

2019 MICHIGAN SOYBEAN PERFORMANCE REPORT

D. WANG, R.G. LAURENZ, R. STOUTENBURG,
DEPT. OF PLANT SOIL & MICROBIAL SCIENCES

This report provides information on the performance of Conventional, Liberty Link, and Roundup Ready soybean varieties in Michigan in 2019.

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

This data is posted at <https://varietytrials.msu.edu/> and will get updated with Gratiot county trail data as well as protein and oil data.

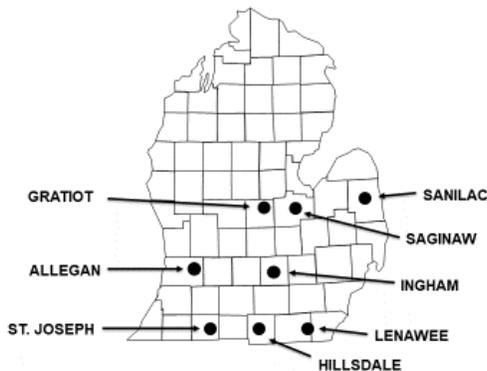
TESTING PROCEDURES

Eight trials are reported here. The Central locations for the Conventional, Roundup Ready and Liberty Link trials include test sites in Allegan, Gratiot, Saginaw and Sanilac Counties. The Southern locations for the Conventional, Liberty Link and Roundup Ready trials include test sites in Hillsdale, Ingham, Lenawee, and St. Joseph (irrigated) Counties.

Twenty-one seed companies entered a total of 194 commercial varieties. There are many new products in the trials this year. Since varieties that contain Enlist and GT27 herbicide resistant traits were deregulated, we were able to include those lines in the trials. 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 four times in a Randomized Complete Block Design (RCBD). All locations were planted to 16 feet with 4 foot alleys that were not trimmed. Only the center four rows were harvested. Experimental design, data management, and data analysis were conducted with AGROBASE Generation II, (Agronomix Software, Inc., Winnipeg, Canada).

2019 TEST SITE COUNTY LOCATIONS



TEST SITE INFORMATION

Allegan County

Nearest city: Wayland
Cooperator: Jim Wykoski
Planting date: 5-17-19
Harvest Date: 11-9-19
Previous Crop: Corn
Soil Type: Colwood Silt Loam
Fertilizer: 50 lb/A DAP, 50 lb/A AMS, 110lb/A potash, 11.5 lb/A micronutrients
Herbicides: Preemergent 12 oz/A Authority MTZ, 1.5 pt/A Medal II
Postemerg 5 oz/A Assure II-over entire field
Conventional & Liberty Link Trial- 1 qt/A Basagran, 5 oz/A Raptor
Roundup Ready Trials- 32 oz/A Roundup Powermax

Gratiot County

Nearest city: Breckenridge
Cooperator: John Hardman
Planting date: 5-16-19
Harvest date: Not harvested at press time
Previous crop: Corn
Soil type: Parkhill Loam
Fertilizer: none
Herbicides: Preemerge Lorox 1.5 lb/A, 1.5 pt/A Medal II
Postemerg 5 oz/A Assure II over entire field
Conventional & Liberty Link Trials- 1 qt/A Basagran,
Roundup Ready Trials – 32 oz/A Roundup Powermax
5 oz/A

Ingham County

Nearest city: Mason
Cooperator: MSU
Planting date: 6-7-19
Harvest date: 11-5-19
Previous crop: Corn
Soil type: Loam
Fertilizer: none
Herbicides: Preemerge 12 oz/A Authority MTZ, 1.5 pt/A Medal II- over the entire field
Conventional & Liberty Link Trials- 1 qt/A Basagran, 5 oz/A Raptor
Roundup Ready Trials – 32 oz/A Roundup Powermax

Hillsdale County

Nearest city: Reading
Planting date: We were unable to plant this location, due to excessive rainfall.

Lenawee County

Nearest city: Britton
Cooperator: David & Jason Woods
Planting date: 6-9-19
Harvest date: 11-7-19
Previous crop: Soybeans
Soil type: Sandy Clay Loam
Fertilizer: 250lb/A K2O

Herbicides: Preemerge 12 oz/A Authority MTZ, 1.5 pt/A Medal II-Over the entire field
Conventional & Liberty Link Trials- 1 qt/A Basagran, 5 oz/A Raptor
Roundup Ready Trials – 32 oz/A Roundup Powermax

Saginaw County

Nearest city: Saginaw
Cooperator: Tom Hoff
Planting date: 6-8-19
Harvest date: 10-20-19
Previous crop: Corn
Soil type: Clay Loam
Fertilizer: 200lb/A Potash
Herbicides: Preemerge 12 oz/A Authority MTZ, 1.5 pt/A Medal II- over the entire field
Conventional & Liberty Link Trials- 1 qt/A Basagran, 5 oz/A Raptor
Roundup Ready Trials – 32 oz/A Roundup Powermax
5 oz/A Assure II

Sanilac County

Nearest city: Sandusky
Planting date: We were unable to plant this location, due to excessive rainfall.

St. Joseph County - Irrigated

Nearest city: Mendon
Cooperator: Roger and Anne Gentz and Family
Planting date: 6-7-19
Harvest date: 10-25-19
Previous crop: Seed Corn
Soil type: Oshtemo
Fertilizer: 200 lb/A 0-0-60 Variable Rate Spread
Herbicides: Preemerge 12 oz/A Authority MTZ, 1.5 pt/A Medal II over the whole field
Conventional & Liberty Link Trials- 1 qt/A Basagran, 5 oz/A Raptor
Roundup Ready Trials – 32 oz/A Roundup Powermax

LIBERTY LINK TRIAL

The Central Liberty Link soybean varieties were tested in Allegan, Gratiot, Saginaw and Sanilac Counties.

The South Liberty Link soybean varieties were tested in Hillsdale, Ingham, Lenawee, and St. Joseph Counties. Both trials were treated with conventional herbicides as noted in test site information.

GROWING CONDITIONS / COMMENTS

Wet conditions plagued the planting season and many fields did not get planted, including 2 of our test sites. According to USDA statistics, as of June 16th, only 53% of Michigan soybeans were planted compared to the 94% average over the last five years.

After the very wet spring, most of the summer growing season was dry. This resulted in shorter plants and reduced lodging.

Rain, again, restricted the harvest season. Wet conditions delayed harvest in many areas. As of November 4th, 2019, only 57% of soybeans grown in Michigan were harvested (USDA-NASS). At the time of printing this report, the Gratiot county trial has not been harvested.

USING THE DATA

Results are presented in Tables 1 through 8.

Yield: Yield is expressed as bushels per acre at 13% moisture and is reported as single and across site averages for 2019. Two and three year means are also presented when 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 4 reps at all sites.

Lodging: Lodging scores reflect the erectness of the plants before harvest. The reported values are means of 4 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.

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
- MS – Moderately Susceptible
- S – Susceptible

These notations followed by a number indicate the identified cyst nematode race.

SELECTING A VARIETY

LSD (least significant difference, found at the bottom of each data column) 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% 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, found at the bottom of each data column) 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.

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.

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
• AA	AgArmour
• ACL	Acceleron
• AGR	Agrishield Max
• ALL	Allegiance
• AM	Apron Maxx (Maxim)
• AM-C	Apron Maxx & Cruiser
• Clar	Clariva
• CM	Cruiser Maxx
• D	DFender
• Ecl-US-Q	EclipseUS quad IM
• EG	EverGoEnergy
• ENC	Encase
• ESC	Escalate
• EQ	Equity VIP
• G	Gaucho
• I	ILeVO (BayerCropScience)
• MER	Mertect
• N	NForce
• NS	NemaStrike
• N-H	Inhibit
• O	Optimize
• P	Poncho
• PA	PA2030
• R	Redigo
• SmartCote S	SmartCote Supreme
• SS	SureStand
• Vib	Vibrance
• V	Votivo