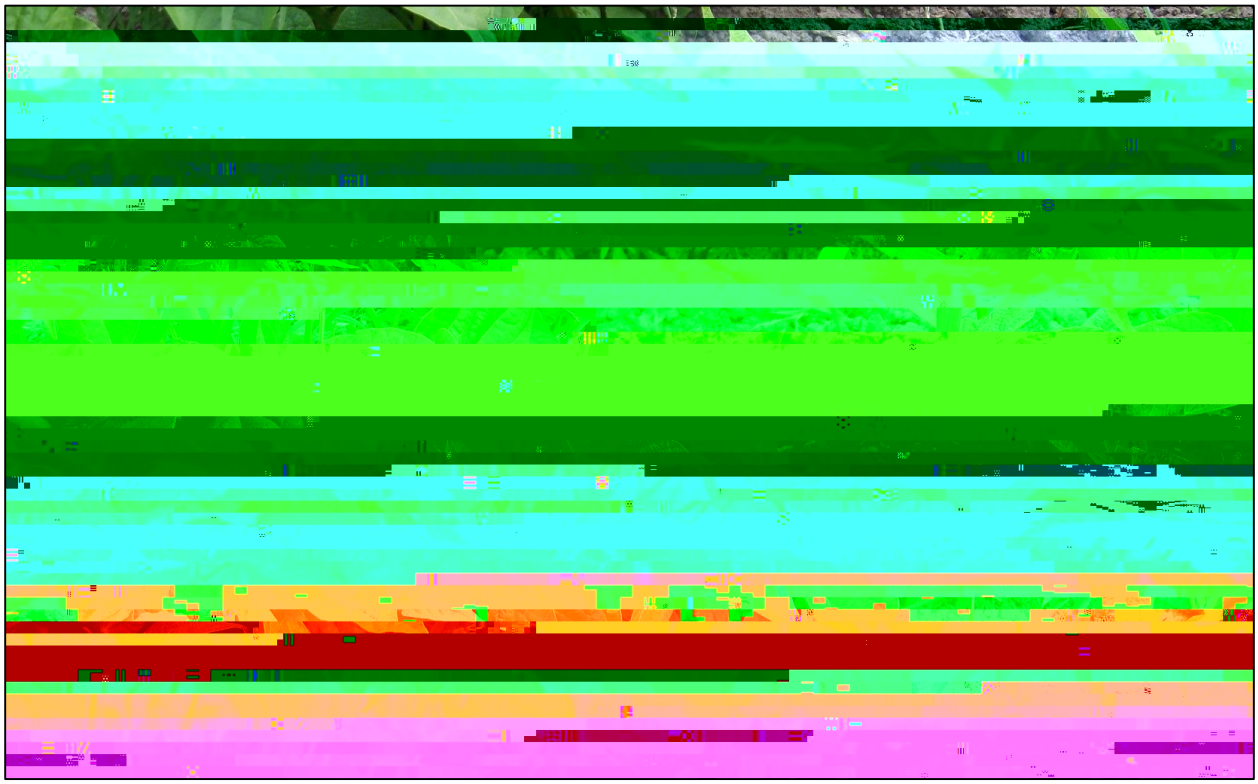
2022 Organic Dry Bean Variety Trial



Dr. Heather Darby, UVM Extension Agronomist
Ivy Krezinski
UVM Extension Crops and Soils Technician
802-524-6501

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2022 ORGANIC DRY BEAN VARIETY TRIAL

Dr. Heather Darby, University of Vermont Extension
heather.darby[at]uvm.edu

Dry beans (*Phaseolus vulgaris*), a high-protein pulse crop, have been grown in the Northeast since the 1800's. As the local food movement continues to diversify and expand, consumers are asking stores to carry more locally-produced foods, and dry beans are no exception. Currently, the demand for

Tiger's Eye	GenTec Seeds LTD	Specialty	IIb
UC Andino	University of California, Davis	Specialty	IIa
UC Southwest Gold	University of California, Davis	Specialty	IIa
UC Tiger's Eye	University of California, Davis	Specialty	IIb
UCD 1004	University of California, Davis	Specialty	IIa
UCD 1005	University of California, Davis	Specialty	I
UCD Holstein	University of California, Davis	Specialty	IIa
UCD Jacob's Cattle	University of California, Davis		

calculate yields and a DICKEY-John MINI GAC meter used to determine bean moisture content. Seed yield was adjusted to 14% moisture.

Data were analyzed using the mixed model procedure in SAS (SAS Institute, 1999) with the Tukey-Kramer adjustment, which means that each main effect was analyzed with a pairwise comparison. Replications were treated as a random effect and varieties were treated as fixed. 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 treatments is real or whether it might have occurred due to other variations in the field.

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). The 2022 growing season was cooler than normal with above average rainfall. There was a total of 20.5 inches of precipitation from June to September, 5 inches above average. The cooler temperatures resulted in a total of 2106 accumulated Growing Degree Days (GDDs), 139 less than normal. The wet field conditions were challenging for timely weed management and mechanical cultivation, resulting in increased weed pressure especially later in the season.

Table 4. Weather data for Alburgh, VT, 2022.

	2022			
Alburgh, VT	June	July	Aug	Sep
Average temperature (°F)	65.3	71.9	70.5	60.7
Departure from normal	-2.18	-0.54	-0.20	-1.99
Precipitation (inches)	8.19	3.00	4.94	4.40
Departure from normal	3.93	-1.06	1.40	0.73
Growing Degree Days (50-86°F)	459	674	630	343
Departure from normal	-64	-20	-11	-44

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.

Adjusted seeding rate, plant emergence, and final harvest population for each variety are shown in Table 5. Because of differences in seeding rate by seed size, percent germination was calculated. Statistical analysis was only done on percent emergence. The average emergence population for 0 0 1 11103T 0 1 72.024 1F1 11.04 Tf1 0 0

they reached maturity. Dry bean yield at 14% moisture ranged from 569 lbs ac^{-1} (Calypso) to 3451 lbs ac^{-1} (Blizzard). The top performer was not statistically different from nineteen dry bean varieties. Blizzard had the lowest harvest moisture (17.9%), but was not statistically different from twenty-three other varieties. The trial average was 27.9% and all dry beans required additional drying to reach a safe storage moisture, approximately 12-16%. The trial average score for lodging at harvest was 2.28, and UCD Holstein and Zenith had the lowest lodging score (1.00). This was not statistically different from all but four varieties. There was an average pod height of 3.30 cm. Zenith had the greatest pod height (7.80cm)

UC Southwest Gold	0.20	0.00	0.05*	0.20	0.15*
UC Tigers Eye	0.30	0.00	0.00	0.05	0.05
UCD 1004	0.35	0.00	0.07*	0.27	0.05
UCD 1005	0.42	0.00	0.01*	0.07	0.02
UCD Holstein	0.15	0.05			

Figure 1. Dry bean seed yield and maturity by variety, Alburgh, VT, 2022.
An asterisk (*) indicates that variety was not statistically different from the top yielding variety (p=0.10).

ACKNOWLEDGEMENTS

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