2025 Early Maturity Soybean Variety Trial

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For an eighth year, Michigan State University Extension received funding from the Michigan Soybean Committee to evaluate early maturing soybean varieties in Northern Michigan. Our objective was to inform farmers in the region 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 and relative deer preference.

Forty soybean varieties solicited from private seed companies and MSU were planted on a commercial farm in Hillman, MI on May 29, 2025. Our seeding rate was 175,000 pure live seeds per acre accounting for actual seed size and assuming 85% germination. Growing degree-day accumulation from planting to harvest was near normal for Hillman and total precipitation was slightly above the ten-year average. Tissue samples were collected from two replications per variety at the R2-3 growth stage for water-soluble carbohydrate (WSC, sugar) analysis as a measure of palatability for deer. The trial was harvested October 16th using a Wintersteiger plot combine. Seed was cleaned, weighed and yield corrected for moisture content to a standard 13%. Protein and oil concentration were estimated using a FOSS Infratec™ NOVA NIR. Data were analyzed using ANOVA and Tukey's HSD test (alpha = 0.05) in the Agricolae package for R.

Soybean population averaged 201,193 plants per acre, which is somewhat denser than normal due to our assumed germ rate of 85%. Our actual germination rate in the field was near 100%. However, stand density did not differ significantly among varieties and was not correlated with yield. Late season weed pressure was high in spots, consisting of mostly lambsquarter. Varieties differed significantly in disease pressure, grain yield, protein, oil (all $P<0.001$) and WSC concentrations ($P=0.01$) (Table 1). The trial averaged 38.20 bu/a with the lowest yielding variety producing 20.72 bu/a and the best performer yielding 66.46 bu/a. Protein concentration averaged 39.35% (37.09-44.00%) and oil averaged 18.64% (15.86-20.20%). Average WSC concentration was low at only 7.88% with limited differences among varieties, likely due to later sampling & small sample size.

White mold pressure was especially high in 2025, with an average disease rating (0 Good-10 Bad) of 5.03 (1.25-8.00) across varieties. Disease susceptibility / rating was the greatest driver of the yield differences observed ($R^2 = 0.54$), even more so than variety ($R^2 = 0.31$) (Figure 1). This finding reinforces the recommendation that growers select soybean varieties with good white mold resistance across a range of adapted maturity groups and consider applying fungicides to control white mold. The trial was featured at a Soybean Field Day on September 11th, 2025 (Figure 2). Many thanks to Michigan Soybean Committee, our seed suppliers and Hardies Dairy Farm for hosting the 2025 variety trial!

TRIAL DETAILS

PURPOSE:

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

TRIAL LOCATION:

Hardies Dairy Farm in Hillman, MI on Annalake loamy fine sand.

EXPERIMENTAL DESIGN:

Randomized complete block design with four replications.

TRIAL MANAGEMENT:

- Conventional tillage
- Previous crop corn
- 220 lbs/a 3-11-39 fertilizer
- 10 seed brands, 40 varieties, RM 0.4-2.0
- Planted May 29, 2025 at 175,000 seeds per acre
- Plots 4' X 13' with 7 in. row spacing
- Borders and alleys planted to minimize edge effect
- 1 pt/a Outlook pre-emerge, 1 qt/a Basagran post herbicide
- Fenced with 3-D electric rope for deer

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Table 1. Soybean yield and quality at Hillman, MI by brand and relative maturity. (Varieties followed by the same letter are not significantly different at alpha = 0.05. For example, 'ad' indicates 'abcd'. Best performing varieties for each parameter are **bold.**)

Supplier	Variety	MG	Stand (plants/a)	Disease (0G-10B)		WSC (%)		Yield (bu/a)		Protein (%)		Oil (%)	
Becks	830000	0.8	201,465	7.00	ad	7.95	ab	38.49	bh	40.61	cd	18.37	fl
Becks	1250000	1.2	217,800	6.75	ae	7.22	ab	33.69	dh	39.20	dl	19.11	bh
Becks	1750000	1.7	212,355	5.25	ah	7.73	ab	37.10	bh	39.45	cj	17.89	im
Dairyland Seed	DSR-0481E	0.4	223,245	2.00	fh	8.79	ab	61.90	ab	37.64	km	**20.20**	a
Dairyland Seed	DSR-1099E	1.0	130,680	4.50	ah	7.02	ab	45.33	ah	38.46	fm	19.50	ad
Dairyland Seed	DSR-1383E	1.3	250,470	6.50	af	7.36	ab	35.26	dh	38.70	em	19.27	ag
Dairyland Seed	DSR-1601E	1.6	228,690	6.25	ag	7.18	ab	38.83	bh	40.29	ce	18.59	dj
DF Seeds	DF3085 NE3	0.8	179,685	5.25	ah	8.68	ab	36.65	ch	39.28	ck	18.91	ci
DF Seeds	DF3106 NE3	1.0	196,020	6.25	ag	7.70	ab	36.25	ch	40.30	ce	18.74	cj
DF Seeds	DF3116 NE3	1.1	245,025	4.50	ah	8.22	ab	47.91	af	37.67	jm	19.73	ac
DF Seeds	DF3125 NE3	1.2	179,685	5.75	ah	6.92	ab	34.37	dh	39.51	ci	18.26	gl
Golden Harvest	GH0414E3	0.4	179,685	4.00	ah	7.56	ab	38.13	bh	40.10	cf	18.51	dj
Golden Harvest	GH0675E3	0.6	255,915	**1.25**	h	**5.89**	b	**66.46**	a	39.68	ch	19.76	ac
Golden Harvest	GH1323XF	1.3	223,245	4.25	ah	7.01	ab	54.59	ad	39.84	ch	18.78	ci
Golden Harvest	GH1614E3	1.6	239,580	7.00	ad	7.58	ab	29.99	dh	39.63	ci	17.34	lm
Legend	17E654N	1.7	250,470	4.25	ah	7.15	ab	35.28	dh	39.43	cj	19.38	af
Legend	17E650N	1.7	250,470	5.50	ah	7.45	ab	33.76	dh	37.09	m	19.49	ae
MI State Univ.	E15338	1.5	185,130	4.75	ah	9.50	ab	40.46	bh	38.70	em	18.80	ci
MI State Univ.	E19314T	1.6	212,355	6.25	ag	7.70	ab	20.72	h	42.56	ab	17.46	km
MI State Univ.	E21409-2GT	1.7	228,690	3.50	ah	6.80	ab	25.52	fh	38.97	dl	18.31	gl
MI State Univ.	E21100	1.8	212,355	7.50	ac	8.65	ab	24.16	fh	38.50	fm	18.82	ci
Northern Star Seed	NS 11A18	1.1	119,790	3.75	ah	9.98	ab	39.09	bh	39.67	ch	18.88	ci
Northern Star Seed	NS 17A21	1.7	179,685	2.75	dh	8.07	ab	35.69	dh	**44.00**	a	15.86	n
Northern Star Seed	NS 18A04	1.8	174,240	7.75	ab	10.10	a	21.55	h	39.59	ci	18.46	ek
Northern Star Seed	NS 1887Na	1.8	147,015	4.75	ah	7.36	ab	26.75	fh	40.30	ce	17.18	m
Northern Star Seed	NS 19A25	1.9	185,130	7.25	ad	9.76	ab	22.55	gh	39.95	cg	18.57	dj
Northern Star Seed	NS 20A12	2.0	206,910	5.25	ah	8.62	ab	30.72	dh	38.18	gm	18.88	ci
Pioneer	09Z79E	0.9	179,685	3.00	ch	8.51	ab	51.92	ae	38.73	em	19.38	af
Pioneer	11Z72E	1.1	185,130	2.25	dh	8.58	ab	53.47	ad	37.46	lm	20.01	ab
Pioneer	13Z28E	1.3	196,020	5.50	ah	8.54	ab	48.56	af	39.24	dl	19.07	bh
Pioneer	14Z08E	1.4	239,580	8.00	a	7.12	ab	34.44	dh	38.45	fm	18.87	ci
Pioneer	16Z92E	1.6	217,800	6.50	af	8.39	ab	34.11	dh	38.94	dl	18.60	dj
Pioneer	16Z25E	1.6	223,245	6.00	ag	6.64	ab	40.55	bh	37.85	im	18.62	dj
Pioneer	18Z0IE	1.8	185,130	7.00	ad	7.92	ab	25.57	fh	38.10	hm	18.46	fk
Thunder Seed	Tx8305N	0.5	157,905	3.25	bh	8.44	ab	46.77	ag	39.29	ck	19.02	bh
Thunder Seed	TE7510N	1.0	174,240	3.75	ah	6.79	ab	41.54	ah	38.54	em	18.81	ci
Thunder Seed	Tx8313N	1.3	206,910	1.75	gh	6.63	ab	60.75	ac	39.00	dl	18.69	dj
Thunder Seed	Tx8618N	1.8	255,915	5.75	ah	6.31	ab	35.82	ch	39.40	ck	18.09	hm
ZFS	1721	1.7	168,795	3.50	ah	7.26	ab	36.15	ch	40.72	cd	17.40	lm
ZFS	2023	2.0	141,570	5.00	ah	10.20	a	27.11	eh	41.03	bc	17.71	jm
Average			**201,193**	**5.03**		**7.88**		**38.20**		**39.35**		**18.64**	
P-Value			**n.s.**	**<0.001**		**0.01**		**<0.001**		**<0.001**		**<0.001**	

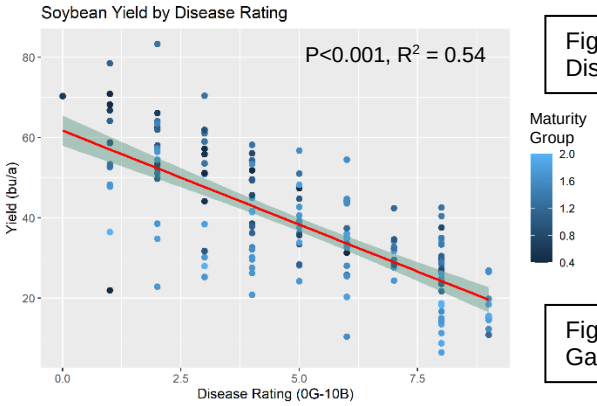

Fig 1 (L). Soybean Yield by Disease Rating (white mold)

Fig 2 (R). Soybean Growers Gather at the 2025 Field Day

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