

2023 MICHIGAN SOYBEAN PERFORMANCE REPORT

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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).

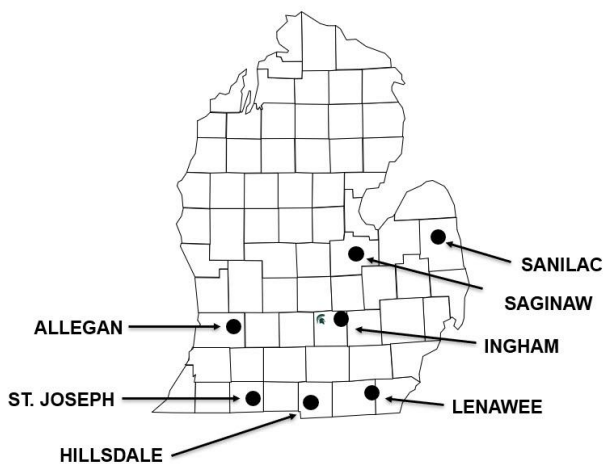
TESTING PROCEDURES

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 trial 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 growth 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 led 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.

Code	Treatment
• ACL	Accelaron-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

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'.