2023 Michigan Soybean Performance Report

Picture provided by USB

Putting Your Checkoff To Work

MICHIGAN SOYBEAN COMMITTEE

The Soybean Checkoff
michigansoybean.org

The 2023 Michigan Soybean Performance Report is a result of a cooperative effort of the soybean breeding program at Michigan State University, Michigan State University Extension and the Michigan Soybean Committee. This information will help you to make informed critical choices for your 2024 soybean crop. This data can be accessed electronically at www.canr.msu.edu/varietytrials/soybean.

Extension Bulletin E2947 • 1/24

MICHIGAN STATE UNIVERSITY | Extension

2023
MICHIGAN SOYBEAN PERFORMANCE REPORT

DECHUN WANG, RANDALL LAURENZ,
AND ROBERT STOUTENBURG
DEPARTMENT OF
PLANT SOIL & MICROBIAL SCIENCES

This report provides information on the performance of Conventional and Roundup Ready soybean varieties in Michigan in 2023.

The presentation of data for the entries tested does not suggest approval or endorsement of varieties by Michigan State University (MSU).

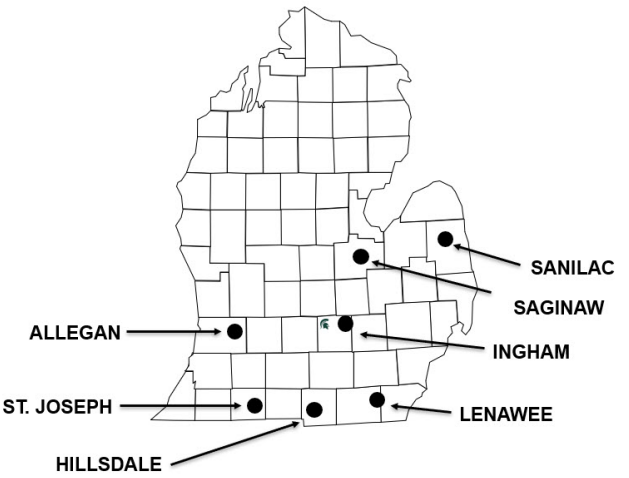
TESTING PROCEDURES

Soybean trials are reported for Central and South zones of Michigan. The Central locations for the Conventional and Roundup Ready trials include test sites in Allegan, Ingham, Saginaw, and Sanilac Counties. The Southern locations for the Conventional and Roundup Ready trials include test sites in Hillsdale, Ingham, Lenawee, and St. Joseph (irrigated) Counties.

Nineteen seed companies entered a total of 161 commercial varieties, not including the experimental MSU lines. The cooperators, planting dates, harvest dates, and other site details for the locations are listed below.

Seed was planted in 6-row plots, 20 feet long with 15-inch row spacing, at a depth of 1.5-inches. The planting rate was 160,000 seeds/acre. At each location, varieties were replicated three times in a Randomized Complete Block Design (RCBD). All locations were planted to 17 feet with 3-foot alleys. Alleys in Sanilac and Allegan counties were trimmed to 5 feet wide, other alleys were not trimmed. Only the center four rows were harvested. Experimental design, data management, and data analysis were conducted with Genovix, (Agronomix Software, Inc., Winnipeg, Canada).

2023 TEST SITE COUNTY LOCATIONS



TEST SITE INFORMATION

Lenawee County
Nearest city: Britton
Cooperator: David & Jason Woods
Planting date: 05/17/2023
Harvest date: 10/18, 11/6 & 11/10/2023
Previous crop: Wheat
Soil type: Brookston Clay Loam
Fertilizer: 220 lb. /VRT-K2O
Herbicides: Pre-emerge 32 oz. Authority ELITE
Post Conventional – 1 qt./A Basagran 5 oz. Raptor
Roundup Ready Trials – 24 oz. Glyphosate

Hillsdale County
Nearest city: Reading
Cooperator: Matt Lennard
Planting date: 05/23/2023
Harvest date: 11/10 & 11/11/2023
Previous crop: Corn
Soil type: Silty loam
Fertilizer: 150 # Potash
Herbicides: Pre-emerge 12 oz. Authority Elite
Post Conventional Trials – 1 qt./A Basagran, 5 oz./A Raptor
Roundup Ready Trials – 24 oz./A Glyphosate

St. Joseph County - Irrigated
Nearest city: Mendon
Cooperator: Roger and Anne Gentz and Family
Planting date: 05/26/2023
Harvest date: 11/12, 11/18 & 11/20/2023
Previous crop: Commercial Corn
Soil type: Oshtemo Sandy loam
Fertilizer: 125lb. /A 0-0-60 +75lb. /A K-mag
Herbicides: Pre-emerge 32 oz./A Authority Elite, 24 oz./A Glyphosate. Post-emergence Tapout 32 oz./A

Ingham County
Nearest city: Webberville
Cooperator: Walnut-Vu Farm
Planting date: 05/10/2023
Harvest date: 11/2 & 11/3/2023
Previous crop: Corn
Soil type: Conover loam
Fertilizer: None
Herbicides: Pre-emerge 32 oz./A Authority Elite
Conventional Trials – 1 qt./A Basagran, 5 oz./A Raptor
Roundup Ready Trials – 24 oz./A Glyphosate

Allegan County
Nearest city: Hopkins
Cooperator: Paul Collier
Planting date: 05/22/2023
Harvest date: 11/19 & 11/20/2023
Previous crop: Corn
Soil type: Clay Loam
Fertilizer: 180 #/A Potash
Herbicides: Pre-emerge 32 oz. Authority Elite
Conventional Trials – 1 qt./A Basagran, 5 oz./A Raptor.
Roundup Ready Trials – 24 oz./A Glyphosate.

Saginaw County
Nearest city: Saginaw
Cooperator: Tom Hoff
Planting date: 05/16/2023
Harvest date: 10/23, 10/24, 10/28, 10/29 & 10/31/2023
Previous crop: Corn
Soil type: Tappan Loam
Fertilizer: 200 lb. /A Potash
Herbicides: Pre-emerge 32 oz. Authority Elite
Conventional Trials – 1 qt./A Basagran, 5 oz./A Raptor
Roundup Ready Trials – 24 oz./A Glyphosate

Sanilac County
Nearest city: Sandusky
Cooperator: Gerstenberger Farms, Inc.
Planting date: 05/16/2023
Harvest date: 11/4, 11/13 & 11/18/2023
Previous crop: Corn
Soil type: Parkhill Loam
Fertilizer: None
Herbicides: Pre-emerge 1.5 lbs./A Lorox,1.33 pt./A Medal II
Conventional Trials – 1 qt./A Basagran
Roundup Ready Trials – 24 oz./A Glyphosate

GROWING CONDITIONS / COMMENTS

Dry weather in May allowed for timely planting of the soybeans across Michigan. All the soybean performance trials were planted between May 10 and May 26. Adequate moisture before planting provided good germination in most performance trail locations and farmer locations across Michigan, but plants grew slowly as fields dried out. Some farm fields and the Allegan County trial location had some late germination and uneven emergence. Due to variability, the data from the Allegan County location was discarded. Moisture stress contributed to uneven grown at the Hillsdale County trial and the South Roundup Ready Late trial was discarded due to variability.

Growing season rain amounts at the MSU Agronomy Farm in East Lansing included: May 1.1", June 0.75", July 6.87", August 6.17", September 1.83, and October 5.38. The significant rainfall in July and August lead to white mold being prevalent in most locations.

Fall rain made harvest challenging. Soybean performance trials harvest ran from October 18 through November 20. Yield overall was limited by dry conditions early and wet conditions later causing white mold in many areas.

USING THE DATA

Results are presented in Tables 1 through 6.

Yield: Yield is expressed as bushels per acre at 13% moisture and is reported as single and across site means for 2023. Two- and three-year means are also presented where applicable.

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 3 reps at all sites.

Lodging: Lodging scores reflect the erectness of the plants before harvest. The reported values are means of 3 reps at all sites. Ratings are based on the following scale:
1= Almost all plants are erect.
2= All plants leaning slightly, or fewer than 25% of the plants are down.
3= All plants leaning moderately (45%), or 25% to 50% of the plants are down.
4= All plants leaning considerably, or 50% to 80% of the plants are down.
5= Almost all plants are down.

Protein and Oil Content: Protein and oil content of the seed was determined using near-infrared reflectance and is expressed on a **DRY MATTER** basis. The analysis was done on seed from all 3 replications from the Ingham location.

Phytophthora Resistance: Information on the presence of Phytophthora resistance genes was provided by the organizations entering varieties. Varieties denoted with:

- 1a are resistant to phytophthora Races 1, 2, 10, 11, 13-20, 24, 26 & 27.
- 1b are resistant to Races 1, 3-9, 13, 15, 18, 21, & 22.
- 1c are resistant to Races 1-3, 6-11, 13-15, 17, 21, 23, 24 & 26.
- 1k are resistant to Races 1-11, 13-15, 17, 18, 20-24 & 26.
- 3 are resistant to Races 1-5, 8 and 9.
- 6 are resistant to Races 1-4, 10, 12, 14-16, 18-21 & 25.
- 7 are resistant to Races 12, 16, 18 & 19.

Soybean Cyst Nematode Resistance (SCN): Seed companies that screen varieties for SCN resistance have indicated if the variety has known susceptibility or resistance:

- R – Resistant
- MR – Moderately Resistant
- S – Susceptible
- MS – Moderately Susceptible

These notations followed by a number indicate the identified cyst nematode race. The source of resistance was mostly PI88788 with some Peking and PI89722. Sources are found in parenthesis after the variety name in the variety list table.

SELECTING A VARIETY

Some of the varieties in the conventional trials have special traits such as a specific oil profile, which growers can sell for premium prices. Talk to the seed dealer about premium varieties. Seed dealers and their contact information are listed in the 'Index of Varieties and the 'Directory of Companies'.

LSD values (least significant difference) are found at the bottom of each data column and 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% 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. (coefficient of variation) can be found at the bottom of each data column and is indicative of the trial precision. Lower C.V. values are associated with higher precision.

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.

The degree of lodging varies among varieties. Lodging ratings should be used to evaluate potential harvest losses. Growers who have experienced lodging in the past and have had harvest problems may want to select a more lodging-resistant variety. Alternatively, a variety susceptible to lodging may be planted at a slightly lower population to increase standability.

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.

HERBICIDE TRAITS

The column in the chart labeled HERB contains the variety herbicide resistance.

- Conv=conventional
- LL=Liberty Link
- RR1=Roundup Ready
- RR2X=Roundup Ready 2 Extend
- XF=Extend Flex
- E3=Enlist E3
- GT27=Glyphosate Tolerant
- LLGT27=Liberty Link and Glyphosate Tolerant

SEED TREATMENT

Treated soybean seed submitted for Michigan State University's Soybean Performance Trials are noted by abbreviation in the 'TMT' column. Questions concerning treatments should be directed to the seed company. Contact information can be found in the 'Directory of Companies'.

Code	Treatment
ACL	Acceleron-Insecticide
AA Elite	Ag Armour Elite
AG-MX	Agri Max
CM	Cruiser Maxx-Insecticide
CM+VIB	Cruiser Maxx + Vibrance Insecticide/Fungicide
DFender	Defender-Fungicide
ECL-Trio	Eclipse Trio-Fungicide
Ecl-US-Q	EclipseUS quad IM-Fungicide
EG	EverGolEnergy-Fungicide
Encase	Encase-Root growth
Eq-VIP	Equity VIP-Insecticide/Fungicide
G	Gaucho-Insecticide
I	ILeVO (BayerCropScience) Nematicide
LUM	Lumisena-Fungicide
N	NForce-Nitrogen Fixing Bacterium
N-H	Inhibit
O	Optimize
Obv	Obvius Plus-Fungicide
P	Poncho-Insecticide/Nematicide
Radius	Radius Premium
Rel	Relenya-Fungicide
Sa	Saltro-Nematicide
Titan	Titan-Insecticide
UT	Untreated
Vib	Vibrance Maxx-Fungicide
V	Votivo-Insecticide/Nematicide
Vay	VayantisIV-Maxim/Apron/ Sedaxane/Vayantis
WycKOAT	Soy-Defense

BRAND	COMPANY NAME AND ADDRESS
3G SEEDS	3G Seeds 8236 N. Williams Rd. St. Johns, MI 48879 www.3gseeds.com
DAIRYLAND	Dairyland Seed P.O. Box 958 West Bend, IN 53095 www.dairylandseed.com
DF SEEDS	DF Seeds, LLC P.O. Box 159 Dansville, MI 48819 www.dfseeds.com
DYNA-GRO	Dyna-Gro Seed, Nutrien Ag Solutions 4648 S Garfield Rd. Auburn, MI 48611 www.dynagroseed.com
GOLDEN HARVEST	Syngenta Seeds Inc. 2001 Butterfield Rd, Suite 1600 Downers Grove, IL 60515 www.goldenharvestseeds.com
GROWMARK	GROWMARK Inc. 1701 Towanda Ave. Bloomington, IL 61701 fssystem.com/Agriculture/FS-Seeds
HENSALL	Hensall Co-op 1 Davidson Dr. Hensall, ON N0M 1X0, Canada https://hensallco-op.ca/
M&W SEEDS	M&W Seeds 8443 Wilcox Rd. Eaton Rapids, MI 48827 www.mwseeds.com
MCIA	Michigan Crop Improvement Assn. 2905 Jolly Rd. Okemos, MI 48864 www.michcrop.com
NEW AGE	New Age Seeds Inc. 31 Westgate Ave Strathroy, ON N7G 3S9, Canada
NK SEEDS	Syngenta Seeds Inc. 2001 Butterfield Rd, Suite 1600 Downers Grove, IL 60515 www.syngenta-us.com/seeds/nk
RENK SEED	Renk Seed 6809 Wilburn Rd. Sun Prairie, WI 53590 www.renkseed.com
ROB-SEE-CO	Rob-See-Co LLC 1015 N 205th St. Elkhorn, NE 68022 https://www.robseeco.com/
SOUTHWEST	Southwest Seeds Inc. 19686 Scane Rd. Ridgetown, Ontario N0P 2C0 www.secan.com/members/southwest-seeds-inc
STAR OF THE WEST	Star of the West Milling Co. 121 E. Tuscola St. Frankenmuth, MI 48734 www.staroftheWest.com
WELLMAN SEEDS	Wellman Seeds, Inc. Jennings Delphos Rd. Delphos, OH 45833 www.wellmanseeds.com
WYCKOFF	Wyckoff Hybrids, Inc. 594 E 400 N Valparaiso, IN 46383 https://www.wyckoffhybrids.com/
XITAVO	Xitavo Soybean Seed 103 Avenue D West Point, IA 52656 www.xitavosoybeanseed.com
ZEELAND FARM SERVICES	Zeeland Farm Services Inc. 2525 84th Ave Zeeland, MI 49464 www.zfsinc.com

TABLE 1. 2023 MICHIGAN CENTRAL CONVENTIONAL SOYBEAN VARIETY TRIAL REPORT

								YIELD (BU/AC)			2023 AVERAGE						
BRAND	VARIETY	Maturity Group	Herb Tech	TMT'	Phyto Res	SCN	Aphid Res	2023 AVG	22-23 AVG	21-23 AVG	Ingham	Saginaw	Sanilac	Height	Lodging	Protein	Oil
3G Seeds	AA2614 N	2.6	Conv	AA Elite	1k	R		**60.8**			52.0	**66.6**	**63.9**	37	2.8	37.3	22.3
DF Seeds	DF 151 N	1.5	Conv	DFender				**59.4**	63.9	69.2	**62.7**	59.8	55.8	37	2.2	37.8	21.8
DF Seeds	DF 155 F	2.5	Conv	DFender				53.2	55.0	59.4	52.6	48.9	58.1	38	2.2	39.4	21.4
DF Seeds	DF 174 N	1.7	Conv	DFender				51.7			47.6	55.0	52.7	37	2.7	37.6	21.9
DF Seeds	DF 184 N	1.8	Conv	DFender				54.8			49.1	58.7	56.5	38	2.7	37.2	21.3
DF Seeds	DF 187 N	1.8	Conv	DFender				54.3	59.1	63.8	54.5	51.7	56.7	39	2.7	39.4	20.6
DF Seeds	DF 193 F	1.9	Conv	DFender				51.9			47.1	54.0	54.7	36	2.7	43.0	20.2
DF Seeds	DF 204 N	2.0	Conv	DFender				**60.6**			53.6	***71.2**	56.9	38	2.2	39.0	21.0
DF Seeds	DF 214 N	2.1	Conv	DFender				**61.7**			**60.4**	57.9	**66.8**	37	2.3	38.9	22.0
DF Seeds	DF 224 N	2.2	Conv	DFender				47.1			49.3	35.0	57.0	37	2.7	36.8	22.4
DF Seeds	DF 231 N	2.3	Conv	DFender				**60.4**	62.7	67.9	**55.1**	**62.9**	**63.2**	35	1.7	36.8	21.9
DF Seeds	DF 234 N	2.3	Conv	DFender				54.7			52.5	49.7	**62.0**	38	2.2	41.4	20.3
DF Seeds	DF 260 N	2.6	Conv	DFender				56.4	63.4	68.4	**63.0**	55.5	50.7	36	2.8	36.6	22.7
DF Seeds	DF 262 N F	2.6	Conv	DFender				48.5	52.8	56.1	47.0	47.8	50.8	36	2.2	42.6	19.6
Dyna-Gro	S2409N	2.4	Conv	Eq-VIP,Sa,Vay		MR		**60.4**	64.0	69.1	**55.6**	60.1	**65.6**	37	2.2	39.6	21.2
Dyna-Gro	SX23119CV	1.9	Conv	Eq-VIP,Sa,Vay	1c	R		**57.5**			**57.2**	58.3	57.1	40	2.0	37.1	22.1
Growmark	HS 15C00	1.5	Conv	ACL,Sa	1k	R		**60.9**	62.3		54.9	59.8	**68.2**	34	2.7	38.6	21.5
Growmark	HS 19C20	1.9	Conv	ACL,Sa	1k	R		**62.1**			**56.8**	**60.8**	**68.9**	34	2.0	37.9	22.4
Growmark	HS 28C20	2.8	Conv	ACL,Sa	1c	R		**63.2**	63.2		**58.0**	**61.5**	**70.1**	38	1.8	38.9	21.5
Hensall Co-op	AAC McRae	2.2	Conv	Vay,O		MR		54.0			53.2	56.3	52.4	40	1.8	42.5	19.7
Hensall Co-op	HDC Blake	1.9	Conv	Vay,O				44.6			46.9	41.6	45.2	39	2.3	41.6	20.3
Hensall Co-op	S14-H3	1.5	Conv	Vay,O		MR		52.0			45.4	56.0	54.7	34	2.3	41.0	20.9
MSU	E11128T	2.5	Conv	DFender		R		49.7	52.1	54.9	45.9	58.1	45.0	38	2.3	41.9	20.0
MSU	E12076T-03	2.2	Conv	DFender		R		56.6	60.9	64.1	**55.9**	**64.3**	49.7	38	2.7	36.6	21.8
MSU	E13268	1.7	Conv	DFender	1c			**58.8**	59.2	63.7	53.3	59.2	**63.8**	38	2.8	37.9	22.2
MSU	E14077	2.4	Conv	DFender	1k	R		55.9	59.8	64.2	53.7	54.1	59.8	40	2.5	38.4	22.6
MSU	E15165T	2.5	Conv	DFender	1c	R		49.4	53.1	58.6	38.6	55.6	54.0	37	2.5	42.3	19.9
MSU	E15338	1.5	Conv	DFender	1k	R		51.9	56.6	61.0	**56.2**	55.8	43.8	28	2.0	38.1	21.8
MSU	E15339	2.4	Conv	DFender		R		55.6			50.4	**63.4**	53.0	37	3.2	38.3	22.2
MSU	E15345	2.7	Conv	DFender		R		**58.3**	62.8	66.5	**58.3**	**65.7**	51.0	41	2.5	37.7	21.7
MSU	E15346T	2.1	Conv	DFender				56.3	60.4	65.4	50.1	58.7	**60.2**	38	3.0	37.7	21.8
MSU	E15351	2.2	Conv	DFender	1c	MR		56.2	60.4	66.0	51.7	**60.5**	56.5	38	2.3	38.0	21.5
MSU	E17203	2.4	Conv	DFender		HR		54.9	60.2	64.6	46.5	**63.9**	54.4	38	2.5	38.9	21.5
MSU	E17283	2.9	Conv	DFender	1k	R	R	**59.2**			**60.1**	**60.8**	56.6	37	2.7	38.2	21.3
MSU	E18331-34HO	2.9	Conv	DFender				49.3			48.0	45.7	54.4	39	2.8	39.9	20.9
MSU	E18610T	2.0	Conv	DFender				58.2			**57.2**	54.0	**63.4**	37	2.7	39.9	20.6
MSU	E18638T	1.8	Conv	DFender		MR		**62.7**	64.0	67.2	**62.3**	**66.2**	59.6	36	2.7	41.3	20.1
MSU	E19288T	2.3	Conv	DFender				48.9			41.5	**61.5**	43.8	40	2.8	41.6	19.9
MSU	E19307T	2.4	Conv	DFender		R		52.4	56.3		50.3	53.8	53.2	39	2.5	38.9	20.8
MSU	E19314T	1.6	Conv	DFender	1k,3a	R		**59.5**	59.7	61.0	**57.7**	**61.4**	59.5	38	3.0	41.5	20.0
MSU	E20026	2.0	Conv	DFender				56.3			53.5	55.6	59.8	34	2.5	36.9	22.2
MSU	E20078	1.7	Conv	DFender	1a	R		58.2	60.8		**60.2**	58.1	56.2	41	2.7	37.6	22.1
MSU	E20099	1.8	Conv	DFender				50.0			41.1	57.6	51.3	37	2.2	36.5	23.0
MSU	E20154HO	2.0	Conv	DFender				50.5			47.5	56.3	47.8	38	2.2	40.5	21.4
MSU	E20195HO	2.1	Conv	DFender				51.7			42.2	53.5	59.5	35	2.7	37.9	22.0
MSU	E20316T	2.6	Conv	DFender		R		57.4	59.8		45.4	**60.6**	**66.3**	40	2.3	39.5	21.4
MSU	E20327	2.2	Conv	DFender				**60.8**			**61.0**	**64.4**	57.0	36	2.8	38.7	21.6
MSU	E20329	2.5	Conv	DFender	1k	R		55.9	60.4		46.1	**66.2**	55.5	40	2.7	36.2	22.3

TABLE 1. 2023 MICHIGAN CENTRAL CONVENTIONAL SOYBEAN VARIETY TRIAL REPORT

								YIELD (BU/AC)			2023 AVERAGE						
BRAND	VARIETY	Maturity Group	Herb Tech	TMT[1]	Phyto Res	SCN	Aphid Res	2023 AVG	22-23 AVG	21-23 AVG	Ingham	Saginaw	Sanilac	Height	Lodging	Protein	Oil
MSU	E20333	2.6	Conv	DFender				**62.2**			52.7	**66.0**	**67.7**	38	2.7	37.8	22.6
MSU	E20351	2.6	Conv	DFender		R		**59.6**	62.4		53.1	59.3	**66.6**	41	2.5	38.1	21.3
MSU	E20352	2.3	Conv	DFender		R		52.5			54.1	54.4	48.8	40	2.7	38.1	21.5
MSU	E20355	2.9	Conv	DFender		R		55.9	60.5		48.7	59.1	59.9	41	2.7	37.9	21.0
MSU	E21058	2.3	Conv	DFender		R		56.4			50.8	56.4	**62.0**	38	2.7	36.8	22.1
MSU	E21062T	2.4	Conv	DFender		R		**62.2**			54.6	**61.9**	**70.1**	35	2.5	40.4	21.5
MSU	E21100	1.8	Conv	DFender		R		**62.5**			**57.6**	**65.2**	**64.7**	36	2.5	36.9	21.5
MSU	E21102	2.9	Conv	DFender		R		**59.2**			**60.7**	57.4	59.5	40	2.3	36.9	22.4
MSU	E21107	2.9	Conv	DFender		R		**58.9**			51.5	**64.9**	**60.3**	39	2.3	36.7	21.6
MSU	E21109	2.5	Conv	DFender		R		56.8			**57.2**	60.3	52.9	40	2.5	37.7	21.2
MSU	E21116	2.3	Conv	DFender		R		**59.7**			**56.1**	**60.8**	**62.0**	39	2.5	37.8	22.5
MSU	E21118	2.9	Conv	DFender		R		**59.9**			50.1	**62.3**	**67.4**	38	2.7	39.1	21.6
MSU	E21125	2.3	Conv	DFender		R		***65.2**			***63.4**	59.6	***72.5**	39	2.3	40.5	20.6
MSU	E21127	2.3	Conv	DFender		R		57.4			**56.6**	50.3	**65.2**	41	2.7	38.5	21.2
MSU	E21139LF	2.5	Conv	DFender				46.1			43.4	49.1	45.8	38	2.3	40.8	20.2
MSU	E21345	2.2	Conv	DFender		R		**61.5**			**56.1**	**62.4**	**65.9**	38	2.2	37.3	21.6
New Age Seeds	NA1800	1.8	Conv		1c	R		53.8			51.2	50.5	59.7	36	2.3	39.9	21.7
New Age Seeds	NA2000	2.0	Conv		1c	R		52.3			51.5	53.0	52.5	36	2.0	41.5	20.2
New Age Seeds	NA2700	2.7	Conv		1c	R		53.6			49.0	47.9	**64.0**	37	2.2	41.2	20.5
Silverline	S16-B8	1.8	Conv	Vay,O	3a	MR		51.6			47.1	49.2	58.3	36	2.7	41.3	21.3
Silverline	S20-W9	2.0	Conv	Vay,O	3a	MR		49.4			47.8	50.5	49.8	33	2.3	42.7	20.6
Silverline	S21-C6	2.1	Conv	Vay,O		MR		46.9			44.1	52.0	44.6	39	2.3	40.4	21.2
Star of the West	Nature's Genetics 1926	2.4	Conv			S		55.1			**55.2**	55.4	54.8	39	2.5	39.1	21.4
Star of the West	Nature's Genetics 9430	2.2	Conv			S		35.0			26.6	39.7	38.6	38	3.3	38.6	20.2
Star of the West	Star 18	1.8	Conv			S		38.1			31.7	45.5	37.2	42	3.0	39.9	19.8
Star of the West	Star 25	2.5	Conv	DFender		S		43.8			37.8	41.4	52.2	31	2.7	38.1	20.6
Zeeland Farm Services	ZFS 1326	2.6	Conv	Ecl-US-Q,N,N-H		R		56.5	60.7		51.7	**60.6**	57.2	37	2.5	37.5	21.7
Zeeland Farm Services	ZFS 1624	1.6	Conv	Ecl-US-Q,N,N-H				54.9			51.6	54.3	58.9	35	2.7	37.1	21.8
Zeeland Farm Services	ZFS 1721	1.7	Conv	Ecl-US-Q,N,N-H		R		**60.5**	61.3	64.4	**57.2**	59.3	**65.0**	34	2.5	41.8	19.9
Zeeland Farm Services	ZFS 2023	2.0	Conv	Ecl-US-Q,N,N-H		R		**62.6**			**60.7**	**65.7**	**61.5**	34	1.8	38.1	21.4
Zeeland Farm Services	ZFS 2324HO	2.3	Conv	Ecl-US-Q,N,N-H		R		54.8			48.4	55.2	**60.9**	37	2.2	38.1	21.9
Zeeland Farm Services	ZFS 2521HO	2.5	Conv	Ecl-US-Q,N,N-H		R		49.9	56.0	60.7	49.5	56.1	44.0	34	2.0	40.5	21.2
Zeeland Farm Services	ZFS 2819HO	2.8	Conv	Ecl-US-Q,N,N-H		R		52.6	55.0	59.7	38.6	**69.9**	49.4	40	3.0	39.4	21.9
Zeeland Farm Services	ZFS 3023HO	3.0	Conv	Ecl-US-Q,N,N-H		R		50.6			47.3	49.6	55.0	37	2.2	39.0	21.2
GRAND MEAN								**55.0**			**51.3**	**56.8**	**56.9**	**37**	**2.5**	**38.9**	**21.3**
Max.								**65.2**			**63.4**	**71.2**	**72.5**	**42**	**3.3**	**43.0**	**23.0**
Min.								**35.0**			**26.6**	**35.0**	**37.2**	**28**	**1.7**	**35.4**	**19.6**
LSD (0.05)								**5.0**			**7.7**	**8.5**	**8.2**				
CV (%)								**9.9**			**9.4**	**11.0**	**9.0**				

[1] Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code

*** High yield in plot**

Top 1/3 of trial is Bold Michigan State University varieties are experimental

TABLE 2. 2023 MICHIGAN SOUTH CONVENTIONAL SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)			2023 AVERAGE							
BRAND	VARIETY	Maturity Group	Herb Tech	TMT'	Phyto RES	SCN	2023 AVG	22-23 AVG	21-23 AVG	Hillsdale	Ingham	Lenawee	St. Joseph	Height	Lodging	Protein	Oil
DF Seeds	DF 155 F	2.5	Conv	DFender			53.8	55.3	59.6	44.5	**57.0**	54.9	58.6	35	2.8	38.9	21.4
DF Seeds	DF 204 N	2.0	Conv	DFender			54.0			45.8	**56.0**	55.1	59.0	35	2.3	37.3	21.9
DF Seeds	DF 214 N	2.1	Conv	DFender			**57.9**			42.4	**59.9**	**64.9**	**64.5**	35	2.4	38.6	22.1
DF Seeds	DF 224 N	2.2	Conv	DFender			45.9			40.5	44.2	50.8	48.2	34	3.3	35.7	22.1
DF Seeds	DF 231 N	2.3	Conv	DFender			**57.8**	61.4	67.0	**52.0**	**55.6**	**64.2**	59.4	35	2.4	37.5	21.9
DF Seeds	DF 234 N	2.3	Conv	DFender			**58.8**			49.2	54.9	**67.6**	**63.8**	37	2.1	39.5	21.5
DF Seeds	DF 260 N	2.6	Conv	DFender			**57.7**	64.1	68.8	**53.1**	50.3	**66.4**	**61.0**	35	2.9	40.5	21.1
DF Seeds	DF 262 N F	2.6	Conv	DFender			47.6	52.4	55.8	43.9	40.8	50.0	55.7	34	3.3	43.0	19.4
DF Seeds	DF 282 N	2.8	Conv	DFender			**60.3**			**50.6**	50.7	**74.6**	**65.4**	36	2.8	36.2	21.9
Growmark	HS 15C00	1.5	Conv	ACL,Sa	1k	R	54.9	54.9	54.9	45.5	**58.8**	54.0	**61.2**	34	2.8	38.4	21.4
Growmark	HS 19C20	1.9	Conv	ACL,Sa	1k	R	55.8			37.2	**58.7**	59.2	***68.2**	33	2.3	37.7	22.0
Growmark	HS 28C20	2.8	Conv	ACL,Sa	1c	R	***61.5**	66.3		47.5	**58.2**	***78.3**	**61.9**	37	2.8	38.7	21.1
MSU	E12076T-03	2.2	Conv	DFender		R	53.8	59.5	63.2	38.5	**60.9**	62.3	53.7	34	2.8	36.8	21.4
MSU	E13268	1.7	Conv	DFender	1c		**57.1**	58.3	63.1	42.1	***61.1**	62.3	**62.9**	34	3.3	38.5	21.9
MSU	E14077	2.4	Conv	DFender	1k	R	**57.8**	60.7	64.9	48.4	54.7	**68.5**	59.5	37	2.8	38.4	22.0
MSU	E15339	2.4	Conv	DFender		R	**57.8**			**50.9**	**58.4**	60.6	**61.5**	36	3.6	36.7	22.3
MSU	E15345	2.7	Conv	DFender		R	**57.2**	62.2	66.1	**51.5**	53.8	**67.3**	56.3	38	3.8	37.5	21.5
MSU	E15351	2.2	Conv	DFender	1c	MR	**58.1**	61.3	66.7	44.8	**58.6**	**70.4**	58.5	36	3.3	39.1	20.7
MSU	E17203	2.4	Conv	DFender		HR	52.9	59.2	64.0	47.7	50.8	61.5	51.6	35	3.2	38.8	21.2
MSU	E17283	2.9	Conv	DFender	1k	R	**61.2**			**50.3**	**57.3**	**73.9**	**63.2**	37	2.7	39.3	20.1
MSU	E18331-34HO	2.9	Conv	DFender			48.6			33.5	48.8	61.9	50.2	35	2.7	39.4	20.8
MSU	E18610T	2.4	Conv	DFender			51.4			**51.4**	46.0	58.2	50.0	36	3.4	38.4	21.2
MSU	E18638T	1.8	Conv	DFender		MR	54.3	59.8	64.4	49.1	52.9	54.9	60.3	36	3.1	37.7	21.5
MSU	E19288T	2.3	Conv	DFender			47.5			45.4	36.0	54.1	54.4	36	3.3	38.1	21.7
MSU	E19307T	2.4	Conv	DFender		R	48.9	54.6		48.8	41.2	53.3	52.4	38	3.3	40.4	20.1
MSU	E19314T	1.6	Conv	DFender	1k,3a	R	54.5	57.2	59.3	43.1	51.8	61.7	**61.6**	35	3.0	41.4	19.9
MSU	E19412	2.4	Conv	DFender		R	54.0	59.7	63.0	**50.1**	51.5	58.9	55.5	38	3.1	37.5	21.5
MSU	E20026	2.0	Conv	DFender			**58.3**			**50.1**	**56.9**	**63.6**	**62.6**	37	3.4	36.9	22.2
MSU	E20078	1.7	Conv	DFender	1a	R	**56.6**	60.0		49.1	**59.9**	57.4	60.2	42	3.2	38.6	21.3
MSU	E20099	1.8	Conv	DFender			49.1			46.4	50.9	50.1	49.2	36	3.3	37.7	22.4
MSU	E20195HO	2.1	Conv	DFender			47.3			44.6	48.1	50.0	46.6	35	2.8	38.8	21.7
MSU	E20329	2.5	Conv	DFender	1k	R	52.0	58.5		**52.7**	45.1	62.3	47.7	36	3.3	37.3	22.0
MSU	E20333	2.6	Conv	DFender			54.0			**51.0**	49.8	**64.2**	51.2	39	3.3	38.1	21.7
MSU	E20351	2.6	Conv	DFender		R	**58.3**	61.8		**50.6**	55.0	**65.5**	**61.9**	37	3.3	37.3	21.8
MSU	E20352	2.3	Conv	DFender		R	55.5			50.0	**56.1**	63.0	53.1	42	3.8	36.7	22.3
MSU	E20355	2.9	Conv	DFender		R	**59.3**	62.2		**51.1**	**57.2**	**65.5**	**63.5**	38	3.1	35.8	21.7
MSU	E21058	2.3	Conv	DFender		R	56.2			45.5	**58.5**	60.2	**60.6**	37	3.2	37.0	21.9
MSU	E21062T	2.4	Conv	DFender		R	**58.6**			47.7	**56.9**	**65.2**	**64.4**	35	2.8	40.0	21.6
MSU	E21088	2.9	Conv	DFender		R	54.9			**50.0**	48.5	61.4	59.7	38	3.0	37.2	21.9
MSU	E21100	1.8	Conv	DFender		R	53.0			37.7	46.3	**63.8**	**64.1**	35	2.3	34.2	22.7
MSU	E21107	2.9	Conv	DFender		R	**59.0**			**51.3**	**55.2**	**70.1**	59.4	37	3.3	37.4	21.2
MSU	E21109	2.5	Conv	DFender		R	55.2			48.6	51.4	**65.9**	55.0	38	2.9	37.9	20.9
MSU	E21116	2.3	Conv	DFender		R	**57.0**			**50.2**	53.9	**65.8**	58.1	38	3.0	37.1	22.6
MSU	E21118	2.9	Conv	DFender		R	54.2			**53.1**	46.2	60.9	56.4	36	2.4	37.0	21.7
MSU	E21125	2.3	Conv	DFender		R	56.6			**55.9**	54.2	53.5	**62.8**	38	3.3	38.2	21.0

BRAND	VARIETY	Maturity Group	Herb Tech	TMT[1]	Phyto RES	SCN	YIELD (BU/AC) 2023 AVG	22-23 AVG	21-23 AVG	2023 AVERAGE Hillsdale	Ingham	Lenawee	St. Joseph	Height	Lodging	Protein	Oil
MSU	E21127	2.3	Conv	DFender		R	54.8			48.0	**55.7**	54.4	**61.3**	38	3.1	39.1	20.9
MSU	E21139LF	2.5	Conv	DFender			48.2			42.1	42.0	56.2	52.7	38	2.9	42.6	19.4
MSU	E21327	2.7	Conv	DFender		R	53.6			48.6	52.0	63.5	50.3	40	3.4	37.9	21.6
MSU	E21345	2.2	Conv	DFender		R	**58.0**			***56.6**	**57.3**	53.5	**64.6**	38	3.1	39.0	20.8
New Age Seeds	NA2700	2.7	Conv		1c	R	53.6			47.3	47.7	61.6	57.9	37	2.5	40.1	20.6
Southwest	AAC Big Ben	2.9	Conv	Vib		R	^			42.0	^	58.6	53.6	40	2.2	37.5	21.2
Star of the West	Nature's Genetics 1926	2.4	Conv			S	51.4			41.7	48.4	55.3	60.2	36	3.0	39.5	21.4
Star of the West	Nature's Genetics 9430	2.2	Conv			S	33.8			34.6	22.2	36.1	42.2	37	3.8	39.0	20.3
Star of the West	Star 18	1.8	Conv			S	31.4			30.6	29.1	31.2	34.7	42	3.8	39.0	19.8
Star of the West	Star 25	2.5	Conv	DFender		S	41.7			35.1	34.1	46.1	51.7	32	3.3	38.3	20.6
Wyckoff Hybrids	W281C	2.8	Conv	WycKOAT	1c	R	**60.6**			**55.6**	52.5	**70.6**	**63.9**	33	3.2	37.2	22.4
Zeeland Farm Services	ZFS 1326	2.6	Conv	Ecl-US-Q,N,N-H		R	50.6	57.7		48.4	47.0	55.6	51.5	39	3.4	37.8	21.7
Zeeland Farm Services	ZFS 2023	2.0	Conv	Ecl-US-Q,N,N-H		R	55.7			44.5	**60.3**	60.5	57.6	32	3.2	39.9	20.8
Zeeland Farm Services	ZFS 2324HO	2.3	Conv	Ecl-US-Q,N,N-H		R	51.7			37.5	46.8	**63.6**	59.1	36	2.8	39.6	21.6
Zeeland Farm Services	ZFS 2521HO	2.5	Conv	Ecl-US-Q,N,N-H		R	48.8	55.4	60.4	43.5	44.6	58.6	48.3	37	3.3	40.7	20.8
Zeeland Farm Services	ZFS 2819HO	2.8	Conv	Ecl-US-Q,N,N-H		R	45.1	51.2	57.2	**50.9**	42.4	43.2	44.0	41	2.8	40.3	21.3
Zeeland Farm Services	ZFS 3023HO	3.0	Conv	Ecl-US-Q,N,N-H		R	47.0			32.5	43.6	59.9	52.0	35	2.6	39.6	20.9
GRAND MEAN							**53.3**			**46.2**	**50.7**	**59.5**	**56.6**	**37**	**3.0**	**38.4**	**21.4**
Max.							**61.5**			**56.6**	**61.1**	**78.3**	**68.2**	**42**	**3.8**	**43.0**	**22.7**
Min.							**31.4**			**30.6**	**22.2**	**31.2**	**34.7**	**32**	**2.1**	**34.2**	**19.4**
LSD (0.05)							**3.9**			**6.7**	**7.2**	**9.5**	**6.8**				
CV (%)							**9.3**			**9.0**	**8.8**	**9.9**	**9.0**				

[1] Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code
*** High yield in plot**
^ Data not available because of late arriving seed
Top 1/3 of trial is Bold

Michigan State University varieties are experimental

Planting yield trials with the research planter at Ingham County plot.

TABLE 3. 2023 MICHIGAN CENTRAL ROUND-UP READY / EARLY MATURITY, (1.1 - 2.2), SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)			2023 AVERAGE				
BRAND	VARIETY	Maturity Group	Herb	TMT[1]	Phyto Res	SCN	2023 AVG	22-23 AVG	21-23 AVG	Ingham	Saginaw	Sanilac	Height	Lodging
3G Seeds	AA1923 E3	1.9	E3	AA Elite	1k	R	58.4	63.8		49.7	68.1	57.4	38	2.7
Dairyland	DSR-1505E	1.5	E3	EG,G,I,LUM	1k	R	56.7	59.6		51.2	62.4	56.5	31	1.5
Dairyland	DSR-1788E	1.7	E3	EG,G,I,LUM	1k,3a	R	62.2			54.8	66.7	**65.1**	35	1.8
Dairyland	DSR-1919E	1.9	E3	EG,G,I,LUM	1k	R	62.2	63.4		56.9	66.5	63.3	36	2.7
Dairyland	DSR-2188E	2.1	E3	EG,G,I,LUM	1k	R	**64.9**	64.3		***63.2**	68.1	63.5	38	1.8
DF Seeds	DF 3094 N E3	0.9	E3	DFender		R	59.0			**59.2**	61.9	56.0	35	2.8
DF Seeds	DF 3124 N E3	1.2	E3	DFender		R	55.7	60.8		51.5	61.0	54.6	32	2.8
DF Seeds	DF 3143 N E3	1.4	E3	DFender			60.3	63.1		**61.2**	63.1	56.6	38	2.5
DF Seeds	DF 3144 N E3	1.1	E3	DFender		R	62.7			**61.3**	67.1	59.7	36	2.8
DF Seeds	DF 3172 N E3	1.7	E3	DFender			61.3	64.0	67.9	57.1	**70.5**	56.3	33	3.3
DF Seeds	DF 3191 N E3	1.9	E3	DFender			**67.2**	65.1	69.7	**61.3**	**73.8**	**66.4**	35	1.7
DF Seeds	DF 3194 N E3	1.9	E3	DFender			61.8			56.3	65.5	63.6	36	2.3
DF Seeds	DF 3211 N E3	2.1	E3	DFender			**65.3**	65.5	68.1	**61.4**	65.3	**69.2**	35	1.5
Dyna-Gro	S18EN52	1.8	E3	Eq-VIP,Sa,Vay	1c	MR	58.9	62.5	65.9	57.8	66.9	51.9	37	3.2
Dyna-Gro	S20EN84	2.0	E3	Eq-VIP,Sa,Vay	1k	R	61.7	63.5		56.4	64.3	**64.2**	37	1.3
Dyna-Gro	S20EN92	2.0	E3	Eq-VIP,Sa,Vay	1c	MR	59.2	62.2	66.3	58.6	64.3	54.7	37	2.5
Dyna-Gro	S21EN81	2.1	E3	Eq-VIP,Sa,Vay	1k	R	***68.1**	67.6	70.8	**61.6**	**72.6**	**70.1**	35	2.2
Golden Harvest	GH1802E3	1.8	E3	CM,Vib,Sa	1c	R3	57.8			55.2	65.9	52.3	35	2.2
Golden Harvest	GH1922E3	1.9	E3	CM,Vib,Sa	1k	R3,MR14	63.1	65.1	67.6	55.9	**72.4**	61.2	36	2.3
Golden Harvest	GH1973E3S	1.9	E3	CM,Vib,Sa	1k	MR1,MR3,MR5	**65.1**	65.7		**62.6**	**72.5**	60.2	33	2.5
Golden Harvest	GH2292E3	2.2	E3	CM,Vib,Sa	1c	MR3	**66.3**	65.2	68.3	***63.2**	**72.7**	62.9	34	2.2
Growmark	HS 18E30	1.8	E3	ACL,Sa	1k	R	**65.1**			55.2	68.8	***71.2**	34	2.0
Growmark	HS 21E20	2.1	E3	ACL,Sa	1c	R	58.0	61.4		50.8	64.7	58.5	35	3.0
M&W Seeds	M&W 18E89	1.8	E3	Titan,N-H	1k		63.9			56.7	70.0	**65.0**	36	2.0
M&W Seeds	M&W 20E71	2.0	E3	Titan,N-H			58.2			49.0	65.5	60.3	39	3.0
NK Seeds	Nk14-W6E3	1.4	E3	CM,Vib,Vay,Sa	1c,3a	R	63.5	63.2	67.2	55.1	70.2	**65.1**	35	2.7
NK Seeds	NK16-Z6E3	1.6	E3	CM,Vib,Vay,Sa	1c,3a	R	**67.5**			**60.6**	**71.7**	**70.1**	34	2.3
NK Seeds	NK18-J7E3	1.8	E3	CM,Vib,Vay,Sa	1c	R	61.2			57.9	64.1	61.7	37	2.5
NK Seeds	NK19-T8E3S	1.9	E3	CM,Vib,Vay,Sa	1k	R	62.0	62.3		**59.9**	69.4	56.6	33	3.0
NK Seeds	NK21-C2E3	2.1	E3	CM,Vib,Vay,Sa	1c	R	**64.9**			**60.6**	***74.4**	59.8	34	1.7
NK Seeds	NK22-C4E3	2.2	E3	CM,Vib,Vay,Sa	1c	R	56.3	58.6	62.5	56.6	62.6	49.6	36	2.3
Renk Seed	GENESIS G1950E	1.9	E3	ECL-Trio		R	**65.4**	64.2	68.2	57.7	**73.4**	**65.1**	35	2.3
Renk Seed	GENESIS G2150E	2.1	E3	ECL-Trio,Sa	1k	R	**65.1**	65.3	67.7	58.5	**71.1**	**65.8**	34	2.5
Renk Seed	GENESIS G2180E	2.1	E3	ECL-Trio,Sa	1a,3a	R	58.6			55.9	66.8	53.0	37	2.0
Rob-See-Co	IS1978E3	1.9	E3	CM,Vib	1k	R	60.0			53.3	69.9	56.9	39	2.2
Xitavo	XO 1761E	1.7	E3	Obv,Rel,P,V,I	1k	R	60.2	60.8	64.1	54.7	**70.3**	55.6	32	1.2
Xitavo	XO 1971E	1.9	E3	Obv,Rel,P,V,I		R	**65.2**	66.2	70.2	**59.9**	69.7	**66.0**	36	2.2
Xitavo	XO 2181E	2.1	E3	Obv,Rel,P,V,I	1k	R	63.9	65.0	67.5	57.7	**70.5**	63.4	34	2.2
Xitavo	XO 2282E	2.2	E3	Obv,Rel,P,V,I		R	**65.0**	66.0	67.9	56.2	**70.9**	**67.8**	36	1.8
GRAND MEAN							**62.09**			**57.2**	**68.1**	**61.0**	**35**	**2.3**
Max.							**68.12**			**63.2**	**74.4**	**71.2**	**39**	**3.3**
Min.							**55.69**			**49.0**	**61.0**	**49.6**	**31**	**1.2**
LSD (0.05)							**3.66**			**4.7**	**6.5**	**5.9**		
CV (%)							**6.35**			**6.0**	**5.9**	**7.1**		

[1] Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code

*** High yield in plot**

Top 1/3 of trial is Bold

TABLE 4. 2023 MICHIGAN CENTRAL ROUND-UP READY / LATE MATURITY, (2.3 - 3.0), SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)							
										2023 AVERAGE				
BRAND	VARIETY	Maturity Group	Herb	TMT[1]	Phyto RES	SCN	2023 AVG	22-23 AVG	21-23 AVG	Ingham	Saginaw	Sanilac	Height	Lodging
3G Seeds	AA2324 E3	2.3	E3	AA Elite	1k	R	60.6			56.0	68.1	57.6	35	1.7
3G Seeds	AA2524 E3	2.5	E3	AA Elite	1k	R	63.1			51.4	**72.8**	65.0	36	1.8
Dairyland	DSR-2310E	2.3	E3	EG,G,I,LUM	1k	R	59.6			48.9	63.6	**66.2**	34	1.8
Dairyland	DSR-2444E	2.4	E3	EG,G,I,LUM	1k	R	**67.7**			**62.8**	**74.5**	65.7	35	1.6
Dairyland	DSR-2562E	2.5	E3	EG,G,I,LUM	1k	R	63.4	61.9		**59.3**	68.0	63.0	35	1.3
DF Seeds	DF 3251 N E3	2.5	E3	DFender			59.2	60.1	66.1	53.5	65.7	58.5	39	1.7
DF Seeds	DF 3264 N E3	2.6	E3	DFender			62.0			56.4	64.9	64.8	35	1.8
Dyna-Gro	S23ES32	2.3	E3	Eq-VIP,Sa,Vay	1k	R	59.7	61.1	65.1	53.3	64.4	61.4	37	2.2
Dyna-Gro	S25EN74	2.5	E3	Eq-VIP,Sa,Vay	1k	R	**65.7**			**60.8**	**73.8**	62.7	36	2.0
Dyna-Gro	S26EN53	2.6	E3	Eq-VIP,Sa,Vay	1c	R	***68.4**	66.3		**61.4**	**69.9**	**74.0**	37	1.7
Golden Harvest	GH2463E3S	2.4	E3	CM,Vib,Sa	1a	MR3,R14	59.3	62.7		49.9	67.4	60.6	37	1.8
Golden Harvest	GH2610E3	2.6	E3	CM,Vib,Sa	1k	MR1,MR3,MR5	63.2			**58.5**	68.3	62.9	37	1.9
Golden Harvest	GH2674E3	2.6	E3	CM,Vib,Sa	1c	MR3	**65.2**			54.6	67.4	**73.6**	36	1.8
Growmark	HS 23E10	2.3	E3	ACL,Sa	1k	R	58.8	60.3		53.0	60.0	63.5	35	1.8
Growmark	HS 24E30	2.4	E3	ACL,Sa	1c	R	57.0			45.2	64.4	61.3	35	2.0
Growmark	HS 25E30	2.5	E3	ACL,Sa	1k	R	**64.6**			56.5	**71.7**	65.7	37	2.2
Growmark	HS 26E20	2.6	E3	ACL,Sa	1k	R	57.2	57.2	57.2	47.7	65.0	58.7	35	2.2
Growmark	HS 27E30	2.7	E3	ACL,Sa	1k,1a	R	58.6			52.0	66.7	57.1	38	1.7
Growmark	HS 28E10	2.8	E3	ACL,Sa	1k	R	**67.9**			**58.5**	**70.3**	***74.7**	35	1.7
M&W Seeds	M&W 23E54	2.3	E3	Titan N-H			61.3	62.4		49.8	65.0	**69.2**	36	1.9
M&W Seeds	M&W 25E25	2.5	E3	Titan,N-H		R3,MR14	58.9	60.8	65.0	53.2	**69.6**	53.9	38	2.2
M&W Seeds	M&W 26E15	2.6	E3	Titan,N-H	1k		**68.2**	68.2	68.2	***63.2**	***76.0**	65.5	37	1.7
M&W Seeds	M&W 27E42	2.7	E3	Titan,N-H			55.9			50.5	58.2	58.9	40	1.8
M&W Seeds	M&W 29E65	2.9	E3	Titan,N-H			61.4			55.0	67.4	61.6	37	2.2
M&W Seeds	M&W 31E33	3.1	E3	Titan,N-H			**67.4**			**57.3**	**72.0**	**73.1**	39	1.6
MCIA	MCIA 2319 LL/GT	2.3	RR/LL	CM,Vib		R	**66.1**	68.0	69.7	**59.9**	64.8	**73.6**	36	1.3
NK Seeds	NK23-T9XF	2.3	XF	CM,Vib,Vay,Sa	1c	MR	**67.4**	66.6		**62.0**	**70.2**	**69.9**	35	2.3
Rob-See-Co	IS2319E3	2.3	E3	CM,Vib	1cH3a	R	64.2			55.3	**71.1**	**66.3**	35	1.9
Rob-See-Co	IS2566E3S	2.5	E3	CM,Vib	1a	R	62.2			51.2	65.6	**69.8**	37	1.8
Xitavo	XO 1404E	1.4	E3	Obv,Rel,P,V,I	1c	R	60.6			56.3	67.2	58.4	36	2.1
Xitavo	XO 2323E	2.3	E3	Obv,Rel,P,V,I	1c	R	59.0	60.0		56.0	61.1	59.8	35	2.2
Xitavo	XO 2444E	2.4	E3	Obv,Rel,P,V,I	1a	R	59.6			54.4	60.7	63.7	36	1.7
Xitavo	XO 2501E	2.5	E3	Obv,Rel,P,V,I		R	58.6	60.2	66.6	54.2	**68.3**	53.4	39	1.8
Xitavo	XO 2613E	2.6	E3	Obv,Rel,P,V,I	1c	R	**66.1**	65.6		**59.8**	67.1	**71.5**	37	1.7
Xitavo	XO 2832E	2.8	E3	Obv,Rel,P,V,I	1k	R	**66.6**	66.2	69.1	**61.0**	67.3	**71.4**	34	1.8
Xitavo	XO 2963E	2.9	E3	Obv,Rel,P,V,I	1k	R	63.1	62.8		57.2	68.1	63.9	36	1.9
GRAND MEAN							**62.3**			**55.2**	**67.1**	**64.2**	**36**	**1.9**
Max.							**68.4**			**63.2**	**76.0**	**74.7**	**40**	**2.3**
Min.							**55.9**			**45.2**	**58.2**	**53.4**	**34**	**1.3**
LSD (0.05)							**4.5**			**7.3**	**6.7**	**8.2**		
CV (%)							**7.8**			**8.2**	**7.4**	**7.9**		

[1] Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code

*** High yield in plot**

Top 1/3 of trial is Bold

TABLE 5. 2023 MICHIGAN SOUTHERN ZONE ROUND-UP READY / EARLY MATURITY, (1.5 - 2.7), SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)								
										2023 AVERAGE					
BRAND	VARIETY	Maturity Group	Herb	TMT'	Phyto Resist.	SCN	2023 AVG	22-23 AVG	21-23 AVG	Hillsdale	Ingham	Lenawee	St. Joseph	Height	Lodging
Dairyland	DSR-1919E	1.9	E3	EG,G,I,LUM	1k	R	**59.4**	58.8		41.5	**60.3**	**71.7**	**64.0**	34	2.7
Dairyland	DSR-2188E	2.1	E3	EG,G,I,LUM	1k	R	52.7	61.2		44.7	**56.5**	63.4	46.3	32	2.2
Dairyland	DSR-2310E	2.3	E3	EG,G,I,LUM	1k	R	52.0			46.3	49.8	58.6	53.2	31	2.8
Dairyland	DSR-2444E	2.4	E3	EG,G,I,LUM	1k	R	**60.5**			51.0	**61.6**	65.3	**64.2**	32	1.9
Dairyland	DSR-2562E	2.5	E3	EG,G,I,LUM	1k	R	**60.0**	61.1		47.5	**56.5**	**72.5**	**63.5**	33	2.0
Dairyland	DSR-2691E	2.6	E3	EG,G,I,LUM	1k,3a	R	55.0			49.0	55.4	59.8	55.9	35	2.1
Dairyland	DSR-2717E	2.7	E3	EG,G,I,LUM	1k	R	**60.8**	68.2		**56.3**	**56.7**	**72.3**	58.0	35	2.8
DF Seeds	DF 3211 N E3	2.1	E3	DFender			57.4			45.9	**59.9**	62.9	**61.1**	31	2.5
DF Seeds	DF 3251 N E3	2.5	E3	DFender			**58.9**	64.1	65.1	48.0	53.8	**68.8**	**65.1**	36	2.5
DF Seeds	DF 3264 N E3	2.6	E3	DFender			**60.5**			50.5	54.0	**74.5**	**63.2**	35	2.9
Dyna-Gro	S25EN74	2.5	E3	Eq-VIP,Sa,Vay	1k	R	**60.9**			**55.2**	**58.8**	67.2	**62.5**	35	2.5
Dyna-Gro	S25XF64	2.5	XF	Eq-VIP,Sa,Vay	1c	R	58.2			48.5	55.3	**72.3**	56.7	35	2.1
Dyna-Gro	S26EN53	2.6	E3	Eq-VIP,Sa,Vay	1c	R	**64.0**	65.3		**54.1**	**62.5**	**68.7**	***71.0**	35	2.2
Golden Harvest	GH2610E3	2.6	E3	CM,Vib,Sa	1k	MR1,MR3,MR5	57.4	64.1		**53.8**	56.1	61.0	58.6	34	2.2
Golden Harvest	GH2674E3	2.6	E3	CM,Vib,Sa	1c	MR3	**64.5**			**55.8**	**63.4**	**71.4**	**67.2**	35	2.3
Growmark	HS 18E30	1.8	E3	ACL,Sa	1k	R	52.6			39.1	52.6	64.1	54.5	30	2.3
Growmark	HS 21E20	2.1	E3	ACL,Sa	1c	R	53.4	49.9		49.9	44.3	59.0	60.5	32	2.8
Growmark	HS 23E10	2.3	E3	ACL,Sa	1k	R	54.2	61.0		47.6	45.6	64.7	58.9	36	2.7
Growmark	HS 24E30	2.4	E3	ACL,Sa	1c	R	53.1			49.8	41.9	61.1	59.8	32	2.5
Growmark	HS 25E30	2.5	E3	ACL,Sa	1k	R	**59.1**			**53.7**	55.9	**69.4**	57.3	34	3.0
Growmark	HS 26E20	2.6	E3	ACL,Sa	1k	R	54.5	52.5		**52.5**	49.7	58.9	56.9	33	2.6
Growmark	HS 27E30	2.7	E3	ACL,Sa	1k,1a	R	55.6			51.5	48.7	66.2	56.1	35	2.1
M&W Seeds	M&W 18E89	1.8	E3	Titan,N-H	1k		55.7			47.7	51.1	66.6	57.4	33	2.6
M&W Seeds	M&W 20E71	2.0	E3	Titan,N-H			53.1			42.8	50.3	64.8	54.7	34	2.6
M&W Seeds	M&W 23E54	2.3	E3	Titan,N-H			55.3	63.0		50.6	45.8	65.9	59.0	33	2.8
M&W Seeds	M&W 25E25	2.5	E3	Titan,N-H		R3,MR14	58.1	62.5	64.7	45.8	54.3	**72.6**	59.7	35	2.6
M&W Seeds	M&W 26E15	2.6	E3	Titan,N-H	1k		**59.5**	56.4		**56.4**	53.8	**71.0**	56.8	35	2.6
M&W Seeds	M&W 27E42	2.7	E3	Titan,N-H			51.6			45.3	48.6	60.4	51.9	31	2.4
NK Seeds	NK24-A2E3S	2.4	E3	CM,Vib,Vay,Sa	1a	MR	55.9	64.7		51.5	51.0	64.7	56.4	35	2.5
NK Seeds	NK26-M6E3	2.6	E3	CM,Vib,Vay,Sa	1c	MR	***64.6**			***59.2**	**63.2**	67.0	**68.9**	34	2.0
Renk Seed	GENESIS G2480E	2.4	E3	ECL-Trio,Sa	1k	R	56.1			49.9	55.7	62.1	57.0	33	2.6
Renk Seed	GENESIS G2570ES	2.5	E3	ECL-Trio,Sa	1a	R	56.9	65.1		51.4	55.5	59.2	**61.5**	36	2.3
Renk Seed	GENESIS G2780E	2.7	E3	ECL-Trio,Sa	1a	R	55.3			**53.0**	48.3	65.7	54.1	35	2.0
Rob-See-Co	IS2566E3S	2.5	E3	CM,Vib	1a	R	55.9			**57.1**	47.4	60.4	58.7	35	2.5
Rob-See-Co	IS2680E3	2.6	E3	CM,Vib	1c	R	**62.3**			**55.5**	**57.1**	66.3	**70.2**	35	1.9
Rob-See-Co	IS2748E3	2.7	E3	CM,Vib	1k	R	57.2			52.3	55.5	64.3	56.7	34	2.8
Wellman Seeds	K 1226GL	2.6	GT27	Encase			55.7			**54.1**	51.7	58.1	58.8	36	2.4
Wellman Seeds	W 6125E	2.5	E3	Encase			**61.1**			47.0	**63.0**	**69.4**	**64.9**	36	2.7
Wellman Seeds	W 6227E	2.7	E3	Encase			55.6			**55.6**	52.9	57.8	56.0	35	2.3
Wellman Seeds	W 6319E	1.9	E3	Encase			54.7			39.6	51.2	65.4	**62.4**	35	2.8

TABLE 5. 2023 MICHIGAN SOUTHERN ZONE ROUND-UP READY / EARLY MATURITY, (1.5 - 2.7), SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)								
										2023 AVERAGE					
BRAND	VARIETY	Maturity Group	Herb	TMT[1]	Phyto Resist.	SCN	2023 AVG	22-23 AVG	21-23 AVG	Hillsdale	Ingham	Lenawee	St. Joseph	Height	Lodging
Wellman Seeds	W 6323E	2.3	E3	Encase			54.7			45.9	51.1	63.5	58.5	34	2.8
Wyckoff Hybrids	W1970E3	1.9	E3	WycKOAT	1k	R	55.8			47.9	49.7	**68.4**	57.2	34	2.5
Wyckoff Hybrids	W2370E3	2.3	E3	WycKOAT	1cH3a	R	53.9			51.1	44.4	64.3	55.7	34	2.6
Wyckoff Hybrids	W2480E3	2.4	E3	WycKOAT	1a	R	56.4			**52.7**	46.9	64.2	**61.9**	34	2.8
Wyckoff Hybrids	W2570E3	2.6	E3	WycKOAT	1k	R	**63.3**			**57.8**	**61.5**	**71.9**	**61.9**	34	2.3
Wyckoff Hybrids	W2785E3	2.7	E3	WycKOAT	1k	R	57.0			46.9	**59.1**	63.9	58.3	36	1.9
Xitavo	XO 2181E	2.1	E3	Obv,Rel,P,V,I	1k	R	54.6	62.9	62.9	50.5	**59.6**	56.2	51.9	31	2.3
Xitavo	XO 2282E	2.2	E3	Obv,Rel,P,V,I		R	56.3	62.0	62.4	49.9	54.6	60.8	59.7	31	1.8
Xitavo	XO 2323E	2.3	E3	Obv,Rel,P,V,I	1c	R	54.6	62.4		49.9	48.3	**67.5**	52.8	34	3.0
Xitavo	XO 2444E	2.4	E3	Obv,Rel,P,V,I	1a	R	52.8			50.5	48.6	60.2	51.8	35	2.5
Xitavo	XO 2501E	2.5	E3	Obv,Rel,P,V,I		R	**62.3**	63.6	65.1	48.7	**63.7**	***75.8**	**60.9**	37	3.0
Xitavo	XO 2613E	2.6	E3	Obv,Rel,P,V,I	1c	R	**62.7**	65.6		**54.1**	***64.7**	**72.5**	59.6	34	2.2
GRAND MEAN							57.0			**50.1**	**53.8**	**65.3**	**58.8**	**34**	**2.4**
Max.							64.6			**59.2**	**64.7**	**75.8**	**71.0**	**37**	**3.0**
Min.							51.6			**39.1**	**41.9**	**56.2**	**46.3**	**30**	**1.8**
LSD (0.05)							3.94			**9.3**	**6.8**	**8.5**	**7.1**		
CV (%)							8.66			**11.5**	**7.9**	**8.1**	**7.4**		

[1] Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code
*** High yield in plot**
Top 1/3 of trial is Bold

Thank you to all the MSU faculty, staff, and students whose teamwork made the 2023 MSU Soybean Research trials successful.

Full Time Faculty and Staff
Dr. Dechun Wang – Professor and Soybean Breeder
Randy Laurenz - Research Assistant
Robert Stoutenburg - Research Assistant
Cuihua Gu – Research Technologist

Other Contributors
Muhammed Salman – Visiting Scholar
Feng Lin - Academic Specialist
Caleb Austin - Professional Aide

Graduate Research Assistants
Jason Anandappa
Drew Mitchell
Raju Thada Magar

Undergraduate Student Staff
Sarah Gareau
Johnny Graves
Nick Harry (now graduated)
Matthew Johnson
Shae Thompson (now graduated)
Alexis Zimmerman

TABLE 6. 2023 MICHIGAN SOUTHERN ZONE ROUND-UP READY / LATE MATURITY, (2.8 - 3.3), SOYBEAN VARIETY TRIAL REPORT

							YIELD (BU/AC)								
										2023 AVERAGE					
BRAND	VARIETY	Maturity Group	Herb	TMT[1]	Phyto Resist.	SCN	2023 AVG	22-23 AVG	21-23 AVG	Hillsdale	Ingham	Lenawee	St. Joseph	Height	Lodging
Dairyland	DSR-2902E	2.9	E3	EG,G,I,LUM	1k	R	62.1				56.5	**75.4**	54.4	35	2.7
Dyna-Gro	S29EN62	2.9	E3	Eq-VIP,Sa,Vay	1k	R	60.1	68.6	69.3		60.3	61.9	57.9	33	2.5
Dyna-Gro	S31EN14	3.1	E3	Eq-VIP,Sa,Vay		R	59.2				60.4	61.0	56.2	34	2.8
Golden Harvest	GH2814E3S	2.8	E3	CM,Vib,Sa	1c	MR3	59.2				54.9	70.7	51.9	34	3.0
Golden Harvest	GH2884XF	2.8	XF	CM,Vib,Sa	1c	MR3	60.7				60.6	66.3	55.3	37	2.7
Golden Harvest	GH3023XF	3.0	XF	CM,Vib,Sa	1c	R3	64.2	72.5			**61.8**	72.4	58.6	34	2.4
Golden Harvest	GH3043E3	3.0	E3	CM,Vib,Sa	3a	R3,MR14	**66.1**	73.0			**63.3**	**75.3**	59.8	32	2.8
Growmark	HS 28E10	2.8	E3	ACL,Sa	1k	R	**64.9**				**62.1**	72.2	**60.5**	32	2.3
M&W Seeds	M&W 29E65	2.9	E3	Titan,N-H			59.8				59.0	62.1	58.3	35	2.5
M&W Seeds	M&W 31E33	3.1	E3	Titan,N-H			**65.4**				52.8	***78.2**	**65.1**	35	2.5
MCIA	MCIA 2820 LL/GT	2.8	RR/LL	CM,Vib		R	***68.3**	75.4			**61.3**	73.7	**69.8**	33	2.2
NK Seeds	NK28-B9E3S	2.8	E3	CM,Vib,Vay,Sa	1c	MR	58.4				53.3	67.0	55.0	37	3.1
NK Seeds	NK30-B2E3	3.0	E3	CM,Vib,Vay,Sa	3a	MR	**66.0**				61.2	**74.7**	**62.1**	32	2.6
NK Seeds	NK30-U4XF	3.0	XF	CM,Vib,Vay,Sa	1c	R3	64.4				60.9	**74.1**	58.0	33	2.5
Rob-See-Co	IS3188E3S	3.1	E3	CM,Vib	1c	R	**65.8**				59.7	**77.5**	60.3	37	2.3
Rob-See-Co	IS2904E3	2.9	E3	CM,Vib		R	60.2				**63.7**	69.0	47.8	35	2.7
Wellman Seeds	W 6330E	3.0	E3	Encase			61.9				52.7	70.5	**62.5**	36	2.5
Wyckoff Hybrids	W2880E3	2.8	E3	WycKOAT	1c	R	63.3				57.9	**74.6**	57.5	34	2.8
Wyckoff Hybrids	W2885E3	2.8	E3	WycKOAT	1k	R	59.2				56.4	66.9	54.4	34	2.5
Wyckoff Hybrids	W2980E3	2.9	E3	WycKOAT		R	57.7				54.9	63.0	55.3	35	3.0
Wyckoff Hybrids	W3085E3	3.0	E3	WycKOAT	1k	R	**67.6**				***66.2**	**75.2**	**61.2**	35	2.4
Xitavo	XO 2832E	2.8	E3	Obv,Rel,P,V,I	1k	R	61.9	70.5	70.2		**62.4**	66.3	57.1	32	2.4
Xitavo	XO 2963E	2.9	E3	Obv,Rel,P,V,I	1k	R	**65.8**	73.8			57.8	69.4	***70.3**	33	2.8
Xitavo	XO 3014E	3.0	E3	Obv,Rel,P,V,I		R	62.5				**63.0**	62.1	**62.4**	35	2.8
Xitavo	XO 3131E	3.1	E3	Obv,Rel,P,V,I	1c	R	59.2	69.2	69.8		52.2	66.0	59.4	36	3.2
Xitavo	XO 3224E	3.2	E3	Obv,Rel,P,V,I		R	**66.3**				**63.3**	**75.3**	**60.4**	35	2.8
GRAND MEAN							62.5				**58.9**	**69.7**	**58.4**	**34**	**2.6**
Max.							68.3				**66.2**	**78.2**	**70.3**	**37**	**3.2**
Min.							57.7				**52.2**	**61.0**	**47.8**	**32**	**2.2**
LSD (0.05)							3.5				**6.1**	**5.0**	**5.4**		
CV (%)							6.1				**6.4**	**5.2**	**6.7**		

[1] **Seed Treatment: See 'Seed Treatment' paragraph (under 'Using the Data') for product code**

*** High yield in plot**

Top 1/3 of trial is Bold

MICHIGAN SOYBEAN COMMITTEE

Free Diagnostic Services for Michigan Soybean Farmers

Soybean Cyst Nematode (SCN) Analysis

SCN is a major limiting factor in Michigan's soybean production. To better manage SCN, soil sampling by a diagnostic laboratory is necessary. The Michigan Soybean Committee covers the costs of samples submitted to the MSU Diagnostic Lab.

Herbicide Resistant Weed Screening

Herbicide resistant weeds are a growing concern for Michigan soybean farmers. The Michigan Soybean Committee sponsors the testing of select species including pigweeds/amaranths, ragweeds, horseweed and common lambsquarters for Michigan soybean growers.

Submit Samples:

Forms with directions for submitting soil and weed seed samples can be found online at michigansoybean.org/forms-and-resources.

michigansoybean.org

Funding for these programs is made possible by the Michigan soybean checkoff program.

Maximizing Soybean Income in 2024

Mike Staton, MSU Extension Soybean

Agricultural economists are projecting tighter profit margins for soybeans again in 2024 than those realized in 2021 and 2022 due to high input costs. Because of this, soybean producers will need to manage production costs carefully. The following research-based recommendations will help producers reduce production costs without adversely affecting yields.

Reduce or eliminate tillage operations
Tillage trials conducted across the U.S. and in Ontario have shown that tillage does not significantly affect soybean yield (https://crops.extension.iastate.edu/encyclopedia/no-tillage-soybean-production). A single tillage pass performed in the spring was compared to an untilled control at eight locations in Michigan from 2019 to 2021. Tillage increased income at only two locations. If your fields are relatively smooth and free from harvest ruts and your planting equipment is equipped to plant through the existing residue, consider planting without additional tillage. Tillage operations may be necessary to level harvest ruts prior to planting and may be beneficial when planting very early (last week of April).

Select high-yielding and pest resistant varieties
Variety selection is one of your most important decisions when planting soybeans. Based on data from the Michigan Soybean Performance Reports, choosing varieties carefully can increase your yield potential by 5 to 12 bushels per acre and reduce yield losses due to white mold, sudden death syndrome (SDS), *Phytophthora* root and stem rot and soybean cyst nematodes without increasing costs. Strategically match varieties with the pest pressure and productivity of your fields.

Plant soybeans early
Numerous planting date trials show that planting soybeans early maximizes yield potential. Yield losses of 0.3 to 0.6 bushels per acre have been documented for each day that planting is delayed after May 8. However, it is far better to delay planting than to plant into soil that is too wet.

Reduce planting rates
Results from 67 replicated on-farm trials conducted in Michigan from 2015 to 2021 show that low planting rates can produce surprisingly high yields. In fact, the 100,000-seeds-per-acre planting rate was more profitable than the 130,000 and 160,000 planting rates when all 67 sites were combined. Higher planting rates are recommended when planting in marginal soils and when planting late. Higher rates are also recommended in northern Michigan, where early maturing varieties are planted. Under good planting conditions, planting rates should be 15 to 20 percent higher than your intended harvest populations.

Base lime applications on soil test results
Soybeans will generally perform well at soil pH levels between 6.0 and 7.0. However, the optimal range is between 6.3 and 6.5 as this range maximizes nutrient availability and biological nitrogen fixation, while minimizing soybean cyst nematode population growth. Variable-rate lime applications are highly recommended to achieve more uniform soil pH levels within fields.

Don't apply nitrogen fertilizer
Hundreds of university trials have shown that nitrogen fertilizer applications to soybeans are rarely profitable. This has been confirmed in replicated on-farm trials conducted in Michigan.

Don't apply foliar fertilizers
Foliar fertilizer applications to soybeans are rarely profitable. This has been demonstrated in hundreds of university trials (https://soybeanresearchinfo.com/wp-content/uploads/2022/01/Science-for-Success-Foliar-Fertilizers-V3.pdf and in the Michigan on-farm foliar fertilizer trials where only 15 of the 173 replicated trials were profitable. The exception is foliar application of manganese sulfate which is recommended to correct visible manganese deficiency symptoms.

Consider eliminating starter fertilizer
Eleven on-farm 2x2 starter fertilizer trials were conducted in Michigan in 2021 and 2022. In two of the trials, the starter fertilizer increased income by $4.50 per acre. However, when all eleven sites were combined, the starter fertilizers

decreased income by $30 per acre. In-furrow fertilizer placement has not consistently increased soybean yields in Michigan on-farm trials either. In-furrow fertilizers increased yields in only two of 14 trials.

Apply potassium (K) fertilizers as needed to maintain critical soil test levels

Soybean producers can make important potash allocation decisions by comparing their K soil test levels to the values listed in table 1. If your K soil test levels are at least 10 ppm above the critical level, eliminating potash applications should not adversely affect 2023 soybean yields or drop K soil test levels below the critical level. However, if your soil test levels are less than 10 ppm above the critical levels, a maintenance level K application is warranted. The K levels reported in table 1 are Mehlich III values. If your soil test reports K levels as ammonium acetate values, multiply by 1.14 to convert to Mehlich III.

Table 1. Potassium critical levels and maintenance limits for soybeans (Tri-state fertilizer recommendations)

Cation Exchange Capacity (meq/100 g)	K critical level (ppm)	K maintenance limit (ppm)
≤5	100	130
>5	120	170

Apply seed treatments only when warranted

Soybean seed treatments including fungicides, insecticides, inoculants and nematicides have produced inconsistent yield benefits in university trials. For example, base seed treatments containing multiple fungicides and an insecticide were profitable in only 10 out of 31 replicated on-farm trials conducted in Michigan from 2017 to 2020. The average yield increase was 1.4 bushels per acre which is about breakeven. Seed treatments may be warranted when pest problems such as SDS, or *Phytophthora* root rot have been verified or when planting conditions favor pest damage. Examples include: early planting (*Pythium* and SDS); planting into grass sods (white grubs and wireworms); and when manure or green plant material has been incorporated within two weeks of planting (seed corn maggot).

Consider eliminating foliar fungicide applications unless field and weather conditions are favorable for white mold

Prophylactic foliar fungicide applications have produced modest yield increases in Michigan on-farm research trials. Stratego YLD, Priaxor, Miravis Neo and Delaro Complete have been evaluated in on-farm trials in Michigan from 2012 to 2023 (Table 2).

Table 2. Summary of the Michigan on-farm foliar fungicide trials

Fungicide	Stratego® YLD	Priaxor™	Miravis® Neo	Delaro® Complete
Number of trials	9	22	22	10
Number of trials with yield increases	5	8	9	8
Average yield increase (bu/ac)	1.5	2.1	2.2	3.0

However, foliar fungicides rated as providing good white mold control (Aproach®, Endura®, Lektivar™, Omega®, and Propulse®) can be important tools for managing white mold. Using a combination of tactics is recommended when planting soybeans into fields having a history of white mold. These include: wide rows, resistant varieties, reduced planting rates, irrigation water management, careful tillage decisions, foliar fungicides, and using the Sporecaster App to assist with fungicide application decisions.

Select and apply herbicides to maximize weed control, minimize crop damage and reduce herbicide resistance

Dr. Christy Sprague, MSU weed scientist, evaluates commercially available weed control programs each year (https://www.canr.msu.edu/weeds/extension/commercial-comparisons).

The most profitable weed control programs year-in and year-out provide the highest level of weed control and minimize crop injury. The cost of the weed control programs is also considered, but it does not affect overall profitability as much as the level of weed control and crop injury.

Reducing production costs and improving efficiency will help soybean producers respond to the projected high input costs.

INDEX FOR 2023 SOYBEAN VARIETY PERFORMANCE TRIALS

There are 161 varieties from 19 private seed companies plus 53 MSU varieties entered in seven county test sites in the 2023 Soybean Variety Performance Trials. **The first number within parentheses refer to the table in which the variety appears.** Company names used in association with variety numbers refer to the brand, and the numbers are the variety designation.
The SCN source of resistance if any, is listed in a second parentheses. PI88788 is abbreviated as P8.

TABLE 1 Central Conventional	TABLE 2 Southern Conventional	TABLE 3 Central Early Roundup Ready	TABLE 4 Central Late Roundup Ready	TABLE 5 Southern Early Roundup Ready	TABLE 6 Southern Late Roundup Ready
Allegan	Hillsdale	Allegan	Allegan	Hillsdale	Hillsdale
Ingham	Ingham	Ingham	Ingham	Ingham	Ingham
Saginaw	Lenawee	Saginaw	Saginaw	Lenawee	Lenawee
Sanilac	St. Joseph	Sanilac	Sanilac	St. Joseph	St. Joseph

3G Seeds
AA1923 E3 (3) (P8)
AA2324 E3 (4) (P8)
AA2524 E3 (4) (PEKING)
AA2614 N (1) (P8)

Dairyland Seed
DSR-1505E (3) (P8)
DSR-1788E (3) (P8)
DSR-1919E (3,5) (PEKING)
DSR-2188E (3,5) (PEKING)
DSR-2310E (4,5) (P8)
DSR-2444E (4,5) (PEKING)
DSR-2562E (4,5) (P8)
DSR-2691E (5) (P8)
DSR-2717E (5) (PEKING)
DSR-2902E (6) (P8)

DF Seeds
DF 151 N (1) (P8)
DF 155 F (1,2)
DF 174 N (1) (P8)
DF 184 N (1) (P8)
DF 187 N (1) (P8)
DF 193 F (1) (P8)
DF 204 N (1,2) (P8)
DF 214 N (1,2) (P8)
DF 224 N (1,2) (P8)
DF 231 N (1,2) (P8)
DF 234 N (1,2) (PEKING)
DF 260 N (1,2) (P8, 4374654)
DF 262 N F (1,2) (P8)
DF 282 N (2) (P8)
DF 3094 N E3 (3) (PEKING)
DF 3124 N E3 (3) (PEKING)
DF 3143 N E3 (3) (P8)
DF 3144 N E3 (3) (PEKING)
DF 3172 N E3 (3) (P8)
DF 3191 N E3 (3) (P8)
DF 3194 N E3 (3) (PEKING)
DF 3211 N E3 (3,5) (P8)
DF 3251 N E3 (4,5) (P8)
DF 3264 N E3 (4,5) (PEKING)

Dyna-Gro Seed
S18EN52 (3) (P8)
S20EN92 (3) (P8)
S21EN81 (3) (P8)
S23ES32 (4) (P8)
S2409N (1) (P8)
S25EN74 (4,5) (PEKING)
S25XF64 (5) (P8)
S26EN53 (4,5) (P8)
S29EN62 (6) (P8)
S31EN14 (6) (P8)
SX22620EN (3) (PEKING)
SX23119CV (1) (P8)

Golden Harvest
GH1802E3 (3) (P8)
GH1922E3 (3) (P8)
GH1973E3S (3) (PEKING)
GH2292E3 (3) (P8)
GH2463E3S (4) (P8)
GH2610E3 (4,5) (PEKING)
GH2674E3 (4,5) (P8)
GH2814E3S (6) (P8)
GH2884XF (6) (P8)
GH3023XF (6) (P8)
GH3043E3 (6) (P8)

Growmark
HS 15C00 (1,2) (P8)
HS 18E30 (3,5) (P8)
HS 19C20 (1,2) (P8)
HS 21E20 (3,5) (P8)
HS 23E10 (4,5) (P8)
HS 24E30 (4,5) (P8)
HS 25E30 (4,5) (PEKING)
HS 26E20 (4,5) (P8)
HS 27E30 (4,5) (P8)
HS 28C20 (1,2) (P8)
HS 28E10 (4,6) (P8)

Hensall
AAC McRae (1) (P8)
HDC Blake (1)
S14-H3 (1) (P8)

Hensall Silverline
S16-B8 (1) (P8)
S20-W9 (1) (P8)
S21-C6 (1) (P8)

M&W Seeds
M&W 18E89 (3,5) (PEKING)
M&W 20E71 (3,5)
M&W 23E54 (4,5)
M&W 25E25 (4,5) (P8)
M&W 26E15 (4,5) (PEKING)
M&W 27E42 (4,5)
M&W 29E65 (4,6)
M&W 31E33 (4,6)

Michigan Crop Improvement Assn.
MCIA 2319 LL/GT (4) (P8)
MCIA 2820 LL/GT (6) (P8)

MSU
E11128T (1) (P8)
E12076T-03 (1,2) (P8)
E13268 (1,2)
E14077 (1,2) (P8)
E15165T (1) (P8)
E15338 (1) (P8)
E15339 (1,2) (P8)
E15345 (1,2) (P8)
E15346T (1)
E15351 (1,2) (P8)
E17203 (1,2) (P8)
E17283 (1,2) (P8)
E18331-34HO (1,2) (P8)
E18610T (1,2)

MSU Continued
E18638T (1,2) (P8)
E19288T (1,2)
E19307T (1,2) (P8)
E19314T (1,2) (P8)
E19412 (2) (P8)
E20026 (1,2)
E20078 (1,2) (P8)
E20099 (1,2)
E20154HO (1)
E20195HO (1,2)
E20316T (1) (P8)
E20327 (1)
E20329 (1,2) (P8)
E20333 (1,2)
E20351 (1,2) (P8)
E20352 (1,2) (P8)
E20355 (1,2) (P8)
E21058 (1,2)
E21062T (1,2)
E21088 (2)
E21100 (1,2)
E21102 (1)
E21107 (1,2)
E21109 (1,2)
E21116 (1,2)
E21118 (1,2)
E21125 (1,2)
E21127 (1,2)
E21139LF (1,2)
E21327 (2)
E21345 (1,2)

New Age Seeds
NA1800 (1) (P8)
NA2000 (1) (P8)
NA2700 (1,2) (P8)

NK Seeds
NK14-W6E3 (3) (PEKING)
NK16-Z6E3 (3) (PEKING)
NK18-J7E3 (3) (P8)
NK19-T8E3S (3) (PEKING)
NK21-C2E3 (3) (P8)
NK22-C4E3 (3)(P8)
NK23-T9XF (4) (P8)
NK24-A2E3S (5) (P8)
NK26-M6E3 (5) (P8)
NK28-B9E3S (6) (P8)
NK30-B2E3 (6) (P8)
NK30-U4XF (6) (P8)

Renk Seeds
GENESIS G1950E (3) (P8)
GENESIS G2150E (3) (P8)
GENESIS G2180E (3) (P8)
GENESIS G2480E (5) (P8)
GENESIS G2570ES (5) (P8)
GENESIS G2780E (5) (P8)

Rob-See-Co
IS1978E3 (3) (P8)
IS2319E3 (4) (P8)
IS2566E3S (4,5) (P8)
IS2680E3 (5) (P8)
IS2748E3 (5) (P8)
IS2904E3 (6) (P8)
IS3188E3S (6) (P8)

Southwest Seed
AAC Big Ben (2) (P8)

Star of the West
Nature's Genetics 1926 (1,2)
Nature's Genetics 9430 (1,2)
Star 18 (1,2)
Star 25 (1,2)

Wellman Seed
K 1226GL (5)
W 6125E (5)
W 6227E (5)
W 6319E (5)
W 6323E (5)
W 6330E (6)

Wyckoff
W1970E3 (5) (P8)
W2370E3 (5) (P8)
W2480E3 (5) (P8)
W2570E3 (5) (P8)
W2785E3 (5) (P8)
W281C (2) (P8,4374654)
W2880E3 (6) (P8)
W2885E3 (6) (P8)
W2980E3 (6) (P8)
W3085E3 (6) (P8)

Xitavo
XO 1404E (4) (P8)
XO 1761E (3) (P8)
XO 1971E (3) (P8)
XO 2181E (3,5) (P8)
XO 2282E (3,5) (P8)
XO 2323E (4,5) (P8)
XO 2444E (4,5) (P8)
XO 2501E (4,5) (P8)
XO 2613E (4,5) (P8)
XO 2832E (4,6) (P8)
XO 2963E (4,6) (PEKING)
XO 3014E (6) (P8)
XO 3131E (6) (P8)
XO 3224E (6) (PEKING)

Zeeland Farm Services
ZFS 1326 (1,2) (P8)
ZFS 1624 (1)
ZFS 1721 (1) (P8)
ZFS 2023 (1,2)
ZFS 2324HO (1,2) (P8)
ZFS 2521HO (1,2) (P8)
ZFS 2819HO (1,2) (P8)
ZFS 3023HO (1,2) (P8)

MICHIGAN SOYBEAN COMMITTEE
3055 W. M-21
St. Johns, MI 48879

MICHIGAN SOYBEAN COMMITTEE

The Soybean Checkoff
michigansoybean.org

Fellow Soybean Producers,

The investment of checkoff funds in the Michigan State University soybean breeding program is an example of our mission to "Manage checkoff resources to increase return on investment for Michigan soybean farmers while enhancing sustainable soybean production". We feel confident in the value that the breeding program creates including its soybean variety performance evaluation and hope that it is a valuable resource for your farm.

We wish you a safe and profitable 2023 season.

Sincerely,
Michigan Soybean Committee Directors

District #1 Sara Trattles, Colon
District #2 Nathan McCalla, Ann Arbor
District #3 Laurie Isley, Palmyra
District #4 Scott Wilson, Lexington
District #5 John Burk, Bay City
District #6 Mark Senk, Owosso
District #7 Ryan Drozd, Allegan