2010
Vermont Organic Grain Corn Performance Trial Results

Dr. Heather Darby
Erica Cummings, Rosalie Madden, Amanda Gervais, Philip Halteman
www.uvm.edu/exteTJE m.edu/exteTJand

2010 VERMONT ORGANIC GRAIN CORN PERFORMANCE TRIALS

In 2010, the University of Vermont Extension conducted an organic grain corn performance trial in Alburgh, Vermont, in cooperation with Borderview Research Farm and Organic Valley Farmers Advocating for Organics Program (FAFO). The purpose of the program is to provide unbiased performance comparisons of commercially available organic corn varieties. It is important to remember, however, that the data presented is from one replicated research trial in Vermont. Crop performance data from additional tests in different locations and often over several years should be compared before you make conclusions.

TESTING PROCEDURE

In 2010, an organic grain corn performance trial was conducted at Borderview Research Farm in Alburgh, VT. The field was certified organic by Vermont Organic Farmers, LLC. Several seed companies submitted varieties for evaluation. Companies and contact names are listed in Table 1. The organic corn grown in this trial was considered late maturing corn (90-108 RM) based on the Relative Maturities **provided by the companies**. The specific varieties and relative maturities are listed in Table 2.

Table 1. Participating Companies and Local Contact Information

Albert Lea Seed	American Organic	Blue River Organics
1414 West Main Street PO Box 127, Albert Lea, MN 56007 800-352-5247	PO Box 385 Warren, IL 61087 866-471-9465	

Seasonal precipitation and temperature was recorded at weather stations close in proximity to Alburgh (Table 3). This season started off with above average temperatures in April and May. The summer months presented ideal growing conditions for corn. Total accumulated Growing Degree Days (GDD) for corn growth in Alburgh was 2880 which was 449 GDD above the 30 year average.

Table 3. Temperature, precipitation, and growing degree days summary Alburgh, VT.

	April	May	June	July	August	September	October

LEAST SIGNIFICANT DIFFERENCE (LSD)

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 varieties 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 (LSD's) at the 10% level of probability are shown. Where the difference between two varieties within a column is equal to or greater than the LSD value at the bottom of the column, you can be sure in 9 out of 10 chances that there is a real difference between the two varieties. Varieties that were not significantly lower in performance than the highest hybrid in a particular column are indicated with an asterisk. In the example below A is significantly different from C but not from B. The difference between A and B is equal to 1.5 which is less than the LSD value of 2.0. This means that these varieties did not differ in yield. The difference between A and C is equal to 3.0 which is greater than the LSD value of 2.0. This means that the yields of these varieties were significantly different from one another. The asterisk indicates that B was not significantly lower than the top yielding variety.

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

RESULTS

Table 5. Organic grain trial quality and yield. Alburgh, VT.

Variety	Type	Relative maturity	Harvest moisture	Yield at 15% moisture		Harvest population	Lodging	Bird damage
			%	tons/ac	bu/ac	plants/acre	%	%
E-95	OP	95	**23.9***	2.80	100	18,750	30.6*	6.99
Early Riser	OP	80	21.7*	1.41	50.3	20,750	23.1*	

Figure 1. Yield of organic grain corn varieties Alburgh, VT. *Varieties with the same letter did not differ significantly in yield.*

Figure 2. Relationship between plant population and grain yield Alburgh, VT.

DISCUSSION

This was the first year for the UVM Extension organic grain corn variety trial. Of the varieties trialed, Viking Organic 0.99-90N, Blue River 25A16, 28B19, and American Organics C714 had the highest yields per acre. The open pollinated varieties were amongst the lowest yielding in the trials. Interestingly, these also were the varieties with the highest percentage of lodged plants