

Soybeans

2020 EARLY MATURITY VARIETY TRIAL - Escanaba

J. DeDecker, C. Kapp and C. Tollini

Approximately 67,000 acres of soybean are planted in Northern MI and the Upper Peninsula (U.P.). Due to the generally short growing season and highly variable environmental conditions present across this large region, tailored variety recommendations are of utmost importance to growers. Public variety performance information for extra-early maturity groups (RM 0.00-1.20) has previously not been available in Michigan.

For the third year, Michigan State University Extension received funding from the Michigan Soybean Promotion Committee to evaluate early maturing soybean varieties at two sites; one in Northeast Lower MI and one in the U.P. (see separate report for NE). Our objective was to inform farmers in Northern Michigan about the performance of soybean varieties adapted to local conditions. This included yield potential of individual varieties, as well as gathering additional information on grain quality (NIR protein and oil) for the first time in 2020.

Fifty soybean varieties solicited from seed companies were planted in Escanaba, MI on May 26th, 2020. We observed the development of all varieties weekly in order to record differences between brands, varieties and maturity groups. Growing degree-day accumulation from planting to harvest was slightly above normal at this location (1937 base 50). Total rainfall was near average, and consistent throughout the season. Early planting and favorable conditions contributed to the development of large, tall plants.

Soybeans were harvested November 4th using a Hege plot combine. Some of the latest maturing varieties had been killed by frost before drying naturally. Seed was weighed and yield corrected for moisture content to a standard 13%. The trial averaged 43.35 bu/ac, with the lowest yielding variety producing 21.96 bu/ac and the best performing variety yielding 63.39 bu/ac. The average soybean yield for Delta and Menominee counties is 41.0 bu/ac (Source: NASS). There were significant differences in yield between maturity groups in 2020 at the UP and NE locations. Based on our three years of data, soybeans of RM 0.6-1.7 appear to be well adapted to the southern UP and Northern LP. We recommend that growers plant multiple soybean varieties within this range to mitigate weather and agronomic risk.

Many thanks to Michigan Soybean Promotion Committee and the seed companies that entered varieties in our 2020 early maturity trial!

TRIAL DETAILS

PURPOSE:

Compare performance of available commercial soybean varieties, RM 0.5-2.0, under Northern Michigan conditions

TRIAL LOCATION:

MSU Forest Biomass Innovation Center in Escanaba, MI on well-drained Onaway fine sandy loam

EXPERIMENTAL DESIGN:

Randomized complete block design with three replications

TRIAL MANAGEMENT:

- 13 seed brands, 50 varieties, RM 0.5-2.0
- Planted May 26, 2020 at 170,000 seeds per acre
- Plots 4' X 16' with 7 in. row spacing
- Borders and alleys planted to minimize edge effect, fenced for deer
- 200 lbs. per acre of 0-14-42 applied at planting
- Post-emerge herbicide, 5 oz/a Raptor, 1 qt/100 gal Boost AD on June 8th

TAKE AWAYS:

- Soybeans RM 0.6-1.7 are adapted to the S. UP
- Varieties differed significantly in oil, but not protein at Escanaba



Table 1. Soybean yield in the Escanaba trial by brand and relative maturity.

(* denotes varieties that performed similarly to the “best” variety for a given metric at alpha = 0.05.

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Brand	Variety	RM	Yield (bu/a)	Sig	Protein (%)	Sig	Oil (%)	Sig
Asgrow	AG14X8	1.40	52.44	*	33.90	*	20.83	*
Asgrow	AG14X0	1.40	49.86	*	36.45	*	20.69	*
Asgrow	AG11X8	1.10	57.05	*	35.15	*	19.65	*
Asgrow	AG10X9	1.00	56.87	*	37.07	*	19.49	*
Asgrow	AG08X0	0.80	45.23	*	33.43	*	20.03	*
Dairyland	DSR-1673E	1.60	41.76	*	34.64	*	18.99	
Dairyland	DSR-1318E	1.30	42.19	*	35.56	*	18.32	
Dairyland	DSR-0920E	0.90	48.85	*	36.62	*	19.93	*
Dairyland	DSR-0645E	0.60	50.23	*	36.25	*	20.24	*
DF Seeds	DF 6161 N LLGT27	1.60	47.30	*	33.46	*	20.73	*
DF Seeds	DF 151 N	1.50	40.37	*	32.85	*	19.96	*
DF Seeds	DF 3141 N E3	1.40	43.40	*	34.71	*	20.67	*
DF Seeds	DF 6131 N LLGT27	1.30	39.61	*	36.25	*	20.60	*
Federal Hybrids	F1909N LLGT+	1.90	39.13	*	33.61	*	20.43	*
Federal Hybrids	F1210N R2X	1.20	55.37	*	37.47	*	19.83	*
Federal Hybrids	F1109 LLGT +	1.10	48.63	*	34.37	*	20.40	*
Federal Hybrids	F0990N R2X	0.90	46.87	*	36.06	*	19.91	*
Golden Harvest	GH2011E3	2.00	30.77		33.74	*	20.11	*
Golden Harvest	GH1486X	1.40	33.52	*	36.59	*	21.00	*
Golden Harvest	GH0936X	0.90	63.39	**	32.42	*	20.37	*
Golden Harvest	GH0543X	0.50	31.00		34.20	*	21.59	**
Legacy Seeds	LSX 201.4	1.40	44.31	*	38.72	*	19.20	*
Legacy Seeds	LSX 201.3	1.30	21.96		37.38	*	19.65	*
Legacy Seeds	LS 111-20	1.10	38.14	*	37.01	*	19.89	*
Legacy Seeds	LSX 201.0	1.00	45.78	*	36.70	*	19.88	*
Legend Seeds	14E152N	1.40	45.97	*	34.37	*	20.72	*
Legend Seeds	12x862N	1.20	48.17	*	34.07	*	20.99	*
Legend Seeds	09x6960N	0.90	39.63	*	34.38	*	19.66	*
Legend Seeds	08E127N	0.80	50.16	*	33.31	*	20.34	*
LG Seeds	C1838RY	1.80	28.65		35.35	*	20.34	*
LG Seeds	LGS1550R	1.50	45.08	*	35.52	*	20.99	*
LG Seeds	LGS0735R	0.70	53.59	*	37.16	*	20.34	*
MSU	E18074	1.90	25.11		34.70	*	19.58	*
MSU	E17808-01	1.90	22.42		34.09	*	18.28	
MSU	E13268	1.50	46.14	*	34.96	*	20.70	*
MSU	E16099	1.50	33.50	*	36.66	*	18.22	
Pioneer	P18A33X	1.80	36.37	*	35.73	*	20.27	*



Pioneer	P16A84x	1.60	37.37	*	34.71	*	20.52	*
Pioneer	P11A44x	1.10	39.37	*	33.85	*	21.18	*
Pioneer	P10A76X	1.00	46.38	*	34.70	*	20.04	*
Syngenta	S13-E3	1.30	52.92	*	35.73	*	20.03	*
Syngenta	S12-T2X	1.20	41.53	*	35.75	*	20.33	*
Syngenta	S09-3E3	0.90	39.88	*	35.13	*	20.99	*
Syngenta	S09-D4X	0.90	62.36	*	33.04	*	20.12	*
Wolf River Valley	3015 GTLL	1.50	38.18	*	34.75	*	21.03	*
Wolf River Valley	3012 GTLL	1.20	41.17	*	37.27	*	21.19	*
Wolf River Valley	2808 RR2	0.80	45.88	*	32.93	*	19.63	*
Wolf River Valley	3005 GTLL	0.50	41.61	*	38.99	*	19.96	*
ZFS	e17y993	1.70	43.75	*	39.65	**	19.22	*
ZFS	12H902	1.20	48.36	*	36.58	*	20.09	*
AVERAGE			43.35		35.36		20.14	



See the plots for yourself in these videos produced throughout the season:

- [Planting the trial on May 26th](#)
- [Mid-season update on July 29th](#)
- [Harvest on November 4th](#)

Figure 1. Soybean yield by maturity group in Escanaba, MI. The red line shows a linear model, blue shows the smoothed means (a more realistic trend).

