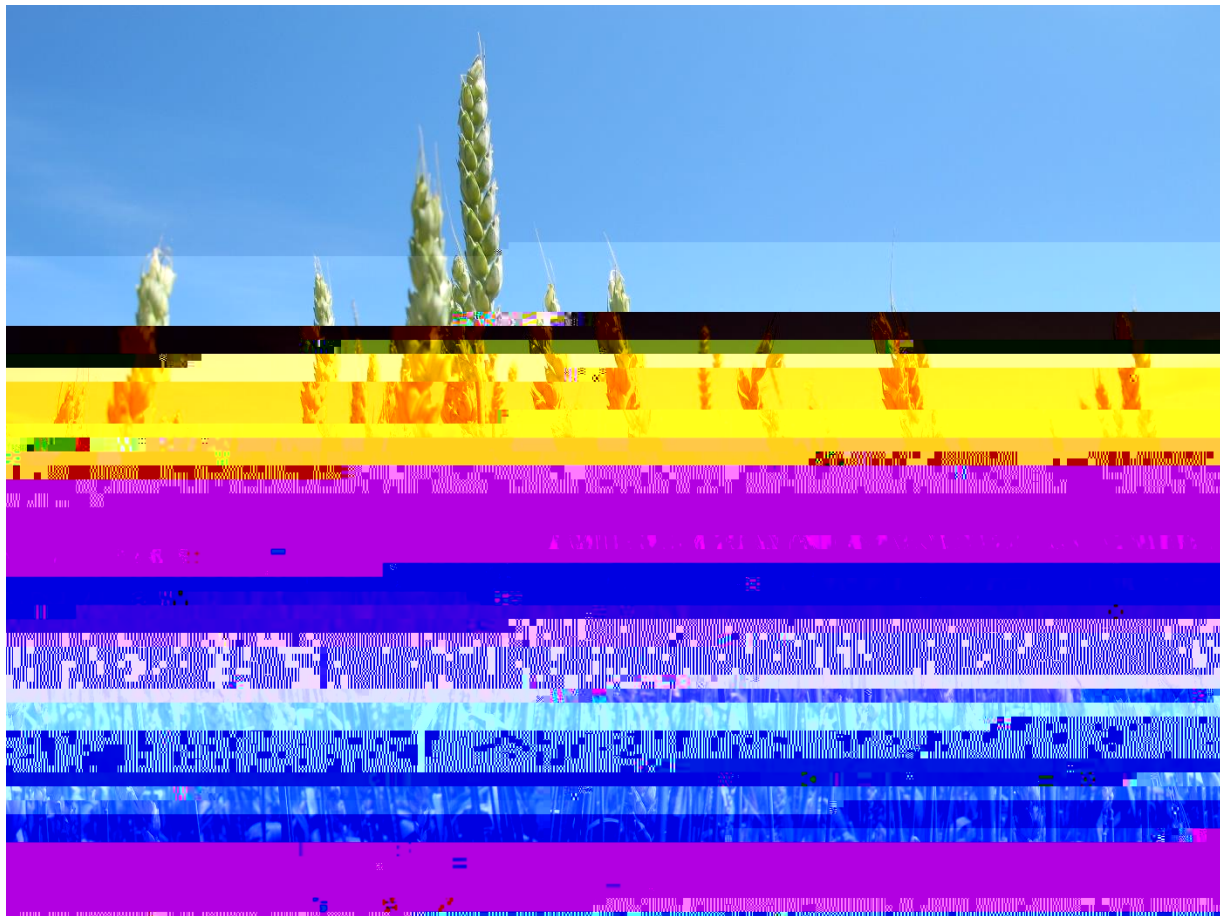




2022 Spring Wheat Crosses Trial



Dr. Heather Darby, UVM Extension Agronomist
Sophia Wilcox Warren
UVM Extension Crops and Soils Technicians
802-524-6501

Visit us on the web: <http://www.uvm.edu/extension/nwcrops>

2022 SPRING WHEAT CROSSES TRIAL
Dr. Heather Darby, University of Vermont Extension
Heather.Darby@uvm.edu

The goal of this project is to develop spring wheat varieties that are suited for organic management in Northeast soils and climatic conditions. Most commercially available varieties are developed in regions with climates, soils and management techniques that are very different from northern New England. These modern varieties are also genetically homogenous and inbred for uniformity, sometimes resulting in rapid breakdown of genetic resistance to local diseases.

Ten crosses were developed by Dr. Stephen Jones of Washington State University, including crosses of two varieties bred by famed Vermont botanist and wheat breeder, Cyrus Pringle. These crosses were grown on 4 farms in the Northeast and further selection was done by farmers. These selections are being continued by University collaborators to further refine and evaluate these spring wheat crosses.

MATERIALS AND METHODS

The top performing spring wheat crosses have been grown out at four locations across New England and New York state. Seed was collected and trialed

Table 2. General plot management, 2022.

Trial information	Alburgh, VT Borderview Research Farm
Soil type	Benson rocky silt loam
Previous crop	Corn
Seeding Rate (lbs ac⁻¹)	125
Row spacing (in)	6
Replicates	4
Planting date	18-Apr

RESULTS AND DISCUSSION

Seasonal precipitation and temperature recorded at a weather station at Borderview Research Farm are shown in Table 3. April, June, and July were all colder than normal. April and June had higher precipitation than the 30-year average, while May and July had less than average precipitation. Overall, May was hotter and drier than the 30-year average. From April through July, there was an accumulation of 3510 Growing Degree Days (GDDs), 36 GDDs below the 30-year average.

Table 3. Temperature and precipitation summary for Alburgh, VT, 2022.

Alburgh, VT	April	May	June	July
Average temperature (°F)	44.8	60.5	65.3	71.9
Departure from normal	-0.81	2.09	-2.18	-0.54
Precipitation (inches)	5.57	3.36	8.19	3.00
Departure from normal	2.50	-0.40	3.93	-1.06
Growing Degree Days (32-95°F)	391	883	1000	1236
Departure from normal	-20	65	-64	-17

Based on weather data from a Davis Instruments Vantage Pro2 with WeatherLink data logger.

Historical averages are for 30 years of data provided by the NOAA (1981-2010) for Burlington, VT.

Essex Kelse/AC Walton was the tallest variety at 106 cm, with 98.7 cm as the trial mean for heights. However, there were no significant differences between the varieties for heights. Butterworks Kelse/AC Walton and Essex Kelse/AC Walton had the lowest occurrence of lodging at 1.25%, with a trial mean of 3.00% lodging. No significant differences were detected between the varieties for lodging.

Moisture content below 14% is desirable for long term storage. No varieties were at or below 14% moisture content. Essex Kelse/Helios had the lowest harvest moisture at 17.7% and was statistically similar to Adirondack Kelse/AC Walton, Adirondack Kelse/Helios, Glenn, and Tom. All varieties had to be dried down for long term storage (Table 4).

Test weight is the measure of grain density and is determined by weighing a known volume of grain. Generally, the heavier the wheat is per bushel, the higher baking quality. None of the crosses met the desired standard of 60 lbs bu⁻¹. The cross with the highest test weight was Adirondack Kelse/Helios (56.8 lbs bu⁻¹) and was statistically similar to Adirondack Kelse/AC Walton, Essex Kelse/Helios, and Glenn.

The average yield for the trial was 2564 lbs ac⁻¹. Adirondack Kelse/AC Walton was the highest yielding variety at 2812 lbs ac⁻¹, however, was not statistically different than the other varieties.

Table 4. Harvest data of Spring Wheat Crosses, Alburgh, VT, 2022.

Variety	Height	Lodging	Harvest moisture	Test weight	Yield @ 13.5% moisture
	cm	%	%	lbs bu ⁻¹	lbs ac ⁻¹
Adirondack Kelse/AC Walton	98.7	2.50	18.2*†	54.0*	2812
Adirondack Kelse/Helios	92.3	3.75	19.3*	56.8*	2686

Butterworks Kelse/AC Walton	96.8	1.25	23.2	48.8	2296
Essex Kelse/AC Walton	105.5	1.25	21.9	51.9	

