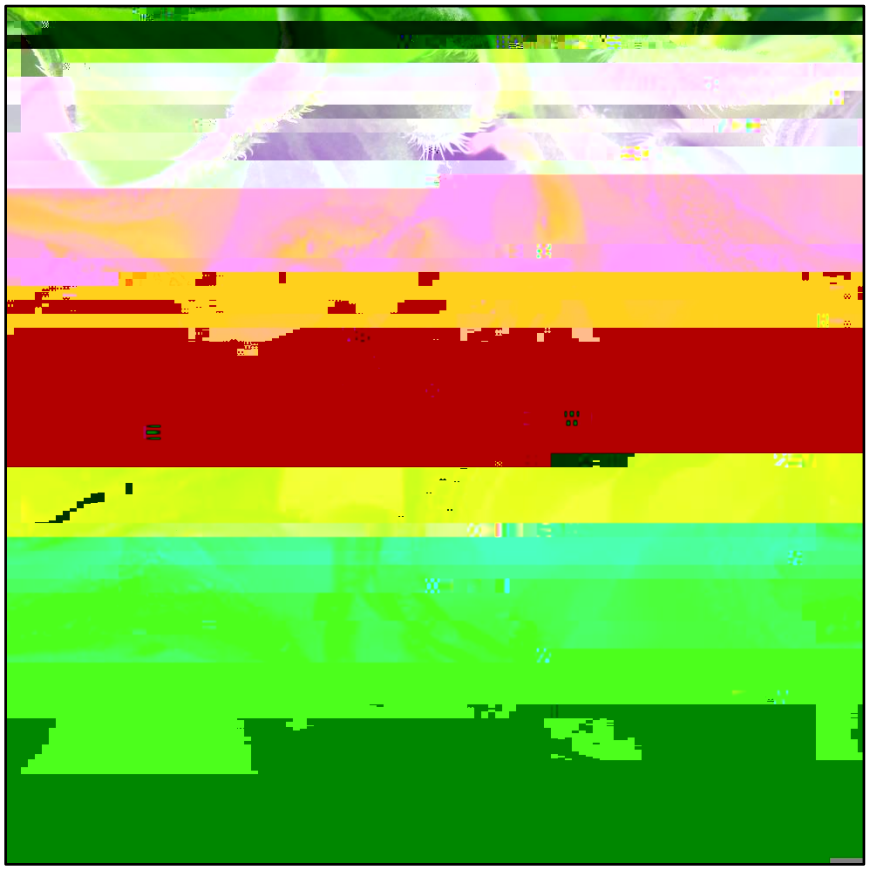
2013 Sunflower Planting Date Trial



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spike tooth harrow.

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 treatments 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 treatments. Treatments that were not significantly lower in performance than the top-performing treatment in a particular column are indicated with an asterisk. In the following 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. The asterisk indicates that hybrid B was not significantly lower than the top yielding hybrid C, indicated in bold.

RESULTS

Weather data was collected with an onsite Davis Instruments Vantage Pro2 weather station equipped with a WeatherLink data logger. Temperature, precipitation, and accumulation of Growing Degree Days (GDDs) are consolidated for the 2013 growing season (Table 2). Histor3(.)11( )] TJET k-53(10)11( )] TJETBT1 0 0 1 72

Planting date x variety interactions

There was a significant interaction between planting date and variety for the date of bloom, suggesting that altering planting dates will have a different impact on the bloom date of one variety than it does on the bloom date of another. There was much more discrepancy in the bloom dates of the two varieties in the first and last planting dates than the less extreme planting dates ,1on

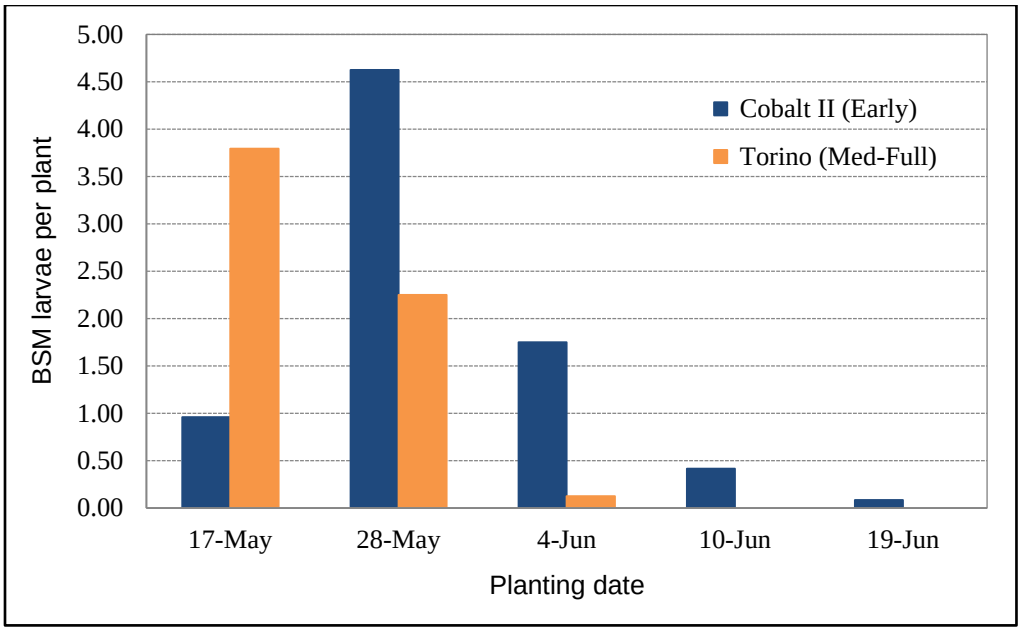

Figure 3. Effects of planting date on banded sunflower moth larvae for two varieties, Alburgh, VT, 2013.

There was a significant interaction between the effects of planting date and variety on stalk rot (Figure 4). Cobalt II, an early-season variety, had 0% stalk rot when planted early (17-May) but between 2.5% and 5% at all other planting dates. Interestingly, in early-planted (17-May) Torino sunflowers, stalk rot incidence was 15% much higher than any other planting date or variety. Torino sunflowers only showed stalk rot when planted before 10-Jun.

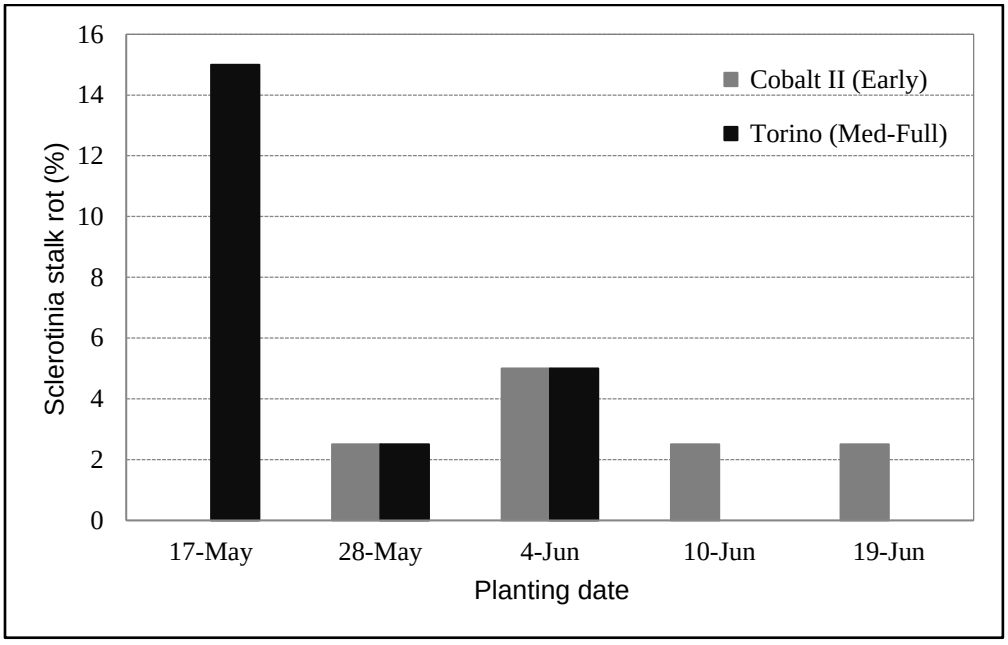

Figure 4. Effects of planting date on stalk rot incidence for two sunflower varieties, Alburgh, VT, 2013.

There were no significant interactions between planting date and variety for any other plant stand characteristics or for seed and oil yield or quality. This indicates that the impact of planting date on sunflower yield and quality was similar for both early and full

Across both scouting dates, there was no significant difference in the incidence of plant bugs by planting date, though there was a slight trend towards lower insect populations in later-planted sunflowers (Table 5). There was a significant difference in the incidence of BSM larvae, with the least number of individual larva (0.04 per plant) in the latest planting date treatment (Figure 7).

Table 5. Insect scouting data by planting date, Alburgh, VT, 2013.

Planting date	Plant bugs	Banded sunflower moth larvae
	per plant	per plant
1 - 17-May	2.17	2.38
2 - 28-May	2.06	3.44
3 - 4-Jun		

Figure 7. Impact of planting date on banded sunflower moth (BSM) larvae incidence and damage to seed, Alburgh, VT, 2013. The inc

Impacts of variety

Harvest moisture was slightly greater in Torino, the longer-season variety, but there was no statistical difference between the two varieties (Table 11). Test weight did not differ significantly by variety, though it was slightly greater in Torino (31.2 lbs per bushel). Seed yield was slightly greater in Torino (839 lbs per acre), but not statistically significant. There was no statistical difference in BSM damage between varieties, and no difference in oil content. Oil yield was greater in Torino (269 lbs or 35.3 gallons per acre), but not statistically greater than the oil yield of Cobalt II (227 lbs or 29.7 gallons per acre).

Table 11. Harvest data and seed and oil yields by variety, Alburgh, VT, 2013.

Variety

planted sunflowers, though it was not statistically significant. There were no significant differences in seed and oil yields by either planting date or variety.

Bird damage to sunflower heads (averaging 67.5% overall) was detrimental to yields. The notable differences in populations, plant height, and head width by planting date were consistent with other sunflower research trials. Typically, greater sunflower plant populations result in taller plants and narrower heads. The average yields for the trial (782 lbs of seed or 32.5 gallons of oil per acre) were poor in comparison to typical sunflower yields. This was likely due to low populations, early-season weed competition, and severe bird damage.

There were few statistically significant impacts of variety in this trial, suggesting that the two varieties performed similarly across planting dates in plant stand characteristics and yield. Both varieties were similarly susceptible to pest pressures from insects, lodging, disease, and birds. There was a difference in plant height and head width Torino plants were taller with wider heads.

Overall, the strategy of sunflower shifting plants dates has potential as a pest control strategy. While there were no significant differences in yield in this 2013 study, there were trends towards lower bird damage in early-planted sunflowers and lower insect populations and damage in late-planted sunflowers. It is important to remember that these data represent results from only one year and one location. More research should be generated and consulted before making agronomic decisions.

ACKNOWLEDGEMENTS

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