2013 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 Michigan in 2013. This research is funded by North Central Region Sustainable Agriculture Research Education (NCR SARE) and The CERES Trust.

Testing Procedures

Four trial locations are reported in this publication. A total of 48 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 21 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 2013.

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 from all 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

Gratiot County

Nearest city:	Middleton
Cooperator:	Dick Davis
Soil type:	Parkhill Loam
Previous crop:	Oats for Oatlage
Tillage:	Spring: chisel plow, field cultivate
Planting date:	June 20, 2013
Harvest date:	November 13, 2013

Kalamazoo County

Nearest city:	Hickory Corners
Cooperator:	W.K. Kellogg Biological Station
Soil type:	Kalamazoo sandy loam
Previous crop:	Fallow
Tillage:	Spring: chisel plow, field cultivate
Planting date:	June 4, 2013
Harvest date:	November 10, 2013

Farmers, breeders and project team review soybean varieties during the Sept. 6, MSU Extension Summer Organic Tour.

Continued on next page.

Lapeer County

Nearest city:	Columbiaville
Cooperator:	Don Brockriede
Soil type:	Sandy loam
Previous crop:	Corn
Tillage:	Fall: deep tillage with pulverizer
	Spring: field cultivator with large sweeps
Planting date:	06/08/2013
Harvest date:	11/14/2013

Tuscola County

Nearest city:	Caro
Cooperator:	Steve Reinbold
Soil type:	Tappen-Londo loam
Previous crop:	Seed Corn
Tillage:	Fall: disk Rip
	Spring: field cultivate
Planting date:	05/16/2013
Harvest date:	10/23/2013

Growing Conditions/Comments

Gratiot County: The moisture was good for several weeks after planting, then it turned dry for the next eight weeks.

Kalamazoo County: The conditions in Kalamazoo were favorable until early fall.

Lapeer County: Conditions at planting were good and continued until harvest.

Tuscola County: May had good moisture at planting and for the next three weeks. Droughty conditions and a very high population of aphids mid-summer caused a reduction in yields.

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 with protein levels and seed size that meets the end user requirements.

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 organic soybean trial at KBS, May 2013.

Harvesting soybeans at Columbiaville site, November 2013.

Field day at Middleton organic soybean variety trial, September 2013.

The management team from the North Central Region Sustainable Agriculture Research and Education Program touring the Caro trial August 13, 2013.

Variety Trial Results

Source	Variety	Maturity group	Yield Bushels per Acre					Ht. In	Protein	Oil	Seeds/lb
			[1]Tuscola	Lapeer	Gratiot	KBS	Average				
Albert Lea	Viking O.1706N	1.7	35.7	34.7	28.9	58.5	39.5	29	36.3	17.9	3547
Albert Lea	Viking O.199AT	1.9	36.6	41.7	33.6	62.2	43.5	30	36.8	18.1	2690
Albert Lea	O.IA2053	2.1	35.3	38.8	36.8	57.3	42.1	32	39.0	16.7	2284
Albert Lea	Viking O.2265	2.2	36.2	33.3	38.3	66.4	43.6	30	36.3	18.0	3138
Albert Lea	IA1018	1.8	38.7	38.0	34.0	62.1	43.2	30	38.9	16.9	2449
Blue River	Blue River 2A12	2.1	33.4	32.0	32.9	63.6	40.5	28	37.4	17.6	2931
Blue River	Blue River 21F3	2.1	36.3	34.1	36.5	57.2	41.0	31	39.1	16.6	2114
Blue River	Blue River 23C 2	2.4	33.3	34.7	34.7	61.4	41.0	31	35.4	18.1	2751
DF Seeds	DF 242N/S	2.4	38.4	35.1	44.1	61.4	44.8	31	37.9	17.3	3247
DF Seeds	DF 272 N/S	2.7	41.1	39.4	44.9	57.5	45.7	36	35.8	17.1	3187
DF Seeds	DF 161 STS	1.6	39.5	45.8	37.7	56.3	44.8	30	35.9	17.9	3466
DF Seeds	DF 155F	2.5	31.1	34.7	38.4	64.0	42.1	29	38.6	17.4	2322
DKB Farms	Vinton 81	1.9	30.8	33.4	32.7	51.5	37.1	35	40.4	16.6	2168
Iowa	IA1026	1.9	28.8	38.1	32.8	58.2	39.5	26	37.9	17.5	3048
Iowa	IA2102	2.7	38.3	41.1	43.8	66.8	47.5	31	36.3	17.9	2999
Iowa	IA2103	2.4	34.5	37.1	38.3	63.0	43.2	28	39.4	16.7	2065
Iowa	IA2104	2.2	34.2	33.9	37.8	56.1	40.5	29	39.5	16.8	2311
Iowa	IA3051	3	32.9	39.4	38.9	56.8	42.0	32	39.6	16.6	2504
Minn Crop Improvement	MN 1505SP	1.5	27.1	32.9	31.7	56.9	37.2	26	39.7	17.7	2338
Minn Crop Improvement	MN 1701 CN	1.7	32.5	40.5	33.3	56.9	40.8	30	36.9	17.7	2951
Minn Crop Improvement	MN 1410	1.4	31.4	32.3	36.3	62.2	40.6	29	37.5	18.0	2743
Minn Crop Improvement	M03-326084	1.7	23.3	32.7	32.2	52.3	35.1	34	38.8	17.1	2170
Minn Crop Improvement	MN 2001 SP	2.0	37.8	33.5	30.2	55.1	39.2	30	40.5	16.9	2096
Michigan State University	MSU E05181-T	2.0	36.8	38.3	36.2	57.4	42.2	28	37.8	17.7	2285
Michigan State University	MSU E06331-T	2.4	28.1	30.3	29.4	53.9	35.4	26	39.8	16.9	2185
Michigan State University	MSU E06341-T	2.6	31.4	23.8	39.5	53.9	37.2	28	39.8	16.9	2334
Michigan State University	MSU E07051	2.2	28.9	39.1	35.3	60.8	41.0	29	36.6	17.9	2458
Michigan State University	MSU E07130-T	2.3	33.9	35.4	34.5	55.2	39.8	33	40.8	16.4	1998
Michigan State University	MSU E07158-T	2.3	28.0	37.6	30.8	48.2	36.2	31	42.0	16.5	1929
Michigan State University	MSU E09014	2.7	42.3	33.4	42.2	56.8	43.7	35	36.8	17.6	2697
Michigan State University	MSU E09090	2.6	34.1	37.8	40.1	59.3	42.8	26	35.1	18.0	2826
Michigan State University	MSU E09222LL	2.4	32.6	31.7	38.5	55.0	39.5	26	37.0	17.2	3105
Michigan State University	MSU E10173	N/A	41.8	31.1	34.5	59.7	41.8	29	36.7	17.4	2473
Michigan State University	MSU E10174	N/A	43.9	46.9	47.7	67.5	51.5	33	35.0	18.0	2407
Michigan State University	MSU E10254LL	2.3	36.2	38.0	37.2	63.9	43.8	28	36.7	18.0	2883
Michigan State University	MSU E11399	N/A	42.1	36.3	37.5	64.6	45.1	32	34.5	18.0	2856
Michigan State University	MSU E11401	N/A	31.2	41.9	42.7	61.6	44.4	30	34.4	18.2	2783
Michigan State University	MSU E11431	N/A	34.2	44.6	40.7	65.1	46.2	32	34.5	18.1	2793
Organic Bean & Grain	Org B&G S2020	2	28.5	33.7	33.7	55.3	37.8	28	37.3	17.6	2612
Organic Bean & Grain	Org B&G DH410	1.6	32.8	37.3	41.9	57.3	42.3	29	39.3	17.7	2685
Organic Bean & Grain	Org B&G DH530	1.6	24.4	37.1	33.8	60.0	38.8	28	36.3	18.2	2620
Organic Bean & Grain	Org B&G MK9101	1	20.3	34.4	31.4	54.4	35.1	28	35.9	14.3	2184
Organic Bean & Grain	Org B&G MK1016	1	14.7	N/A	25.4	19.5	[2]	27	37.7	17.4	4593
Schillinger Genetics	Schillinger e2062	2.0	30.6	36.3	35.6	50.6	38.3	26	38.6	18.1	2672
Schillinger Genetics	Schillinger e2162	2.1	27.6	37.6	40.6	55.9	40.4	29	38.6	17.0	2916

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Variety Trial Results											
			Yield Bushels per Acre								
Source	Variety	Maturity group	[1]Tuscola	Lapeer	Gratiot	KBS	Average	Ht. In	Protein	Oil	Seeds/lb
Sunopta	Sunopta SR-53LF	2.1	N/A	37.9	33.4	53.7	[2]	33	39.1	16.9	2451
Sunopta	Sunopta S20G7	2.0	31.3	33.9	40.1	57.1	40.6	29	38.1	17.4	2264
Sunopta	Sunopta SL9-L6	N/A	N/A	40.5	30.6	49.8	[2]	31	40.9	16.5	2177
	GRAND MEAN		33.1	36.4	36.3	57.5					
	Max.		43.9	46.9	47.7	67.5					
	Min.		14.7	23.8	25.4	19.5					
	LSD		7.6	10.0	7.7	9.6					
	CV		13.7	16.5	12.7	10.0					

[1] See comments on growing conditions for Tuscola County.
[2] Averages not included due to missing location yield.

N/A = not available

Results

The project was presented at the Michigan Organic Reporting Session in March, 2013. This event hosted 50 attendees including Extension educators, researchers, government agency personnel, agri-business representatives and organic farmers. Three field days were conducted in August and September, 2013 for Michigan organic farmers. Seventy-five organic farmers attended these field days.

The results from our trials were summarized and presented to 35 organic farmers at the December 17, 2013, organic meeting in Birch Run, Michigan. The project was also presented during two sessions, January 7 and 8, 2014, at the Southwest Agricultural Conference in Ridgetown, Ontario to over 80 attendees.

On August 13, 2013, the management team from the North Central Region (NCR) Sustainable Agriculture Research and Education (SARE) Program toured Michigan reviewing the Michigan SARE program. The variety trials project was reviewed on site at the Caro, Michigan location. As part of the review, NCR SARE produced a video of project investigator Dan Rossman discussing the project. That video has been posted by NCR SARE at http://www.youtube.com/watch?v=A8KCiwoJ_mo

Special thanks to our field crew for their efforts: Josh Dykstra, Amelia Mutch and Hailey Haist.

Seed Sources

DKB Farm & Services
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810-688-3008

D.F. Seeds Inc.
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
John Simmons
26 E Sanilac
Sandusky, MI 48471
810-648-5600

MSU
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517-355-0271 Ext. 188

Schillinger Genetics, Inc.
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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 River Hybrids
Maury Johnson
27087 Timber Rd.
Kelly, IA 50134
800-370-7979

University of Minnesota/ MN Crop Improvement
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