

# 2016 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 2016. This research is funded by The Ceres Trust and the North Central Region Sustainable Agriculture Research Education (NCR SARE) Program.

## Testing Procedures

Three trial locations are reported in this publication. A total of 61 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 180,000 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 2016.

**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

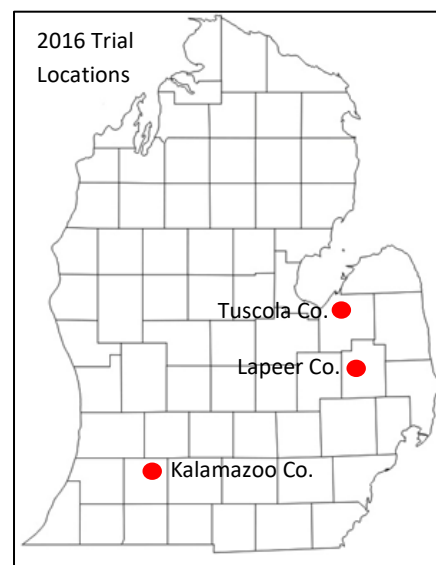
Nearest city: Columbiaville	Cooperator: Charlie Brockriede
Soil type: Sandy loam	Previous crop: Corn, spelt cover crop
Tillage: Spring moldboard plow, disk	
Planting Date: June 7	Harvest Date: November 15

### Tuscola County

Nearest city: Unionville	Cooperator: Dave Sting
Soil type: Tappan-Londo Loam	Previous crop: Corn
Tillage: Fall plowed, spring field cultivate	
Planting Date: May 21	Harvest Date: November 10

### Kalamazoo County

Nearest city: Hickory Corners	Cooperator: W.K. Kellogg Bio Station
Soil type: Sandy loam	Previous crop: Winter wheat/Clover
Tillage: Chisel plow, field cultivate	
Planting Date: June 21	Harvest Date: November 7



Planting soybeans at Tuscola County, May 21 .



Lapeer County organic soybean variety trial.

## Growing conditions/comments

**Lapeer:** early dry conditions, with average growing conditions rest of year.

**Tuscola:** wet ground prior to planting, then good planting conditions until a very dry stretch in June-July resulting in short plants.

**Kalamazoo:** wet conditions just after planting resulting in poor weed control. Site tilled up and replanted in late June. Very dry conditions after replanting, irrigated 1.4 inches. Good conditions for rest of season. All varieties matured before frost.

## 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.



Maturing soybeans at Kalamazoo County site, October 3.



Harvesting soybeans in Tuscola County, November 10.

## Seed sources

### DKB Farm & Services

Charlie Brockriede  
4945 Marathon Road  
Columbiaville, MI 48421  
810-627-8477

### 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/ Cooperative Elevator Company

Dan Armbruster  
1075 S. Colling Rd.  
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  
WestDes 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

Stuart Grim  
2326 230th St.  
Ames, IA 50014  
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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## 2016 Michigan Organic Soybean Variety Trial

Brand/Source	Variety	Group	Hilum Color	Bushels per Acre				Height Inches <sup>+</sup>	DAP**	% Oil*	% Protein*	Seeds/Lb <sup>+</sup>
				Kalamazoo	Lapeer	Tuscola	Average					
Albert Lea Seed	O.1518N	1.5	Black	51.4	49.7	60.7	53.9	28	115	17.6	37.8	2588
Albert Lea Seed	O.1706N	1.7	Black	54.6	48.0	60.1	54.3	30	116	17.8	37.5	2938
Albert Lea Seed	O.202N	1.2	Black	54.0	47.8	50.3	50.7	28	113	17.4	37.8	2247
Albert Lea Seed	O.2188AT12N	2.1	Yellow	68.3	67.6	71.2	69.0	32	125	17.8	37.7	2357
Albert Lea Seed	O.2399AT12N	2.3	Yellow	62.3	65.1	68.3	65.2	34	126	17.6	37.6	2235
Blue River Hybrids	15C6	1.5	Dark	50.2	46.0	57.6	51.3	27	115	17.6	37.6	2609
Blue River Hybrids	17C2	1.7	Dark	58.4	45.8	50.4	51.5	29	113	18.1	37.0	2674
Blue River Hybrids	18C7	1.8	Dark	53.4	53.6	73.0	60.0	31	119	18.7	36.0	2177
Blue River Hybrids	20FC6	2.0	Yellow	50.8	57.9	63.5	57.4	30	116	18.1	36.6	2538
Blue River Hybrids	21C6	2.1	Dark	60.3	61.4	71.9	64.5	33	121	19.0	35.4	2376
Blue River Hybrids	21F3	2.6	Yellow	59.4	51.3	59.8	56.8	33	123	16.9	39.8	1721
Blue River Hybrids	22DC6	2.2	Dark	64.3	55.1	70.5	63.3	32	122	17.4	37.3	2519
DF Seeds	DF 155 F	2.5	Clear	61.1	61.9	59.9	61.0	32	124	17.6	39.1	1963
DF Seeds	DF 192 N	1.9	Im Black	59.5	56.3	54.0	56.6	30	117	18.2	37.1	2100
DF Seeds	DF 227 N	2.2	Im Brown	65.8	55.6	69.2	63.5	33	122	17.4	37.3	2463
DF Seeds	DF 242 N	2.4	Im Black	61.4	52.8	63.7	59.3	32	121	17.7	37.4	2772
DKB Farms	Vinton 81	1.9	Clear	48.5	35.0	48.6	44.0	36	118	16.2	40.8	1770
Iowa State University	IA1029	1.9	Yellow	61.6	53.7	56.8	57.3	32	117	17.3	39.1	2049
Iowa State University	IA2112RA12	2.7	Yellow	65.5	60.9	67.9	64.8	32	125	17.4	38.1	2212
Iowa State University	IAR1902SCN	1.9	Buff	54.8	51.1	68.4	58.1	33	119	18.7	36.8	2585
Iowa State University	IAR2104RA12	2.3	Yellow	62.5	55.2	62.2	60.0	32	124	16.9	39.6	1873
Iowa State University	IAR2601SCN	2.6	Brown	60.8	58.0	77.4	65.4	29	122	17.9	37.3	2362
Michigan State University	E05181T	2.0	Yellow	53.4	46.0	61.5	53.6	29	117	17.8	37.9	2034
Michigan State University	E07051	2.2	Dark Brown	63.3	64.5	68.1	65.2	31	121	18.2	36.9	2109
Michigan State University	E07130T	2.3	Yellow	55.8	42.7	54.7	51.1	35	122	16.3	41.7	1642
Michigan State University	E07158T	2.3	Yellow	52.1	46.3	50.2	49.5	33	120	16.3	42.5	1662
Michigan State University	E10151	2.2	Black	63.1	54.8	60.7	59.5	34	123	18.5	35.2	2431
Michigan State University	E10174	2.7	Yellow	68.5	66.9	76.5	70.6	37	128	17.9	36.2	1979
Michigan State University	E11128T	2.6	Yellow	57.7	59.4	71.5	62.9	30	124	16.8	39.9	1957
Michigan State University	E11399	2.2	Black	63.6	51.7	57.5	57.6	35	125	18.2	36.0	2438
Michigan State University	E11431	2.2	Black	61.7	53.2	59.8	58.2	35	123	18.3	35.6	2330
Michigan State University	E12042	2.7	Black	66.8	47.1	69.6	61.2	35	126	18.3	35.5	2598
Michigan State University	E12076T	2.9	Yellow	70.8	44.5	48.0	54.5	31	128	17.9	35.8	2285
Michigan State University	E12397	2.2	Lit Brown	60.1	47.9	68.0	58.7	31	120	18.1	37.2	2459
Michigan State University	E13036T	2.4	Yellow	62.9	53.1	66.5	60.8	31	123	17.4	37.6	1864
Michigan State University	E13268	1.7	Black	64.6	54.5	61.8	60.3	30	117	17.9	36.2	2538
Michigan State University	E13304	1.6	Black	49.9	49.6	48.2	49.2	32	114	17.9	38.6	2539
Michigan State University	E13364	2.2	Dark Brown	59.2	63.3	68.5	63.7	32	122	17.9	37.6	2616
Michigan State University	E13367	2.2	Brown	64.2	52.6	65.1	60.6	29	122	17.8	35.9	2493
Michigan State University	E13369	1.6	Brown	65.7	52.8	61.5	60.0	31	117	17.9	36.9	2608
Michigan State University	E13901	2.3	Black	54.5	34.1	55.8	48.1	34	121	17.9	36.7	2176
Michigan State University	E14022T	2.2	Yellow	50.8	39.7	39.9	43.4	27	117	17.7	39.0	2045
Michigan State University	E14044T	2.5	Yellow	56.8	45.5	50.7	51.0	30	121	16.7	39.8	2052
Michigan State University	E14309	2.5	Med Brown	62.3	51.0	61.0	58.1	36	127	17.4	36.8	2355
Organic Bean & Grain	DH410	1.6	Clear	57.4	57.0	50.6	55.0	32	115	17.9	40.0	2321
Organic Bean & Grain	DH530	1.6	Clear	57.2	42.7	39.2	46.4	32	113	18.9	36.3	2427
Organic Bean & Grain	S2020	2.0	Clear	55.2	46.4	54.7	52.1	32	115	18.3	37.0	2275
Schillinger Genetics	e1665	1.6	Yellow	53.5	55.9	51.5	53.6	29	111	17.7	38.1	2463
Schillinger Genetics	e2162	2.1	Yellow	52.2	48.7	53.7	51.5	29	119	17.2	38.7	2492
Schillinger Genetics	e2346	2.3	Black	54.6	53.1	58.4	55.4	32	118	17.2	38.4	2186
Schillinger Genetics	e2866A	2.8	Yellow	62.5	62.8	70.7	65.3	31	125	17.6	37.8	2228
SunOpta	SR 129	1.8	Yellow	58.0	44.8	53.0	51.9	30	117	17.2	39.0	2055
SunOpta	SR 204	2.4	Yellow	64.0	53.8	55.2	57.6	31	125	16.5	39.7	1830
SunOpta	SR 354	2.2	Yellow	59.8	54.4	57.6	57.3	31	123	16.3	40.6	1989
University of Minnesota	M04-295008	1.5	Yellow	54.4	43.8	49.7	49.3	33	115	17.0	39.7	1833
University of Minnesota	M06-288155	1.6	Yellow	59.0	49.8	51.6	53.5	34	115	17.5	36.9	2678
University of Minnesota	M07-297007	1.8	Black	54.5	59.4	64.1	59.3	33	115	17.3	39.5	2685
University of Minnesota	M07-322-4006	1.7	Yellow	48.3	44.8	51.1	48.0	33	114	16.9	40.5	1673
University of Minnesota	MN1612CN	1.6	Yellow	51.1	51.2	60.7	54.3	30	115	17.8	37.2	2187
University of Minnesota	MN1701CN	1.7	Yellow	53.9	52.2	59.9	55.3	33	116	17.6	37.8	2691
University of Minnesota	MN1806CN	1.8	Yellow	52.1	47.5	55.3	51.6	31	116	18.1	37.5	2365
GRAND MEAN				58.4	52.1	59.8	56.8	32	120	17.6	37.9	
Max. Mean				70.8	67.6	77.4	70.6	37	128	19.0	42.5	
Min. Mean				48.3	34.1	39.2	43.4	27	111	16.2	35.2	
LSD				6.8	8.4	13.3	5.7					
CV				7.0	9.7	13.4	10.5					

\*Maturity: Days After Planting

+ Average across sites

## Multiple Year Michigan Organic Soybean Variety Trial Results

Multiple Year Averages (2 yr = 2015-2016, 3 yr = 2014-2016, 4 yr=2013-2016)

Brand/Source	Variety	Group	Hilum Color	Kalamazoo Bu/A			Lapeer Bu/A			Tuscola Bu/A			Average Bu/A		
				2 yr	3 yr	4 yr	2 yr	3 yr	4 yr	2 yr	3 yr	4 yr	2 yr	3 yr	4 yr
Albert Lea Seed	O.1706N	1.7	Black	50.1	46.0	49.1	47.8	41.1	41.4	55.1	56.0	50.9	51.0	48.4	46.2
Blue River Hybrids	17C2	1.7	Dark	52.9	-	-	44.0	-	-	54.8	-	-	50.1	-	-
Blue River Hybrids	21F3	2.6	Yellow	54.4	51.5	53.0	42.2	36.0	36.6	63.0	59.6	53.8	52.6	48.8	46.9
Blue River Hybrids	22DC6	2.2	Dark	61.4	-	-	55.8	-	-	72.6	-	-	62.2	-	-
DF Seeds	DF 155 F	2.5	Clear	57.3	54.8	57.1	53.0	42.1	41.2	63.6	60.6	53.2	56.4	52.3	49.8
DKB Farms	Vinton 81	1.9	Clear	44.7	42.8	45.0	33.8	31.9	31.3	49.3	49.0	44.5	42.3	40.9	39.9
Michigan State University	E05181-T	2.0	Yellow	51.1	42.5	46.3	48.1	41.5	41.1	61.5	56.5	51.6	52.9	46.8	45.6
Michigan State University	E07051	2.2	Dark Brown	57.3	-	-	60.8	-	-	66.6	-	-	61.8	-	-
Michigan State University	E07130-T	2.3	Yellow	49.9	46.9	49.0	40.5	35.3	35.0	55.2	51.7	47.3	47.6	44.0	43.0
Michigan State University	E07158-T	2.3	Yellow	48.9	46.5	46.9	44.6	38.6	36.2	53.3	50.9	45.2	48.7	45.2	43.0
Michigan State University	E10151	2.2	Black	61.1	-	-	50.1	-	-	63.0	-	-	57.7	-	-
Michigan State University	E10174	2.7	Yellow	60.2	56.7	59.4	65.7	50.9	50.2	70.0	64.8	59.6	65.1	57.8	56.2
Michigan State University	E11128-T	2.6	Yellow	53.5	49.7	-	55.8	46.0	-	64.0	60.7	-	58.6	52.7	-
Michigan State University	E11399	2.2	Black	58.3	55.5	57.8	52.5	42.3	43.7	62.8	63.4	58.1	56.4	53.4	51.3
Michigan State University	E11431	2.2	Black	56.7	52.2	55.5	45.6	42.6	40.0	62.0	62.4	55.4	54.1	51.7	50.3
Michigan State University	E12397	2.2	Lit Brown	57.1	52.0	-	42.7	39.6	-	67.2	63.5	-	55.3	51.4	-
Michigan State University	E13036-T	2.4	Yellow	53.5	-	-	51.3	-	-	61.9	-	-	55.7	-	-
Michigan State University	E13364	2.2	Dark Brown	54.3	-	-	51.2	-	-	61.0	-	-	55.3	-	-
Michigan State University	E13367	2.2	Brown	57.4	-	-	50.7	-	-	62.5	-	-	56.1	-	-
Michigan State University	E13369	1.6	Brown	56.2	-	-	46.4	-	-	59.2	-	-	54.5	-	-
Minn Crop Improvement	M04-295008	1.5	Yellow	52.7	49.7	-	42.8	40.6	-	52.5	51.5	-	48.4	46.7	-
Minn Crop Improvement	M06-288155	1.6	Yellow	51.9	-	-	49.7	-	-	56.6	-	-	52.8	-	-
Minn Crop Improvement	MN1701 CN	1.7	Yellow	51.4	-	-	50.5	-	-	55.3	-	-	52.4	-	-
Organic Bean & Grain	DH 410	1.6	Clear	49.1	43.9	47.3	53.8	45.1	44.0	56.5	54.5	49.1	52.4	48.2	46.8
Organic Bean & Grain	DH 530	1.6	Clear	49.5	46.8	50.1	42.4	37.6	34.4	49.8	50.6	44.0	44.5	43.2	42.1
Organic Bean & Grain	S2020	2.0	Clear	52.5	47.9	49.8	39.6	36.3	35.0	57.4	57.7	50.4	49.0	47.0	44.7
Schillinger Genetics	e1665	1.6	Yellow	50.1	-	-	52.7	-	-	54.0	-	-	52.6	-	-
Schillinger Genetics	e2162	2.1	Yellow	52.5	-	-	47.8	-	-	54.7	-	-	51.4	-	-

Brand/Source	Variety	Group	Hilum Color	Height(inches)*			DAP**		% Oil*			% Protein*			Seeds/pound*		
				2 yr	3 yr	4 yr	2 yr	3 yr	2 yr	3 yr	4 yr	2 yr	3 yr	4 yr	2 yr	3 yr	4 yr
Albert Lea Seed	O.1706N	1.7	Black	28.6	27.7	28.1	117	117	17.3	17.2	17.4	35.6	35.9	36.0	2922	3030	3159
Blue River Hybrids	17C2	1.7	Dark	29.3	-	-	116	-	18.1	-	-	36.6	-	-	2913	-	-
Blue River Hybrids	21F3	2.6	Yellow	31.9	31.4	31.3	126	127	16.2	16.0	16.1	38.0	38.4	38.6	1910	2018	2042
Blue River Hybrids	22DC6	2.2	Dark	31.6	-	-	126	-	17.4	-	-	37.0	-	-	2576	-	-
DF Seeds	DF 155 F	2.5	Clear	31.8	30.2	29.9	127	128	17.7	17.3	17.3	38.7	38.8	38.8	2032	2132	2179
DKB Farms	Vinton 81	1.9	Clear	35.2	34.6	34.7	120	121	16.5	16.2	16.3	40.6	40.6	40.6	1838	1972	2021
Michigan State University	E05181-T	2.0	Yellow	28.4	28.0	28	120	120	17.9	17.5	17.6	38.0	37.9	37.9	2055	2216	2233
Michigan State University	E07051	2.2	Dark Brown	30.2	-	-	125	-	18.2	-	-	36.9	-	-	2144	-	-
Michigan State University	E07130-T	2.3	Yellow	34.0	32.4	32.6	125	125	16.6	16.2	16.3	41.3	41.1	41.0	1713	1821	1866
Michigan State University	E07158-T	2.3	Yellow	32.9	31.8	31.6	124	125	16.6	16.2	16.3	41.9	41.7	41.8	1668	1783	1820
Michigan State University	E10151	2.2	Black	32.1	-	-	125	-	18.5	-	-	35.0	-	-	2495	-	-
Michigan State University	E10174	2.7	Yellow	35.9	34.7	34.3	131	130	18.1	17.8	17.8	35.8	35.7	35.5	2044	2155	2218
Michigan State University	E11128-T	2.6	Yellow	30.4	29.4	-	127	127	16.9	16.5	-	39.9	-	-	1996	2114	-
Michigan State University	E11399	2.2	Black	32.3	31.1	31.4	127	126	18.3	18.0	18.0	35.6	35.5	35.2	2486	2584	2652
Michigan State University	E11431	2.2	Black	33.3	32.2	32.2	125	125	18.3	17.9	18.0	35.5	35.5	35.2	2441	2545	2607
Michigan State University	E12397	2.2	Lit Brown	30.2	29.4	-	123	122	17.3	17.3	-	35.6	35.9	-	2459	2563	-
Michigan State University	E13036-T	2.4	Yellow	30.4	-	-	126	-	17.4	-	-	37.5	-	-	1961	-	-
Michigan State University	E13364	2.2	Dark Brown	30.4	-	-	126	-	18.1	-	-	37.2	-	-	2609	-	-
Michigan State University	E13367	2.2	Brown	28.0	-	-	125	-	17.9	-	-	35.7	-	-	2544	-	-
Michigan State University	E13369	1.6	Brown	30.5	-	-	121	-	18.0	-	-	36.6	-	-	2729	-	-
Minn Crop Improvement	M04-295008	1.5	Yellow	31.7	29.7	-	118	118	17.3	17.1	-	39.2	39.3	-	1873	1956	-
Minn Crop Improvement	M06-288155	1.6	Yellow	32.0	-	-	117	-	17.4	-	-	37.0	-	-	2677	-	-
Minn Crop Improvement	MN1701 CN	1.7	Yellow	31.9	-	-	118	-	17.7	-	-	37.5	-	-	2789	-	-
Organic Bean & Grain	DH 410	1.6	Clear	30.9	29.4	29.3	118	117	17.9	17.6	17.6	39.9	39.7	39.6	2333	2450	2509
Organic Bean & Grain	DH 530	1.6	Clear	29.5	28.4	28.3	115	115	18.9	18.5	18.4	36.1	36.3	36.3	2503	2498	2529
Organic Bean & Grain	S2020	2.0	Clear	30.2	28.3	28.2	117	117	18.3	17.9	17.8	36.9	36.9	37.0	2336	2398	2452
Schillinger Genetics	e1665	1.6	Yellow	28.4	-	-	116	-	17.7	-	-	38.2	-	-	2491	-	-
Schillinger Genetics	e2162	2.1	Yellow	28.5	-	-	122	-	17.2	-	-	38.7	-	-	2487	-	-

\* Average across sites

\* Maturity Days After Planting