Michigan to market soft white varieties because many elevators in this area only purchase white varieties. Soft red varieties are more readily marketed in southern Michigan. Growers should check with their local elevator before planting to make sure that a ready market exists.

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MICHIGAN STATE UNIVERSITY EXTENSION

EXTENSION BULLETIN E-2517 **AUGUST 1995**

1995 State Wheat Variety Trial Multi-Year Performance Summary
All County Sites Included

Variety Name	Single Year Multi-site Average Yields (Bushels/acre)						Across Year Averages (bu./acre)					Test Weight (lbs/bu.)		Grain Color	95 Disease Scores (0-9,0=none)			95 Miscellaneous Data				1994 Quality		Origin
	1990	1991	1992	1993	1994	1995	2 YR 94-95	3 YR 93-95	4 YR 92-95	5 YR 91-95	6 YR 90-95	94	95		PM	WSSV	LR	Lodge Score (0-9)	50% Pollen (DOY)	Ht (in)	Chaff/ Awns	Mill	Bake	
Pioneer Brand 2552	.	.	.	.	71.9	83.7	77.8	.	.	.	.	59.1	60.1	R	1.0	0.9	1.2	2.4	158	36	W/N	105	100	Pioneer
X8735	.	.	.	.	.	79.6	.	.	.	.	.	.	57.9	R	2.7	8.1	3.7	1.0	160	33	W/N	.	.	Stewart
Wakefield	79.2	77.0	91.3	68.7	76.7	79.5	78.1	74.9	79.0	78.6	78.7	58.2	58.4	R	2.2	1.3	4.8	5.3	158	39	W/N	98	107	VPI
GR942	.	.	.	.	.	79.2	.	.	.	.	.	.	58.0	R	3.4	7.8	3.4	0.8	158	32	W/N	.	.	AGRA
Navigator	.	.	.	.	.	78.2	.	.	.	.	.	.	58.3	R	3.4	8.4	3.4	1.7	159	34	W/N	.	.	WTS
Freedom	.	.	.	69.3	70.0	77.3	73.6	72.2	.	.	.	56.7	57.5	R	3.4	7.3	1.3	4.7	161	38	W/N	95	99	OSU
Madison	74.4	75.0	91.5	66.7	71.1	76.8	73.9	71.5	76.5	76.2	75.9	56.9	57.8	R	1.5	1.2	1.8	3.7	157	38	W/N	100	104	VPI
MSU Line D0256	.	.	.	.	74.2	75.5	74.8	.	.	.	.	57.4	57.9	W	1.7	0.9	1.2	5.3	161	41	B/N	102	94	MSU
SR204	.	.	.	63.5	69.9	75.5	72.7	69.6	.	.	.	60.6	61.4	R	3.5	6.0	2.3	2.3	157	37	W/Y	106	88	Terra
Pioneer Brand 2545	.	.	98.2	67.4	72.3	75.4	73.8	71.7	78.3	.	.	56.3	58.0	R	3.5	1.3	5.9	3.9	158	34	W/N	98	105	Pioneer
Mendon	78.0	76.3	105.0	67.8	75.7	75.3	75.5	72.9	80.9	80.0	79.6	55.3	56.0	R	1.2	0.9	5.5	6.0	159	41	W/N	101	104	MSU
SR205	.	.	.	.	.	74.9	.	.	.	.	.	.	57.1	R	6.4	3.0	2.0	2.4	157	33	W/N	100	98	Terra
A90*7546	.	.	.	.	.	74.8	.	.	.	.	.	.	60.2	R	4.3	6.1	0.9	2.0	157	37	W/Y	.	.	AgriPro
Pioneer Brand 2737W	.	.	105.7	60.0	64.0	74.5	69.2	66.1	76.0	.	.	55.6	57.0	W	5.1	4.8	2.5	2.4	159	35	W/N	102	100	Pioneer
SW350	.	.	.	.	..	74.3	.	.	.	.	.	.	57.7	R	1.1	1.5	4.1	3.3	159	38	W/N	.	.	Stewart
Pioneer Brand 2548	75.9	75.6	97.2	64.9	63.9	73.6	68.7	67.4	74.9	75.0	75.1	56.4	58.2	R	3.9	7.6	3.3	1.5	159	33	W/Y	95	100	Pioneer
Chelsea	75.0	66.9	103.9	66.4	66.6	73.1	69.8	68.7	77.5	75.3	75.3	57.7	57.3	W	1.6	1.1	3.1	6.1	161	39	B/Y	100	95	MSU
Sawyer	.	67.5	91.4	64.7	61.4	73.0	67.2	66.3	72.6	71.6	.	56.1	58.1	R	1.6	7.9	3.4	3.4	158	36	W/N	99	107	AgriPro
Pro-Praise	.	.	.	.	.	72.8	.	.	.	.	.	.	59.1	R	3.7	7.5	1.0	3.8	160	36	W/N	.	.	Pro-Seed
Lowell	74.9	76.6	103.9	66.5	71.1	72.6	71.8	70.0	78.5	78.1	77.6	54.5	55.2	W	1.4	1.1	5.7	6.0	159	40	W/N	101	107	MSU
MSU Line D1098	.	.	.	.	68.8	72.3	70.5	.	.	.	.	56.2	56.5	W	4.5	1.7	0.4	1.6	162	35	W/N	95	98	MSU
Pro-Forrest	.	.	.	.	.	72.1	.	.	.	.	.	.	57.6	R	3.5	3.7	1.6	2.9	157	35	W/N	.	.	Pro-Seed
GR933	.	.	.	.	64.6	72.0	68.3	.	.	.	.	55.9	57.3	R	8.1	5.3	2.9	2.4	158	36	W/N	99	106	AGRA
RW151	.	.	.	.	.	71.8	.	.	.	.	.	.	61.1	R	2.8	7.3	1.6	2.3	159	36	W/N	.	.	Anderson
Pioneer Brand 2510	.	.	114.8	68.2	72.7	71.6	72.1	70.8	81.8	.	.	59.0	59.3	R	8.4	1.9	0.8	1.3	159	35	W/N	104	96	Pioneer
L25	.	.	.	.	.	71.5	.	.	.	.	.	.	60.5	R	6.7	2.9	5.8	3.3	160	42	W/N	.	.	Stewart

Variety Name	Single Year Multi-site Average Yields (Bushels/acre) 1990	1991	1992	1993	1994	1995	Across Year Averages (bu./acre) 2 YR 94-95	3 YR 93-95	4 YR 92-95	5 YR 91-95	6 YR 90-95	Test Weight (lbs/bu.) 94	95	Grain Color	95 Disease Scores (0-9,0=none) PM	WSSV	LR	95 Miscellaneous Data Lodge Score (0-9)	50% Pollen (DOY)	Ht (in)	Chaff/ Awns	1994 Quality Mill	Bake	Origin
SW403	.	.	.	.	.	71.4	.	.	.	.	.	.	58.0	R	5.7	5.7	2.2	3.4	156	36	W/N	.	.	Stewart
Cardinal	69.5	70.2	98.6	65.5	68.0	70.7	69.3	68.0	75.7	74.6	73.7	57.7	58.6	R	7.2	7.6	2.6	3.8	160	38	W/N	104	107	OSU
Karene	.	66.4	107.3	59.0	63.2	70.4	66.8	64.2	74.9	73.2	.	57.0	56.8	W	1.4	8.7	5.5	3.2	163	40	W/N	100	100	Anderson
RSX426T1	.	.	.	.	.	70.3	.	.	.	.	.	.	60.4	R	6.1	6.9	0.9	2.3	158	36	W/N	.	.	Rupps
JACKSON	.	.	.	.	62.9	70.1	66.5	.	.	.	.	57.1	59.2	R	1.3	5.9	3.3	5.7	160	38	W/N	93	104	VPI
Pro-Bounty	.	.	.	.	.	70.1	.	.	.	.	.	.	57.1	R	7.4	6.0	2.6	2.5	158	36	W/N	.	.	Pro-Seed
RS927	.	.	88.3	60.7	67.5	69.1	68.3	65.7	71.4	.	.	59.4	54.5	R	7.0	6.5	1.3	1.6	159	34	W/N	104	97	Rupps
Augusta	71.1	61.1	102.8	58.6	67.9	68.2	68.0	64.9	74.3	71.7	71.6	56.3	55.5	W	3.7	8.6	6.4	4.5	163	38	W/N	100	100	MSU
Susquehanna	.	.	.	62.9	65.7	68.1	66.9	65.5	.	.	.	57.2	58.0	R	1.5	1.4	2.5	4.0	160	40	W/N	99	103	VPI
Harus	69.0	71.1	101.7	65.6	68.1	68.1	68.1	67.2	75.8	74.9	73.9	56.5	57.5	W	2.9	4.3	3.4	2.2	160	38	B/N	98	105	Ontario
Stine 48	.	.	.	.	.	68.0	.	.	.	.	.	.	60.4	R	6.0	8.0	1.4	3.5	158	37	W/N	.	.	Stine
Batavia	.	.	.	.	66.5	67.4	66.9	.	.	.	.	56.5	57.3	W	1.6	7.3	2.6	3.7	160	38	W/N	98	107	New York
Dynasty	70.5	62.5	95.7	64.9	62.9	67.4	65.1	65.0	72.7	70.6	70.6	57.4	59.3	R	6.7	2.3	5.8	3.0	157	37	W/Y	101	105	OSU
Clemens	.	.	.	.	.	67.3	.	.	.	.	.	.	58.7	R	6.4	9.1	1.1	4.6	161	38	W/N	.	.	AgriPro
Twain	77.3	71.8	88.3	66.1	57.7	66.7	62.2	63.5	69.7	70.1	71.3	59.8	60.5	R	6.8	3.3	2.0	2.1	.	36	W/N	97	91	AgriPro
Frankenmuth	66.8	61.9	98.1	58.0	64.4	64.7	64.5	62.3	71.3	69.4	68.9	58.4	58.0	W	3.5	8.7	6.1	5.7	164	40	B/N	100	100	MSU
GR876	73.2	71.5	92.6	55.8	62.6	63.7	63.1	60.7	68.6	69.2	69.9	58.4	58.7	R	6.2	4.9	1.1	1.7	162	34	W/Y	98	91	AGRA
Pontiac	.	.	.	.	.	62.6	.	.	.	.	.	.	58.8	R	7.1	6.0	1.2	2.4	.	33	W/N	92	104	AgriPro
FRANKENKORK	.	.	.	.	.	50.7	.	.	.	.	.	.	.		0.7	7.3	0.7	4.0	166	44	/	.	.	PURITY
ROUGUIN	.	.	.	.	.	50.3	.	.	.	.	.	.	.		2.0	6.7	1.1	4.7	166	45	/	.	.	PURITY
Mean	73.4	70.0	98.7	64.1	67.5	71.2	69.8	67.7	75.3	73.9	74.0	56.8	55.6		3.9	5.0	2.7	3.2	159.9	37.4		99.5	100.7	
# of sites	7	7	7	5	7	6	13	18	25	32	39	7	6		2	1	1	5	1	2		6 site composite (1994 grain)		
l.s.d.			8.2	5.3	7.7	5.2						0.8	0.9		2.1	1.6	1.5	1.6	1.3	3.2				
c.v.			6.9	6.9	11.1	6.4						1.5	1.5											

Yield was calculated using the entire area of the plot including the wheel tracks between plots. Test weights are estimated using 1 pint samples for each harvested plot. Yield comparisons are only valid within a column. Disease abbreviations are: PM=powdery mildew, WSSV=wheat spindle streak mosaic virus, and LR=leaf rust. All scores are based on a 0-9 scale, where 0 is the best possible score. Data for 50% pollen shed indicate the number of days past January 1st before that variety reached the point where one-half of its heads were flowering. This is highly related to differences in harvest date. Plant height was measured at the tip of average heads in a plot. Mill and Bake scores are based on a composite sample of 1994 yield trial samples. A score of 100 means the cultivar was equivalent to Frankenmuth.

Each line in the table has data for a single variety. The column bordered by double lines has this year's average yield. The table is arranged so that the varieties appear in order of '95 average yield with the highest yielding variety first and the lowest yielding variety last. To the left of the '95 data are yield averages for individual years ('90-'94). Not all varieties have been tested in all years, so the table has several blank cells. To the right of the '95 yield column are multi-year yield averages. Only data for varieties included in the relevant year's tests are included.

At the bottom of the table is information on how many county sites were used in the averages for a column. Means, L.S.D's, and C.V.s are included for several data columns. The LSD (least significant difference) is the statistical measure of how big a difference needs to be to be considered real. The C.V. (coefficient of variation) is indicative of how precise a trial is. Lower C.V. values indicate more precise trials.

Michigan State University makes no endorsement of any wheat variety or brand.

Spring vs. Winter Wheat

Spring wheats are preferred only in areas of the country where winter wheat cannot survive local winter conditions. In lower Michigan and other areas where winter wheat can survive the winter, its jump on spring growth gives it an unbeatable yield advantage over spring wheat. Spring wheat's comparatively delayed development also prolongs and accentuates its exposure to performance-threatening diseases and pests such as leaf rust, barley yellow dwarf virus and aphids. For these reasons, wheat breeders at MSU and adjoining states have not developed spring wheat varieties. Consequently, most spring wheat varieties are poorly adapted to lower Michigan conditions. Furthermore, marketing and storage facilities are generally not available in Michigan.

Source and Quality of Seed

Both certified and uncertified seed are available from local elevators, individual certified seed producers and seed companies throughout Michigan. Certified seed has the benefit of a third-party affirmation of the varietal purity and seed quality. However, uncertified seed may also represent high quality and varietal purity, depending on the seed suppliers and their credibility.

Seed lots should be selected on the basis of germination, purity and freedom from inert matter. High quality wheat seed should normally germinate between 95 and 100 percent in most years. Seed lots which *show any evidence of sprouting* should be avoided. Otherwise, storability and emergence potential may be affected, even though immediate germination is strong.

Pure seed content of high quality wheat will appear on the label and should be near 100 percent. Lots containing restricted noxious weed seed and more than two seeds per pound of common weeds should be avoided.

Seed Treatment

Seed treatment is one of the most important and least expensive measures you can take to avoid problems from seed-borne diseases. Wheat seed should be uniformly treated with an effective systemic fungicide and a broad-spectrum fungicide to control seed rot, seedling blight, loose smut, common bunt (stinking smut) and other seed-borne fungal diseases. Seed purchased from a certified seed grower or from other reputable seed sources will normally be treated as part of the conditioning process. If not, it should be taken to a local elevator or to a seed conditioning plant for treatment. You may use drill box treatment as a last resort, but be careful to obtain complete and uniform seed coverage. For additional information on seed treatment and specific recommendations, see Extension bulletin E-1199, "Seed Treatment for Field Crops" (70¢).

This bulletin is part of a series that is being prepared for Michigan wheat producers. Check with your local MSU Extension Office for availability.

- ❑ Wheat variety and seed selection
- ❑ Seeding practices for wheat in Michigan
- ❑ Direct drilling and minimum tillage for wheat
- ❑ Growth stages and wheat management
- ❑ Wheat fertility and fertilization
- ❑ Weed control in wheat
- ❑ Insect control in wheat
- ❑ Wheat diseases and their control
- ❑ Harvesting and storage of wheat
- ❑ Wheat quality and basis of elevator discounts

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