2021 Conventional Soybean Variety Trial

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THE UNIVERSITY OF VERMONT EXTENSION

2021 CONVENTIONAL SOYBEAN VARIETY TRIAL
Dr.

Table 3. Soybean trial specifics for Alburgh, VT, 2021.

	Borderview Research Farm Alburgh, VT
Soil type	Covington silty clay loam
Previous crop	Grain corn
Tillage operations	Pottinger Terra Disc
Plot size (feet)	5 x 20
Row spacing (inches)	30
Starter fertilizer (lbs ac^{-1})	5 gal ac^{-1} (9-18-9)
Weed control	Roundup Power Max 1 qt ac^{-1}
	14-Jun
Planting date	25-May
Harvest date	26-Oct

Yield and stand characteristic data were analyzed using the mixed model procedure of SAS (SAS Institute, 1999). Replications within trials were treated as random effects, and hybrids were treated as fixed. Hybrid mean comparisons for harvest characteristics and disease data were made using the Least Significant Difference (LSD) procedure when the F-test was considered significant ($p<0.10$). Hybrid mean pairwise comparisons for yield were made using the Tukey-Kramer adjustment. Treatments were considered different at the 0.10 level of significance.

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 a 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 was recorded with a Davis Instrument Vantage Pro2 weather station, equipped with a WeatherLink data logger at Borderview Research Farm in Alburgh, VT (Table 4). The season began with cooler than normal temperatures. However, temperatures were above normal for much of the summer except for July which was over 4 degrees cooler than normal. These temperatures contributed to above normal Growing Degree Day (GDD) accumulations of 2830 May through October, 143 above the 30-year normal. Rainfall was below normal for much of the season with the region being designated as D0, abnormally dry or D1, moderate drought (Drought.gov) throughout the season. Much of the rain that fell throughout the season came in short duration storms.

Table 4. Weather data for Alburgh, VT, 2021.

Alburgh, VT	May	Jun	Jul	Aug	Sep	Oct
Average temperature (°F)	58.4	70.3	68.1	74.0	62.8	54.4
Departure from normal	-0.03	2.81	-4.31	3.25	0.14	4.07
Precipitation (inches)	0.66	3.06				

Table 5. Harvest characteristics of soybean varieties – Alburgh, VT, 2021.

Company	Variety	Relative maturity	Harvest moisture	Test weight	Yield @ 13% moisture	
			%	lbs bu^{-1}	lbs ac^{-1}	bu ac^{-1}
Seedway, LLC	SG 0720	0.7				

DISCUSSION

Overall, soybean varieties performed well averaging over 62 bu ac^{-1} despite very droughty conditions through much of the season. Under these conditions, all soybean varieties, ranging in relative maturity from 0.7 to 2.8, reached maturity and a harvestable moisture, but all required additional drying in order to be stored safely. Although little pest and disease pressure was observed, some differences were still observed and highlight the importance of local variety evaluation in soybean variety selection. Overall, these data suggest that soybeans in maturity groups 0, 1, and 2 can produce high yields under conventional management in Vermont's northern climate. 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.

ACKNOWLEDGEMENTS

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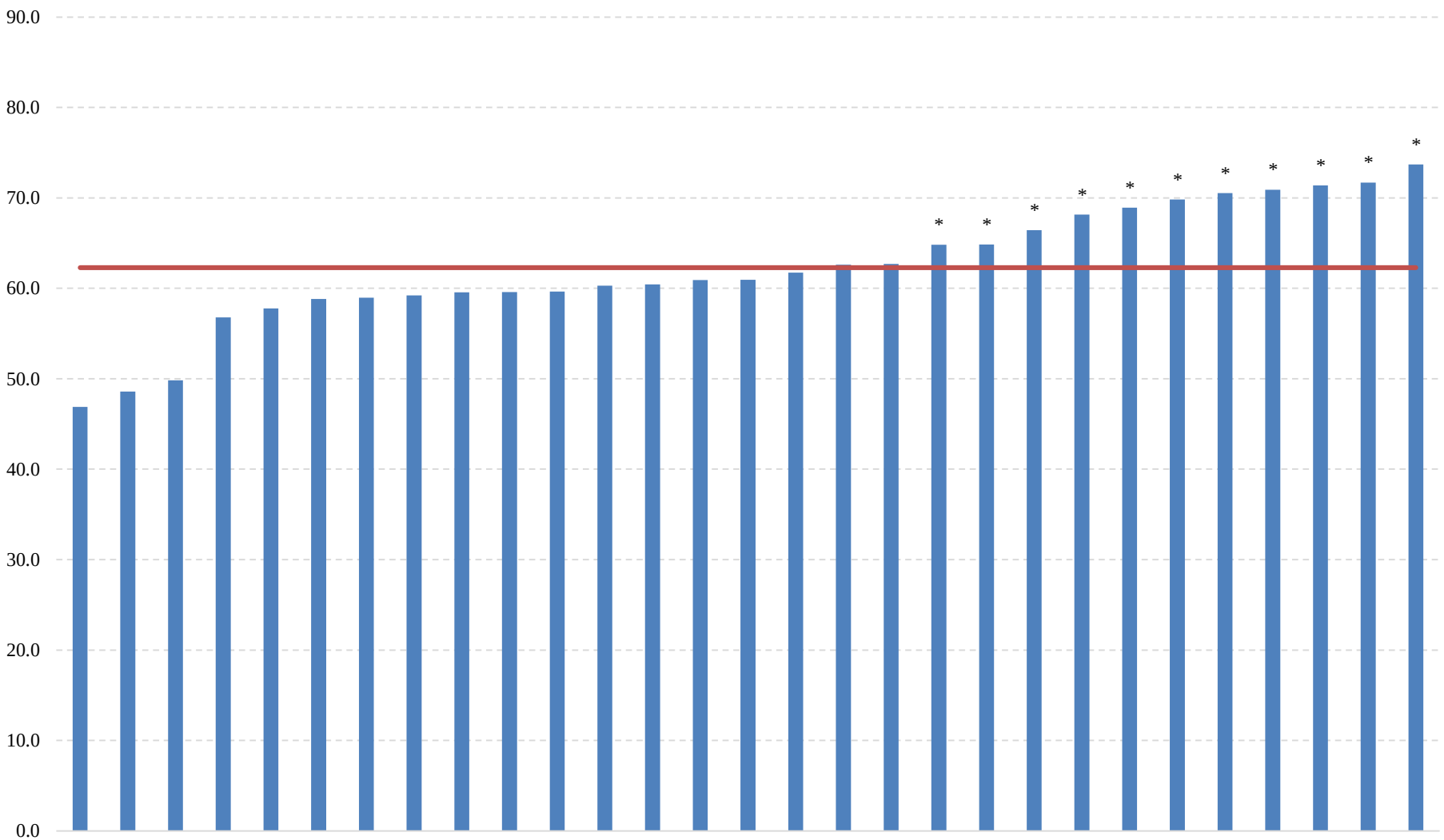

Figure 1. Seed yield at 13% moisture for 19 soybean varieties. The red line indicates the average yield.
**Varieties that are marked with an asterisk performed statistically similarly to the top performer.*