

# 2014 Michigan Organic Soybean Variety Trials

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This report provides information on performance of non-GMO soybean varieties grown under certified organic management in 2014. This research is funded under The Ceres Trust and the North Central Region Sustainable Agriculture Research Education (NCR SARE).

## Testing Procedures

Three trial locations are reported in this publication. A total of 51 soybean varieties were entered by seven seed companies and three universities. The cooperators, planting dates, harvest dates and other site details for each location are listed below. Seed was planted in 2-row plots, 26 feet long with 30-inch row spacing at a depth of 1.5 inches. The planting rate was 190,000 seeds/Acre. At each location, varieties were replicated four times in a lattice design. The plots were trimmed to a length of 20 feet and both rows were harvested. Experimental design, data management and data analysis were conducted with AGROBASE Generation II software (Agronomix Software, Inc., Winnipeg, Canada).

## Using the data

**Yield:** Expressed as bushels per acre (Bu/A) at 13 percent moisture and is reported as single and across site means for 2014.

**Height:** Plant height, reported in inches, was measured at maturity from the soil surface to the tip of the main stem. The reported values are means of all replications at the Tuscola and Lapeer, and Kalamazoo sites.

**Protein and oil content:** Protein and oil content of the seed was determined using near-infrared reflectance and is expressed on a 13 percent moisture basis.

## Test site information

### Lapeer County

Nearest city: Columbiaville	Cooperator: Don Brockriede
Soil type: Brady Sandy Loam	Previous crop: Corn
Tillage: Rotovator	
Planting Date: June 26	Harvest Date: November 13

### Tuscola County

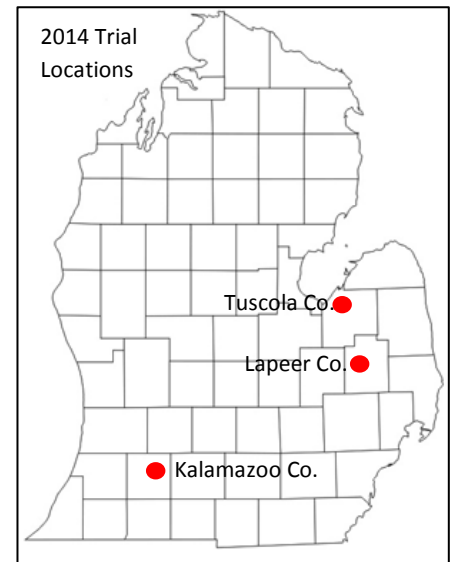
Nearest city: Unionville	Cooperator: Dave Sting
Soil type: Tappan-Londo Loam	Previous crop: Corn
Tillage: Fall moldboard plow, spring field cultivate	
Planting Date: June 5	Harvest Date: November 12

### Kalamazoo County

Nearest city: Hickory Corners	Cooperator: W.K. Kellogg Bio Station
Soil type: Sandy Loam	Previous crop: Winter wheat
Tillage: Chisel plow, field cultivate	
Planting Date: June 6	Harvest Date: October 26

## Growing conditions/comments

**Lapeer:** Due to heavy pressure from volunteer corn, plot was tilled and replanted at a rather late date. The site had timely rains and favorable growing conditions, but an early frost affected most varieties, resulting in small seed size.



Farmers, breeders and project team review soybean varieties during the Sept. 26, MSU Extension Summer Organic Tour.



Harvesting soybeans at Kalamazoo site, October 26.

**Tuscola:** Very wet spring delayed planting.

**Kalamazoo:** Delayed planting due to wet soils. Good growing conditions except for 3-4 weeks dry weather in August.

### Selecting a variety

Least Significant Difference (LSD) values are useful when comparing two varieties in the same table. If the difference between two varieties is less than the LSD value, this difference is probably due to chance or minor environmental differences. However, if the difference between two varieties is greater than the LSD, there is a 95 percent or greater probability that the difference in performance is due to the greater yield potential of one variety. Valid comparisons can only be made between averages in the same column. The C.V. is indicative of the trial precision. Lower C.V. values indicate more precise trials.

The primary consideration in selecting a variety is yield. When evaluating a variety, consider yield performance over locations and across several years, if available. Considerations other than yield are also important in selecting a variety. It is especially important to select a variety that will mature before the first frost in the fall.

Growers should note seed size when selecting planting rates. Planting rates should be based on number of seeds per acre and not on pounds per acre. It often benefits growers to select a few good varieties for planting each year. Yield determination and careful field evaluation during the growing season will add to the grower's knowledge of variety performance and allow for better selection.



Planting Tuscola Organic Soybean Variety trial.



Rating Soybean Varieties for White Mold.

### Seed sources

**DKB Farm & Services**  
Don Brockriede  
4945 Marathon Road  
Columbiaville, MI 48421  
810-688-3008

**D.F. Seeds Inc.**  
Chris Varner/John Diehl  
905 S. Jackson Road P.O. Box 159  
Dansville, MI 48819  
517-623-6161

**Organic Bean & Grain**  
Mark Vollmar  
1795 W. Akron Road  
Caro, MI 48723  
989-673-6402

**SunOpta**  
Emily Shettler  
10407 Scribner Rd  
Bancroft MI 48414  
989-721-7857

**MSU**  
DeChen Wang  
A384-E Plant and Soil Sciences Bldg.  
1066 Bogue Street  
East Lansing, MI 48824-1325  
517-355-0271 Ext. 188

**Schillinger Genetics, Inc.**  
Corey Nikkel  
4401 Westown Parkway, Suite 225  
West Des Moines, IA 50266  
515-225-6164

**Iowa State University**  
Dr. Walter Fehr/Kevin Scholbroch  
1212 Agronomy Hall  
Ames, IA 50011-1010  
515-294-6864

**Albert Lea Seed**  
Mathew Leavitt  
1414 W. Main, PO Box 127  
Albert Lea, MN 56007  
800-352-5247

**Blue Rive Hybrids**  
Maury Johnson  
27087 Timber Rd.  
Kelly, IA 50134  
800-370-7979

**University of Minnesota/  
MN Crop Improvement**  
Roger Wippler  
1900 Hendon Ave.  
St. Paul, MN 55108  
612-625-7766



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Source	Variety	Maturity Group	Hilum Color	(Bu./A)				% Protein	% Oil	Seeds per Pound	Maturity DAP**	Height (in.)*	WM DSI#
				Tuscola	Kalamazoo	Lapeer	Average						
Albert Lea	Viking O.1706N	1.7	Dark	57.9	37.8	34.2	43.3	36.6	17.2	3245	118	26.0	19.8
Albert Lea	Viking O.E1993N	1.9	ImpBlack	53.7	36.3	29.1	39.7	39.0	17.0	2415	117	27.6	11.2
Albert Lea	Viking O.2265	2.2	Dark	58.4	45.7	37.5	47.2	36.9	17.2	3048	123	29.2	21.2
Albert Lea	Viking O.2299	2.2	Clear	51.8	47.7	33.2	44.2	36.5	17.0	2887	122	27.5	5.1
Albert Lea	Viking O.2399AT12	2.3	Yellow	54.7	48.7	33.6	45.7	39.2	16.2	2230	123	26.0	12.6
Blue River	12A2	1.2	Dark	52.0	38.5	33.1	41.2	36.7	17.1	3266	117	26.8	24.9
Blue River	21F3	2.1	Yellow	53.0	45.8	25.5	41.4	39.3	15.6	2234	129	30.4	7.7
Blue River	27A5	2.7	Yellow	53.8	47.1	35.8	45.6	36.4	16.9	2855	124	27.1	14.9
DF Seeds	DF 161 N/STS	1.6	Black	51.2	48.6	37.9	45.9	36.4	17.3	3287	116	26.1	24.1
DF Seeds	DF 241 NCF	2.4	Clear	47.6	30.1	22.1	33.3	36.9	16.4	2837	125	23.7	20.5
DF Seeds	DF 242 N/S	2.4	Black	56.2	41.4	33.1	43.6	36.9	16.7	3310	123	27.1	12.7
DF Seeds	DF 155 F	2.5	Clear	54.6	49.9	27.7	44.1	39.1	16.4	2331	129	27.1	8.2
DKB Farms	VINTON 81	1.9	Clear	48.5	39.0	26.7	38.1	40.7	15.6	2241	122	33.4	14.1
Iowa State	IA3053RA12	3.0	Yellow	57.0	47.6	31.7	45.4	38.3	15.9	2330	127	29.1	19.3
Iowa State	IA2102	2.7	Yellow	55.7	46.1	32.6	44.8	36.8	16.8	2972	124	27.6	28.7
Iowa State	IA2104	2.2	Yellow	51.7	49.4	32.9	44.7	39.2	16.1	2270	124	26.6	9.0
Iowa State	IA3051	3.0	Yellow	57.6	47.3	33.3	46.1	39.2	15.3	2415	129	28.8	16.3
MSU	E05181-T	2.0	Yellow	46.6	25.5	31.3	34.5	37.7	16.8	2538	120	27.3	7.1
MSU	E07130-T	2.3	Yellow	44.8	41.1	24.9	36.9	40.7	15.6	2038	127	29.4	8.2
MSU	E07158-T	2.3	Yellow	46.1	41.7	27.4	38.4	41.4	15.5	2014	127	29.8	3.9
MSU	E10174	2.9	Brown	54.4	49.7	25.5	43.2	35.4	17.1	2378	129	32.3	11.1
MSU	E11095	2.5	Brown	53.6	39.1	29.9	40.9	35.3	16.9	2848	124	26.3	12.1
MSU	E11128T	2.6	Yellow	54.2	42.2	26.4	40.9	39.6	15.9	2352	127	27.3	21.2
MSU	E11399	2.5	Black	64.7	50.0	27.9	47.5	35.2	17.4	2779	124	28.8	6.3
MSU	E11401	2.1	Black	61.8	35.1	30.0	42.3	35.1	17.2	2732	124	29.1	7.2
MSU	E11431	2.2	Black	63.2	43.3	34.5	47.0	35.5	17.2	2755	124	30.0	13.5
MSU	E12007	2.8	Dk.Brown	62.8	51.2	31.8	48.6	37.0	16.9	3150	126	30.6	21.9
MSU	E12020	2.8	Brown	54.1	49.2	23.1	42.1	36.2	16.8	2908	131	28.8	11.1
MSU	E12023	2.6	Black	57.7	51.8	24.7	44.7	36.6	16.7	3181	127	28.6	10.2
MSU	E12034	2.9	Black	61.1	43.9	26.2	43.7	35.2	16.6	3296	129	27.8	8.7
MSU	E12042	2.7	Black	60.5	53.0	32.2	48.6	35.4	16.7	3191	129	32.0	12.3
MSU	E12061	2.6	Black	57.6	33.6	31.3	40.8	36.2	16.7	3113	125	25.1	16.7
MSU	E12076-T	2.9	Yellow	60.0	51.1	28.2	46.4	35.7	16.7	2706	129	29.1	6.1
MSU	E12084	2.7	Black	57.5	49.8	26.7	44.7	36.3	16.7	3168	128	32.0	17.8
MSU	E12247	2.7	Black	58.9	54.3	32.3	48.5	36.5	16.5	2928	130	37.8	11.0
MSU	E12377	2.5	ImpBlack	49.5	31.6	30.6	37.2	35.2	16.7	2906	127	28.1	22.3
MSU	E12397	2.2	LtBrown	56.0	41.7	33.3	43.7	36.6	17.2	2773	122	27.8	21.5
MN CROP IMP	MN 1709 CN	1.7	Yellow	54.1	35.2	34.1	41.1	37.4	16.7	2936	117	24.9	17.1
MN CROP IMP	M04-220008	1.7	Yellow	54.3	37.4	30.5	40.7	37.4	16.8	2547	118	25.7	13.9
MN CROP IMP	M04-295008	1.3	Yellow	49.5	43.8	36.3	43.2	39.5	16.7	2123	118	25.9	23.0
MN CROP IMP	M05-357149	1.7	Yellow	52.5	35.6	35.2	41.1	37.9	17.3	2807	120	26.8	8.2
MN CROP IMP	M05-363120	1.7	Yellow	46.3	33.1	32.6	37.3	37.4	16.8	2529	115	24.5	11.8
MN CROP IMP	MN 1505 SP	1.5	Yellow	51.0	35.0	28.6	38.2	39.9	16.9	2350	117	25.7	13.4
Organic B&G	S2020	2.0	Clear	58.5	38.8	32.3	43.2	37.1	17.2	2522	118	24.6	13.7
Organic B&G	DH410	1.6	Clear	50.5	33.7	35.4	39.9	39.4	17.1	2685	117	26.6	11.6
Organic B&G	DH530	1.6	Clear	52.2	41.4	28.4	40.7	36.9	17.8	2490	114	26.2	12.7
Schillinger Genetics	1993	1.9	ImpBlack	57.9	41.6	32.3	43.9	36.1	16.4	2357	124	25.6	17.5
Schillinger Genetics	2060	2.0	-	45.7	37.6	30.5	37.9	38.9	16.8	2561	124	24.0	19.1
Schillinger Genetics	2162	2.1	Yellow	45.7	40.5	25.5	37.2	39.1	15.9	2715	122	24.3	4.7

Source	Variety	Maturity Group	Hilum Color	(Bu./A)				% Protein	% Oil	Seeds per Pound	Maturity DAP**	Height (in.)*	WM DSI#
				Tuscola	Kalamazoo	Lapeer	Average						
Schillinger Genetics	2282	2.2	Buff	<b>59.2</b>	36.0	29.7	41.6	38.5	16.2	2728	122	26.9	<b>7.7</b>
Sunopta	S03W4	-	Clear	47.3	34.9	29.3	37.2	38.7	<b>17.7</b>	2309	105	25.2	<b>1.9</b>
Sunopta	OAC Thomsville	-	Clear	<b>56.4</b>	<b>45.4</b>	29.5	<b>43.8</b>	37.7	16.8	2231	123	26.1	<b>6.5</b>
Grand Mean				54.3	42.2	30.5	42.3	37.5	16.7	2689	123	27.7	13.5
Maximum				64.7	54.3	37.9	48.6	41.4	17.8	3191	131	37.8	28.7
Minimum				44.8	25.5	22.1	33.3	35.1	15.3	2014	105	23.7	1.9
C.V. (%)				9.7	17.1	11.7	13.1	1.5	2.1				69.3
LSD (0.05)				8.8	12.0	5.9	5.3	0.6	0.3				15.6

\* Average of all three sites.

\*\* Days After Planting, average of Kalamazoo and Tuscola sites.

# White Mold Disease Severity Rating, Tuscola site only. Bolded values within columns are not statistically different.

**White Mold Disease Severity Index rating** : White mold levels were determined by rating 30 random plants in the center rows of each plot. Each plant was rated on a scale of 0 to 3 with 0 = no infection, 1 = infection only on branches, 2 = infection on the main stem but pod fill was normal, and 3 = infection on the main stem resulted in plant death and poor pod fill. The scores of the 30 plants rated for each plot were totaled. The total was divided by 90 (the total if all 30 scored plants were given a rating of 3) and multiplied by 100 to give a disease severity index(DSI). A DSI of 100 would be given to a plot where all evaluated plants had a rating of 3 and a DSI of 0 would be given to a plot where all evaluated plants had a rating of 0.

#### Two (2013-2014) and three (2012-2014) year averages of soybean varieties at Tuscola, Lapeer and Kalamazoo counties.

Source	Variety	Maturity Group	Hilum Color	Tuscola		Lapeer		Kalamazoo		Average		% Protein		% Oil		Seeds per Pound	
				2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr	2yr	3yr
Albert Lea Seeds	Viking O.1706N	1.7	Dark	46.8	-	34.5	-	48.2	-	41.4	-	36.5	-	17.5	-	3396	-
Albert Lea Seeds	Viking O.2265	2.2	Dark	47.3	53.1	35.4	44.3	56.1	48.9	45.4	48.0	36.6	36.5	17.6	17.8	3093	2985
Blue River	21F3	2.1	Yellow	44.7	-	29.8	-	51.5	-	41.2	-	39.2	-	16.1	-	2174	-
DF Seeds	DF 155 F	2.5	Clear	42.9	45.1	31.2	37.9	57.0	50.9	43.1	44.4	38.9	38.7	16.9	17.1	2326	2279
DF Seeds	DF 161 N STS	1.6	Black	45.4	52.8	41.9	48.9	52.5	46.2	45.4	48.1	36.2	36.2	17.6	17.8	3376	3273
DF Seeds	DF 242 N/S	2.4	Black	47.3	53.9	34.1	43.8	51.4	52.3	44.2	49.6	37.4	37.2	17.0	17.3	3279	3048
DKB Farms	Vinton 81	1.9	Clear	39.7	43.2	30.1	36.0	45.3	41.3	37.6	39.0	40.5	40.4	16.1	16.2	2205	2100
Iowa State	IA2102	2.7	Yellow	47.0	55.1	36.9	45.4	56.5	47.5	46.2	49.5	36.5	36.4	17.4	17.6	2985	2891
Iowa State	IA2104	2.2	Yellow	43.0	50.8	33.4	42.0	52.8	43.6	42.6	44.3	39.3	39.3	16.5	16.7	2290	2214
Iowa State	IA3051	3.0	Yellow	45.3	53.8	36.4	45.0	52.1	45.8	44.1	47.3	39.4	39.5	15.9	16.1	2460	2338
MCIA	MN 1505 SP	1.5	Yellow	39.1	43.5	30.8	36.6	46.0	41.1	37.7	38.9	39.8	39.8	17.3	17.4	2344	2273
MSU	E05181-T	2.0	Yellow	41.7	47.7	34.8	44.6	41.5	38.8	38.3	43.7	37.8	37.7	17.3	17.4	2412	2281
MSU	E07130-T	2.3	Yellow	39.4	44.0	30.2	38.7	48.2	45.0	38.3	40.9	40.8	40.8	16.0	16.2	2018	1937
MSU	E07158-T	2.3	Yellow	37.1	44.0	32.5	41.0	45.0	37.8	37.3	39.6	41.7	41.8	16.0	16.2	1971	1911
MSU	E10174	2.9	Yellow	49.2	54.8	36.2	45.2	58.6	54.0	47.4	51.6	35.2	35.0	17.5	17.8	2393	2333
MSU	E11399	2.5	Black	53.4	-	32.1	-	57.3	-	46.3	-	34.9	-	17.7	-	2818	-
MSU	E11401	2.1	Black	46.5	-	36.0	-	48.4	-	43.3	-	34.8	-	17.7	-	2757	-
MSU	E11431	2.2	Black	48.7	-	39.6	-	54.2	-	46.6	-	35.0	-	17.6	-	2774	-
Organic B&G	DH410	1.6	Clear	41.7	46.9	36.4	45.4	45.5	43.4	41.1	45.0	39.3	39.3	17.4	17.4	2685	2640
Organic B&G	DH530	1.6	Clear	38.3	44.1	32.8	42.2	50.7	42.1	39.8	41.5	36.6	36.2	18.0	18.2	2555	2579
Organic B&G	S2020	2.0	Clear	43.5	50.0	33.0	45.8	47.1	41.9	40.5	44.3	37.2	37.1	17.4	17.6	2567	2504
Schillinger Genetics	e2162	2.1	Yellow	36.7	45.3	31.6	37.9	48.2	44.3	38.8	42.8	38.8	38.6	16.5	16.8	2815	2715