2025 Conventional Soybean Variety Trial

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Northwest Crops and Soils Program

2025 CONVENTIONAL SOYBEAN VARIETY TRIAL
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In 2025, the University of Vermont Extension Northwest Crops and Soils (NWCS) Team evaluated yield and quality of soybean varieties at Borderview Research Farm in Alburgh, VT. Soybeans can be grown for human consumption, animal feed, and biodiesel production. As farmers look to reduce feed costs or diversify markets, soybean acreage across Vermont is increasing. Local research is needed to identify varieties that are best adapted to this region. To support and expand soybean production throughout the northeast, the NWCS Program, as part of a grant from the Eastern Region Soybean Board, established a trial in 2025 to evaluate yield and quality of soybean varieties appropriate for the region.

MATERIALS AND METHODS

Six seed companies submitted varieties for evaluation (Table 1). Thirty-six soybean varieties were evaluated from maturity groups 0, 1, and 2. Details for the varieties including company, genetic traits, and maturity group are listed in Table 2.

Table 1. Participating companies and contact information.

Brevant	Dekalb	Nutrien Ag Solutions	Pioneer Hi-Bred International	Seedway, LLC	Stine Seed Company
Claude Fortin St. Albans, VT 05478 802-363-2803	Nathan Holt Bayer Crop Science Canandaigua, NY	Matt Garber Loveland, CO 80538 (937) 459-2529	Tyler Stevenson Fort Plain, NY 13339 (484) 332-9130	John Bourdeau Shoreham, VT 05732 (802) 582-9261	Hart Hauge VT Region 28 Sales Agronomist (701) 318-5082

The soil type at the Alburgh, VT location was Covington silty clay loam with 0-3% slopes (Table 3). The seedbed was prepared using a Pottinger Terra Disc prior to seeding. Soybeans were planted at a seeding rate of 185,000 seeds ac^{-1} on 28-May with a 4-row cone planter with John Deere row units fitted with Almaco seed distribution units (Nevada, IA). The plots were 20 feet long and consisted of two rows spaced at 30 inches. The plot design was a randomized complete block with four replications, and the treatments were 36 varieties that ranged in maturity group from 0.8 to 2.7. On the 10 and 16 of October, the soybeans were harvested using an Almaco SPC50 small plot combine, and the seed was cleaned with a small Clipper M2B cleaner (A.T. Ferrell, Bluffton, IN). They were then weighed to determine yield and tested for harvest moisture and test weight using a DICKEY-John Mini-GAC Plus.

Table 2. Soybean varieties evaluated in Alburgh, VT, 2025.

Company	Variety	Traits[†]	Maturity
Dekalb	A08E35	ENLIST E3	0.8
Nutrien Ag Solutions	S09XF55	XtendFlex	0.9
Seedway, LLC	SX 1005E3	ENLIST E3	1.0
Stine Seed Co.	10EE62	ENLIST E3	1.0
Pioneer Hi-Bred Intl.	P11Z72E	ENLIST E3	1.1

Seedway, LLC	SG 1143XTF	XtendFlex	1.1
Dekalb	AG12XF4	XtendFlex	1.2
Dekalb	A12E33	ENLIST E3	1.2
Brevant	B135EE	ENLIST E3	1.3
Brevant	B134EE	ENLIST E3	1.3
Nutrien Ag Solutions	S13EN56	ENLIST E3	1.3
Seedway, LLC	SG 1320E3	ENLIST E3	1.3
Brevant	B144EE	ENLIST E3	1.4
Dekalb	AG14XF4	XtendFlex	1.4
Seedway, LLC	SG 1432XTF	XtendFlex	1.4
Seedway, LLC	SG 1525E3	ENLIST E3	1.5
Dekalb	AG16XF5	XtendFlex	1.6
Nutrien Ag Solutions	S16EN42	ENLIST E3	1.6
Pioneer Hi-Bred Intl.	P16Z42E	ENLIST E3	1.6
Brevant	B173EE	ENLIST E3	1.7
Seedway, LLC	SG 1723E3	ENLIST E3	1.7
Dekalb	A18E35	ENLIST E3	1.8
Nutrien Ag Solutions	S18EN35	ENLIST E3	1.8
Dekalb	A19E36	ENLIST E3	1.9
Dekalb	AG19XF3	XtendFlex	1.9
Seedway, LLC	SX 1994XTF	XtendFlex	1.9
Seedway, LLC	SX 1905E3	ENLIST E3	1.9
Dekalb	AG20XF4	XtendFlex	2.0
Nutrien Ag Solutions	S20EN46	ENLIST E3	2.0
Dekalb	A21E34	ENLIST E3	2.1
Dekalb	AG22XF5	XtendFlex	2.2
Pioneer Hi-Bred Intl.	P22A36PR	Plenish, R	2.2
Dekalb	A23E36	ENLIST E3	2.3
Dekalb	AG24XF4	XtendFlex	2.4
Dekalb	AG26XF4	XtendFlex	2.6
Dekalb	AG27XF3	XtendFlex	2.7

† ENLIST E3- These soybeans are resistant to 2, 4-D, glyphosate, and glufosinate herbicides.
R-Glyphosate tolerant
Plenish- enhanced oil profile and are produced and channeled under contract to specific grain markets.
XtendFlex- These soybeans are resistant to dicamba, glyphosate, and glufosinate herbicides.

Table 3. Soybean trial specifics for Alburgh, VT, 2025.

	Borderview Research Farm, Alburgh, VT
Soil type	Covington silty clay loam, 0 to 3% slopes
Previous crop	Dry beans
Tillage operations	Pottinger TerraDisc™
Plot size (feet)	5 x 20
Row spacing (inches)	30
Planting date	28-May
Harvest date	10- & 16-Oct

Data was analyzed using the general linear model procedure in SAS (SAS Institute, 1999). Replications were treated as random effects, and treatments were treated as fixed. Mean comparisons were made using the Least Significant Difference (LSD) procedure where the F-test was considered significant, at p<0.10.

Variations in yield and quality can occur because of variations in genetics, soil, weather, and other growing conditions. Statistical analysis makes it possible to determine whether a difference among hybrids is real or whether it might have occurred due to other variations in the field. At the bottom of each table an LSD value is presented for each variable (i.e. yield). Least Significant Differences (LSDs) at the 0.10 level of significance are shown. Where the difference between two hybrids within a column is equal to or greater than the LSD value at the bottom of the column, you can be sure that for 9 out of 10 times, there is a real difference between the two hybrids. In this example, hybrid C is significantly different from hybrid A but not from hybrid B. The difference between C and B is equal to 1.5, which is less than the LSD value of 2.0. This means that these hybrids did not differ in yield. The difference between C and A is equal to 3.0, which is greater than the LSD value of 2.0. This means that the yields of these hybrids were significantly different from one another.

Hybrid	Yield
A	6.0
B	7.5*
C	**9.0***
LSD	2.0

RESULTS

Weather data were recorded with a Davis Instruments Vantage Pro2 weather station, equipped with a WeatherLink data logger at Borderview Research Farm in Alburgh, VT (Table 4). Monthly average temperatures were near normal for most of the growing season, and there was a total of 2,717 Growing Degree Days (GDDs). In the spring at the time of planting, soil conditions were quite wet following a couple of large rain events in May. However, there was a lack of precipitation for most of the season, with below average monthly rainfall from June to September. By September, Alburgh was experiencing moderate drought (D1) according to the U.S. Drought Monitor (droughtmonitor.unl.edu). Despite increasing precipitation in October, Alburgh is still under moderate drought, although other parts of the state remain in severe (D2) to extreme (D3) drought.

Table 4. Weather data for Alburgh, VT, 2025.

	2025					
Alburgh, VT	May	Jun	Jul	Aug	Sep	Oct
Average temperature (°F)	57.5	67.8	73.2	69.0	62.9	52.4
Departure from normal	-0.93	0.35	0.82	-1.67	0.18	2.09
Precipitation (inches)	5.78	2.38	3.76	1.50	2.5	5.67
Departure from normal	2.02	-1.88	-0.30	-2.04	-1.17	1.84
Growing Degree Days (50-86°F)	280	545	706	583	410	193
Departure from normal	-21	21	12	-59	23	55

Based on weather data from a Davis Instruments Vantage Pro2 with WeatherLink data logger.
Historical averages are for 30 years of NOAA data (1991-2020) from Burlington, VT.

Harvest characteristics of soybean varieties are shown in Table 5. The average seed moisture at harvest was 13.8%. The variety S13EN56 had the lowest harvest moisture, 13.0%, and there were twenty-eight varieties with harvest moistures that were statistically similar. The average seed yield adjusted to 13% moisture was 3,329 lbs or 55.5 bu ac^{-1} this season. This highest yielding variety was AG26XF4, with a yield of 4,023 lbs or 67.0 bu ac^{-1}. Nineteen varieties performed statistically similar to the top yielding variety. The top yielding varieties ranged in maturity from 0.9 to 2.7. The trial average test weight was 54.6 lbs bu^{-1}, and the variety SX 1905E3 had the highest test weight, 58.4 lbs bu^{-1}. The industry standard test weight for soybeans in 60 lbs bu^{-1}. Eleven varieties had a test weight that was statistically similar to SX 1905E3.

Table 5. Harvest characteristics of soybean varieties – Alburgh, VT, 2025.

Company	Variety	Maturity group	Harvest moisture	Yield at 13% moisture		Test weight
			%	lbs ac^{-1}	bu ac^{-1}	lbs bu^{-1}
Dekalb	A08E35	0.8	13.8*	2335	38.9	54.3
Nutrien Ag Solutions	S09XF55	0.9	13.2*	3439*	57.3*	54.4
Seedway, LLC	SX 1005E3	1.0	13.8*	2861	47.7	53.9
Stine Seed Co.	10EE62	1.0	15.3	2406	40.1	46.9
Pioneer Hi-Bred Intl.	P11Z72E	1.1	14.3	2430	40.5	52.4
Seedway, LLC	SG 1143XTF	1.1	14.0*	2889	48.1	53.0
Dekalb	AG12XF4	1.2	13.1*	3164	52.7	54.3
Dekalb	A12E33	1.2	14.0*	3036	50.6	53.7
Brevant	B135EE	1.3	13.2*	3207	53.4	53.4
Brevant	B134EE	1.3	14.1	2966	49.4	52.8
Nutrien Ag Solutions	S13EN56	1.3	**13.0†**	3777*	63.0*	54.4
Seedway, LLC	SG 1320E3	1.3	13.8*	3534*	58.9*	51.8
Brevant	B144EE	1.4	13.8*	3168	52.8	52.7
Dekalb	AG14XF4	1.4	13.7*	3193	53.2	52.6
Seedway, LLC	SG 1432XTF	1.4	14.0*	3496*	58.3*	52.3
Seedway, LLC	SG 1525E3	1.5	13.7*	3594*	59.9*	53.3
Dekalb	AG16XF5	1.6	13.3*	3489*	58.1*	55.0
Nutrien Ag Solutions	S16EN42	1.6	13.9*	3460*	57.7*	54.1
Pioneer Hi-Bred Intl.	P16Z42E	1.6	13.7*	3251	54.2	52.9
Brevant	B173EE	1.7	13.5*	4010*	66.8*	54.6
Seedway, LLC	SG 1723E3	1.7	13.6*	3382*	56.4*	53.9
Dekalb	A18E35	1.8	13.7*	3456*	57.6*	56.2*
Nutrien Ag Solutions	S18EN35	1.8	13.6*	3750*	62.5*	57.0*
Dekalb	A19E36	1.9	13.7*	3428*	57.1*	56.6*
Dekalb	AG19XF3	1.9	13.4*	3978*	66.3*	57.7*
Seedway, LLC	SX 1994XTF	1.9	13.7*	3335	55.6	58.1*
Seedway, LLC	SX 1905E3	1.9	13.9*	2926	48.8	**58.4**
Dekalb	AG20XF4	2.0	13.7*	3121	52.0	57.5*

Nutrien Ag Solutions	S20EN46	2.0	14.0*	3431*	57.2*	56.4*
Dekalb	A21E34	2.1	14.2	3520*	58.7*	55.7
Dekalb	AG22XF5	2.2	13.8*	3603*	60.0*	57.8*
Pioneer Hi-Bred Intl.	P22A36PR	2.2	14.3	3460*	57.7*	55.0
Dekalb	A23E36	2.3	14.3	3763*	62.7*	56.5*
Dekalb	AG24XF4	2.4	13.4*	3079	51.3	57.3*
Dekalb	AG26XF4	2.6	13.6*	**4023**	**67.0**	57.3*
Dekalb	AG27XF3	2.7	16.8	3869*	64.5*	53.5
LSD (*p* = 0.10)‡			0.98	660	11.0	2.35
Trial mean			13.8	3329	55.5	54.6

† Values in **bold** indicate the top performer for the production metric and varieties with an asterisk * performed statistically similarly to the top performer.
‡LSD –Least significant difference at p=0.10.

DISCUSSION

In 2025, the UVM NWCS Program conducted a research trial at Borderview Research Farm in Alburgh, VT to evaluate the performance of 36 soybean varieties in maturity groups 0, 1, and 2. Heavy rainfall in May resulted in sub-optimal field conditions at planting. While temperatures remained normal, decreased precipitation from June through September led to moderate drought conditions. Soybean yields were lower this season likely due to drought, compared to previous years at this location. Soybean yields were similar to those observed in 2021, which was another year with droughty conditions. Environmental stress during the reproductive stages of development can result in reduced soybean yields. Plants are particularly susceptible, especially during pod formation and seed fill. Depending on the variety, pod formation occurs around late-July through mid-August and seed fill from around early-August to mid-September. Figure 1 below summarizes soybean yields by variety and data are organized in order of relative maturity. Nineteen out of the twenty top yielding varieties were in maturity groups 1.3 to 2.7. With the exception of S09XF55, short season varieties falling in maturity group 0 were some of the lowest yielding varieties. It is important to remember that these data only represent one year at one location and therefore should not solely be used to make management decisions.
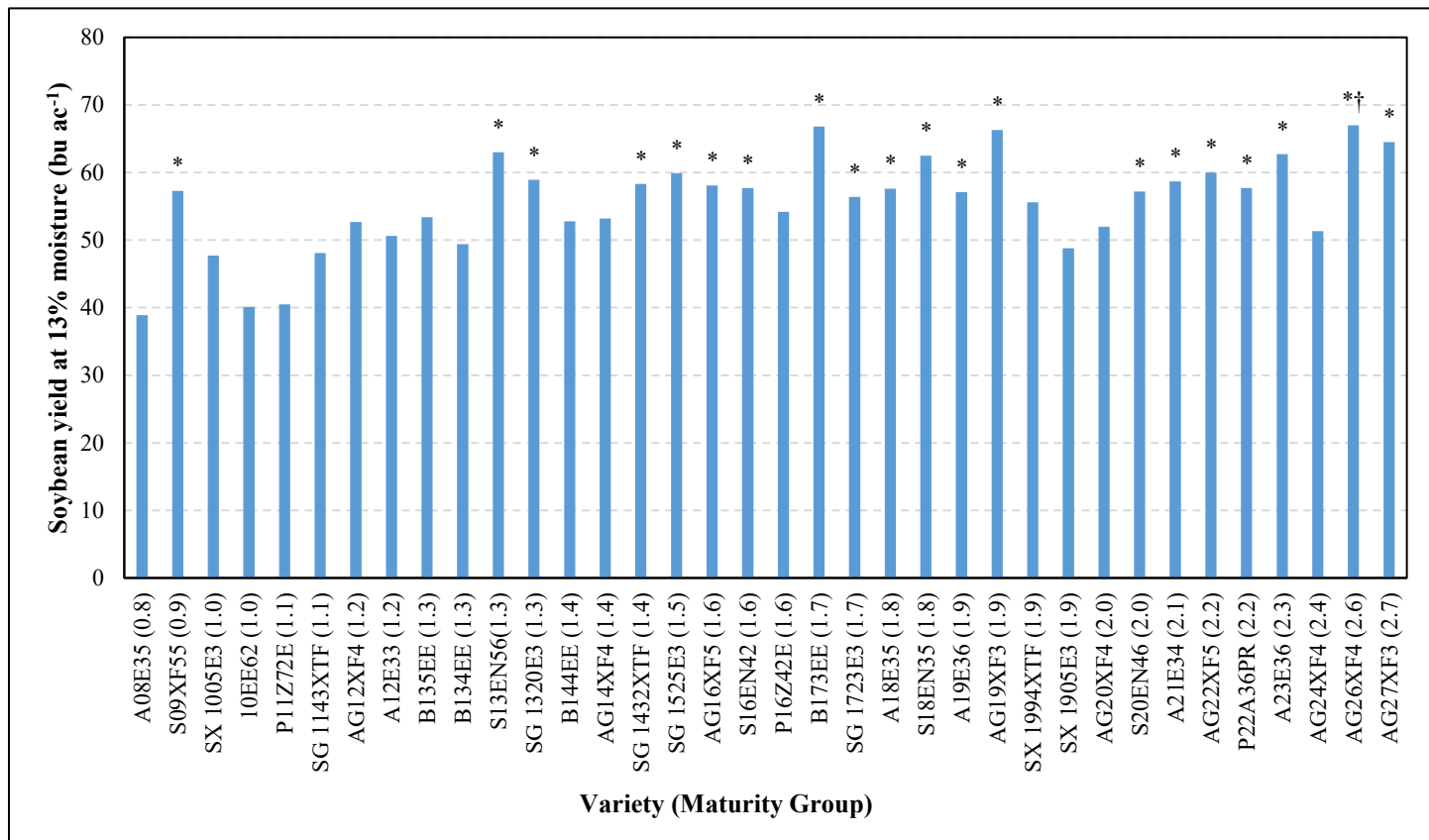
Figure 1. Soybean yields by variety, Alburgh, VT, 2025.
Relative maturity for each variety is shown in parentheses next to the variety name. Varieties marked with an asterisk (*****) performed statistically similar to the top performer (**†**).

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UVM Extension helps individuals and communities put research-based knowledge to work.

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