2011 VERMONT SUNFLOWER VARIETY TRIAL

Sunflower Variety Trial

The University of Vermont Extension has conducted sunflower variety evaluation over the past four years to determine best-adapted varieties for this region. Because new varieties are developed yearly and others are discontinued, it is important to provide farmers with the latest information regarding agronomic characteristics of emerging varieties, as compared to well-known varieties. In the 2011 growing season, a replicated trial evaluating seventeen sunflower varieties, varying in relative maturities and traits was conducted in Alburgh, VT. It is important to note that the data presented is from only one location; additional tests in different locations and over several seasons should be considered.

MATERIALS AND METHODS

This year's sunflower variety trial at Borderview Farm in Alburgh, VT was planted in 5'x20' plots in a randomized block with three replicates. The soil was a Benson rocky silt loam. Treatments were varieties (Table 1). The previous crop at this location was corn, and the seedbed was prepared by spring disking and spike-tooth harrowing. Starter fertilizer was applied at a rate of 250 lbs per acre of 10-20-20. Treflan (Trifluralin) was sprayed pre-plant at 2.5 pints per acre and incorporated. The plots were planted on May 25 at a rate of 32,000 seeds per acre with a John Deere 1750 corn planter that had been equipped with sunflower fingers and planted in 30" rows. The plots were hand-weeded on June 16 and cultivated with a Brillion four-row cultivator on June 27. Agronomic and trial information for this research trial can be found in Table 2. To protect against bird damage, the sunflower trial was covered with netting.

369	Croplan	DMR, NS	97	4
378	Croplan	DMR, NS	97	2
555	Croplan	CL, DMR, NS	94	4
2930	Syngenta	NS, DMR	92	3
3080	Croplan	DMR, NS	90	3
3433	Syngenta	NS, DMR	95	3
3480	Syngenta	NS, CL, DMR	95	3
3875	Syngenta	NS	103	3
3980	Syngenta	NS, CL	97	2
4651	Syngenta	NS, DMR	97	2
7120	Syngenta	HO, DMR	95	3
D101 Plus	Seeds 2000	-	Early	3
Defender Plus	Seeds 2000	NS, DMR	Early	3
Sierra	Blue River Hybrids	-	Full	3
Teton	Seeds 2000	-	Med-Early	4
Torino	Seeds 2000	NS, CL	Med-Full	3

Oil from each seed sample was extruded on October 4 with a Kern

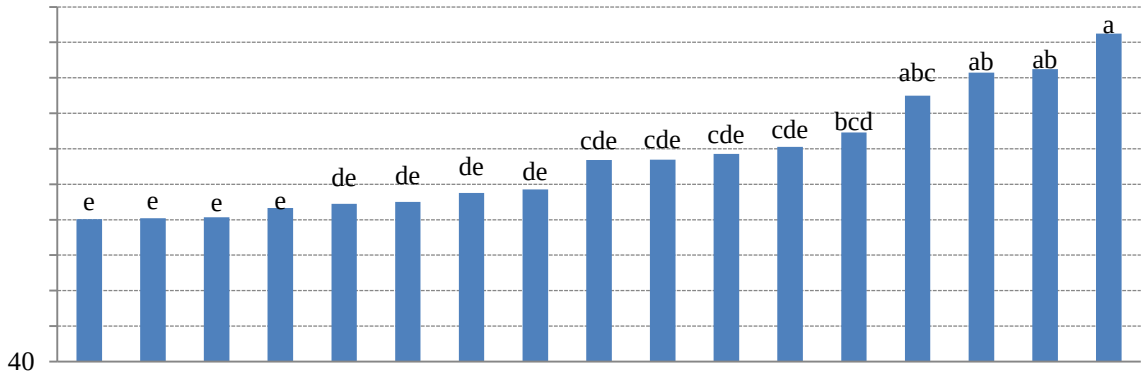

Figure 3. Height comparison of sunflower varieties, measured on the day of harvest. Varieties with the same letter did not differ statistically in yield (p=0.10).

Figure 4. The effect of variety on lodging and stalk rot due to white mold. Varieties with the same letter did not differ statistically (p=0.10, compare capital letters for lodging and lower-case letters for stalk rot incidence).

Table 5. Harvest data for seventeen sunflower varieties.

Variety	Source	Moisture at harvest

Figure 5. Seed and oil yields for seventeen sunflower varieties. Varieties with the same letter did not differ statistically (p=0.10, compare capital letters for seed yield and lower-case letters for oil yield).

DISCUSSION

The average sunflower establishment rate was 57%, perhaps due to early season conditions. A wet and cool spring may have contributed to poor seed germination and stand establishment. In addition, the trial was planted into wet soils and resulted in compaction. The compacted soils may have also reduced emergence of seedlings. The average population was 18,304 plants per acre, was approximately 14,000 plants lower than the seeded population of 32,000 seeds per acre. Low establishment rates can partially account for the lower yields.

The drastically increased precipitation this year may account for the high rate of both lodging and white mold in the sunflowers. White mold thrives in wet conditions and is easily transferred through plant contact. Because stalk rot and lodging rates were not necessarily linked, it is possible that lodging occurred because of wet soil conditions or the high winds that occurred in late Ap14(h)(s)-2(11(.o)13(cc ap)2(p)65f(y)11(

er(l)-3(l)-3 atialel (w)7(er-9(ea(p)13(p)2(r)-2(o)2(x2
m11()-3(l)-3(y)13(lt)-3(i)-3kbelydooo (t)8((n)2dg2(

contents. Variety selection should involve both high yielding and high oil content varieties. It is important to select varieties with high levels of resistance to diseases. Varieties should be selected based on the goals of the grower, and it should be recognized that these results are only from one location and one season. Growers should consider varietal performances from multiple seasons and locations before making decisions about which varieties will work for them.

ACKNOWLEDGEMENTS

UVM Extension would like to thank Roger Rainville and the staff at Borderview Farm for their generous help with this research trial, as well as the Vermont Sustainable Jobs Fund for helping to fund the research. We would also like to thank Crop and Soil Team members Katie Blair, Chantel Cline, Amber Domina, Amanda Gervais, Savanna Kittell-Mitchell, Laura Madden, and Susan Monahan for their help with data collection. This information is presented with the understanding that no product discrimination is intended and no endorsement of any product mentioned, nor criticism of unnamed products, is implied.