2012 Sunflower Planting Date Trial

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To control weeds chemically, the pre-emergent selective herbicide Trust® (trifluralin) was applied on 14-May at 1.5 pints per acre. A tineweeder was used on 31-May to reduce weeds. All plots were hand-weeded on 3-Jul.

Plots were assessed on 16-Jul to determine growth stage, and scouted at the R3/R4 stage for banded sunflower moth (BSM) eggs. Three plants from each 2-row plot were scouted, with five bracts per head assessed with magnifying lenses. BSM eggs are small, opaque and spherical in shape (Figure 1). The research trial was not protected from birds with netting or other strategies, in order to more accurately estimate the impact of bird pressure on seed yields and quality. Plant stand characteristics such as population, height, head width, disease incidence and lodging were measured 10 days before harvest (8-Oct). Disease incidence was measured by scouting ten consecutive plants in each plot

Figure 2. Impact of planting date on insect damage in two sunflower varieties, Croplan 306 and Syngenta 7120. ***Vertical bars represent +/- one standard deviation.***

Impact of Planting Date

Lodging was significantly greatest in the second planting date (51.7%). All other planting date treatments outperformed this one, though the lowest lodging incidence was in sunflowers planted on 1-Jun (10.0%). Seed loss due to bird damage seemed average in 2012, compared to other seasons. Bird damage was lowest in the latest planting date, 15-Jun (17.0%). Bird damage decreased as planting dates were delayed (Figure 3).

Figure 3. Bird damage severity by planting date. Planting date treatments that share a letter were not significantly different from one another (p=0.10).

Plant height and sunflower head width did not vary statistically by planting date (Table 3). The average plant height was 53.8 inches, with the tallest plants planted on 1-Jun. Average head width was 6.99 inches, ranging from 6.64 (18-May) to 7.47 (15-Jun).

Seed yield ranged widely and was significantly impacted by planting date treatments (Table 4). The greatest seed yield, adjusted to a standard 13% moisture, was in the latest planting date (15-Jun, 1365 lbs per acre), though this was not statistically different from the seed yield of the 1-Jun planting date (Figure 5). The lowest yield was in the earliest planting date (18-May, 490 lbs per acre). Harvest moisture was not statistically different by planting date treatments, and the average moisture at harvest was 16.7%.

Table 4. Impact of planting date on seed yield and post-harvest measurements, Alburgh, VT, 2012.

Planting date	Seed yield	Harvest moisture	Insect damage	Pressing moisture	Oil content	Oil yield	
	lbs ac^{-1}	%	%	%	%	lbs ac^{-1}	gal ac^{-1}
1 - 18-May	490	15.7	4.00	5.58	36.1	193	25.3
2 - 25-May	653	**18.6**	5.50	5.82	35.3	242	31.7
3 - 1-Jun	1103*	15.6	4.83	6.02	34.4	395*	51.8*
4 - 8-Jun	770	17.0	3.33	5.90	**37.9**	312	40.9
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On 16-

Figure 5. Effect of planting date on sunflower seed and oil yields. Planting date treatments that share a letter were not significantly different from one another (p=0.10; compare capital letters for seed yield and lower-case letters for oil yield).

Impact of Variety

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Table 7. Impact of variety on seed and oil yields, moisture levels and insect damage, Alburgh, VT, 2012.

Variety	Seed yield	Harvest moisture	Insect damage	Pressing moisture	Oil content	Oil yield

may not reach physiological maturity prior to a killing frost. Therefore, additional years of data across varying environmental conditions needs to be collected to define optimum planting dates for this region.

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