R 2018-ERC01

Eastern Soybean Board Project Final Report

Developing Soybean Production Strategies that Maximize Yields in Northern Climates

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Soybeans are a versatile crop for Vermont farmers providing opportunities to grow for human consumption, animal feed, or biodiesel production. Soybeans are also a broadleaf rotation crop that utilizes similar production practices and equipment as are currently used in the region. The purpose of our trials is to evaluate soybean yield and quality under conventional growing conditions, when planting dates are varied, as well as following various fall planted cover crops. Understanding how soybean crops are impacted by varying planting dates can help producers make important management decisions. With a growing concern of agriculturally related water quality implications in Vermont waterways, farmers are now required in some instances to cover crop their annually cropped fields. However, with this increase in cover cropping there is a need to investigate potential impacts on following cash crops including soybeans.

This year we initiated several soybean trials at Borderview Research Farm in Alburgh, VT. These trials include a conventional variety trial, planting date trial, and a cover crop trial. This report will summarize our research and outreach activities around these trials.

Weather data was recorded throughout the season with a Davis Instrument Vantage PRO2 weather station, equipped with a WeatherLink data logger at Borderview Research Farm in Alburgh, VT (Table 1). Overall the season was hotter and dryer than normal. A total of 18" of rain fell during the soybean growing season. Precipitation was approximately 60% of normal. During the growing season, there were only six rain events that resulted in greater than 0.75 inches of accumulation. These six events constituted approximately 36% of the total rainfall. Consequently, there were several extended periods with very little to no rainfall. The longest period was approximately 25 days with less than 0.25 inches of accumulated rainfall. Temperatures were above normal Jul-Sep. Overall 2731 growing degree days (GDDs) were accumulated May-October, 520 above the 30-year normal.

Table 1. Weather data for Alburgh, VT, 2018.

Alburgh, VT	May	June	July	August	September	October
Average temperature (°F)	59.5	64.4	74.1	72.8	63.4	45.8
Departure from normal	3.10	-1.38	3.51	3.96	2.76	-2.36
Precipitation (inches)	1.94	3.74	2.43	2.96	3.48	3.53
Departure from normal	-1.51	0.05	-1.72	-0.95	-0.16	-0.07
Growing Degree Days (base 50°F)	352	447	728	696	427	81
Departure from normal	154	-27	88	115	109	81

Based on weather data from a Davis Instruments Vantage Pro2 with WeatherLink data logger.
Historical averages are for 30 years of NOAA data (1981-2010) from Burlington, VT.

Variety Trial

MATERIALS AND METHODS

The conventional variety trial included 22 varieties from five different seed companies spanning maturity groups 0.07 to 2.4. Plots were planted on 25-May with a 4-row cone planter with John Deere row units fitted with Almaco seed distribution units (Nevada, IA). Starter fertilizer (9-18-9) was applied at a rate of 5 gal ac^{-1}. Plots were 20' long and consisted of two rows spaced at 30 inches. The seeding rate was 185,000 seeds ac^{-1}. The plot design was a randomized complete block with three replications. The plots were monitored for insect pests and disease symptoms throughout the season. Very little disease or insect pressure was observed. Very low populations of Japanese beetles and flea beetles were observed causing little damage to soybean leaves. Due to drought conditions very low incidence of Bacterial blight (*Pseudomonas syringae* pv. *glycinea*) on lower leaves was observed which was not widespread and presented minimal impact to soybean performance (Image 1). Therefore, a formal thorough scouting was not completed as in past years. On 12-Oct, the soybeans were harvested using an Almaco SPC50 small plot combine. Seed was cleaned with a small Clipper M2B cleaner (A.T. Ferrell, Bluffton, IN). They were then weighed for plot yield and tested for soybean oil was extruded from the seeds with an AgOil M70 oil press on 15-Jan 2019, and the amount of oil captured was measured to determine oil content and oil yield. harvest moisture and test weight using a DICKEY-John Mini-GAC Plus moisture and test weight meter.

Image 1. Bacterial leaf blight on soybean leaf.

RESULTS

Harvest results for the 22 varieties are shown in Table 2. Despite dry weather through most of the season, the soybeans performed very well resulting in yields ranging 35.7 to 79.4 bu ac^{-1}. The top yielding variety was S11XT78 which produced 4764 lbs ac^{-1}. This was statistically similar to six other varieties: S09RY62, 5B241R2, S18XT38, SG 1863, 5N211R2, and SG 1776. Varieties did not statistically differ in harvest moisture, test weight, oil content, or oil yield. All varieties were above 18% moisture at harvest and required drying prior to storage. None of the varieties reached the standard test weight of 60 lbs bu^{-1}. The highest test weight was 55.0 lbs bu^{-1} and the average for the trial was 54.3 lb bu^{-1}. This was likely due to the lack of moisture throughout the season, especially during pod fill. Oil content ranged from 6.83 to 16.2% and averaged 9.98% across the trial. However, as these oil contents did not vary statistically neither did oil yields. The range in seed yields in the trial was dramatic with the lowest yielding variety, CM16-6058, producing less than half the yield of the top yielding variety at only 2,144 lbs ac-1 or 35.7 bu ac^{-1} (Figure 2). These differences highlight the importance of careful varietal selection and monitoring to identify

varieties that perform well in a variety of conditions on one's own farm. Data collected from these variety trials over the last two years have demonstrated that it is possible to attain high soybean yields from varieties with maturities between 0.07-2.4. Furthermore, we see higher soybean yields in later maturing soybean varieties (Figure 1). However, given the variable nature of the weather from year to year, more research is needed to understand the yield potential of soybean varieties in this region.

Table 2. Harvest characteristics of soybean varieties – Alburgh, VT, 2018.

Variety	Company	Maturity group	Harvest moisture	Test weight	Yield @ 13% moisture		Oil content	Oil yield	
			%	lbs bu^{-1}	lbs ac^{-1}	bu ac^{-1}	%	lbs ac^{-1}	gal ac^{-1}
CM16-6058	C&M Seeds	0.7	20.7	54.7	2144	35.7	6.83	143	18.7
S09RY64	Dyna-Gro	0.9	**18.4**	54.4	4252*	70.9*	8.83	384	50.3
S11XT78	Dyna-Gro	1.1	20.3	54.3	**4764***	**79.4***	11.9	485	63.5
S14XT98	Dyna-Gro	1.4	20.4	53.7	3067	51.1	11.1	318	41.2
S16XT58	Dyna-Gro	1.6	20.8	53.7	3335	55.6	10.3	349	45.7
SX18716XT	Dyna-Gro	1.6	20.6	54.7	3423	57.0	11.3	390	51.1
S18XT38	Dyna-Gro	1.8	21.8	54.4	4165*	69.4*	12.0	523	68.6
5N145R2	Mycogen	1.4	20.2	54.4	3827	63.8	8.02	305	39.9
5N158R2	Mycogen	1.5	20.3	54.9	3280	54.7	9.05	281	36.9
5N194RR	Mycogen	1.9	20.4	**55.0**	3785	63.1	10.7	415	54.4
5N183R2	Mycogen	1.8	22.8	53.6	3650	60.8	9.52	351	46.0
5N211R2	Mycogen	2.1	20.9	54.8	4052*	67.5*	10.2	413	54.1
5B241R2	Mycogen	2.4	23.2	53.2	4198*	70.0*	10.3	429	56.2
SG 0975	Seedway, LLC	0.9	20.7	54.7	3875	64.6	9.81	392	51.3
SG 1055	Seedway, LLC	1.0	21.1	54.5	3521	58.7	**16.2**	**572**	**75.0**
SG 1076	Seedway, LLC	1.0	21.8	53.6	3744	62.4*	8.61	328	43.0
SG 1311	Seedway, LLC	1.3	20.3	54.7	3668	61.1	10.3	374	49.0
SG 1776	Seedway, LLC	1.7	20.7	54.7	3946*	65.8	7.51	296	38.7
SG 1863	Seedway, LLC	1.8	21.1	53.9	4152*	69.2*	7.53	303	39.7
SG 2125	Seedway, LLC	2.1	21.2	54.4	3477	58.0	10.4	355	46.5
S007Y4	Syngenta	0.07	21.8	53.5	2921	48.7	11.0	316	41.3
S07Q4X	Syngenta	0.70	19.4	54.8	3248	54.1	8.18	264	34.6
	LSD ($p = 0.10$)		NS	NS	886	14.8	NS	NS	NS
	Trial Mean		20.9	54.3	3659	61.0	9.98	363	47.5

The top performing variety is indicated in **bold**.
*Varieties that did not perform significantly lower than the top performing variety are indicated with an asterisk.
N/A- Statistical analysis was not performed for this parameter.

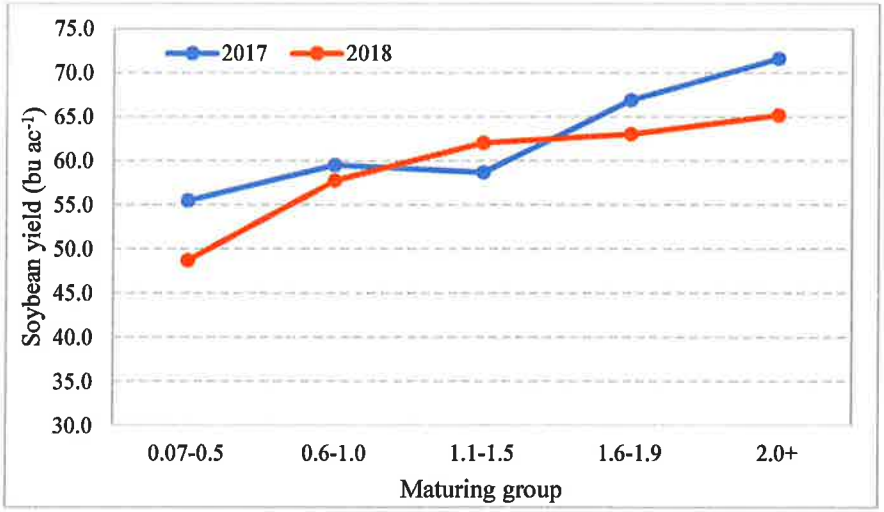

Figure 1. Soybean yield by maturity group, 2017-2018.

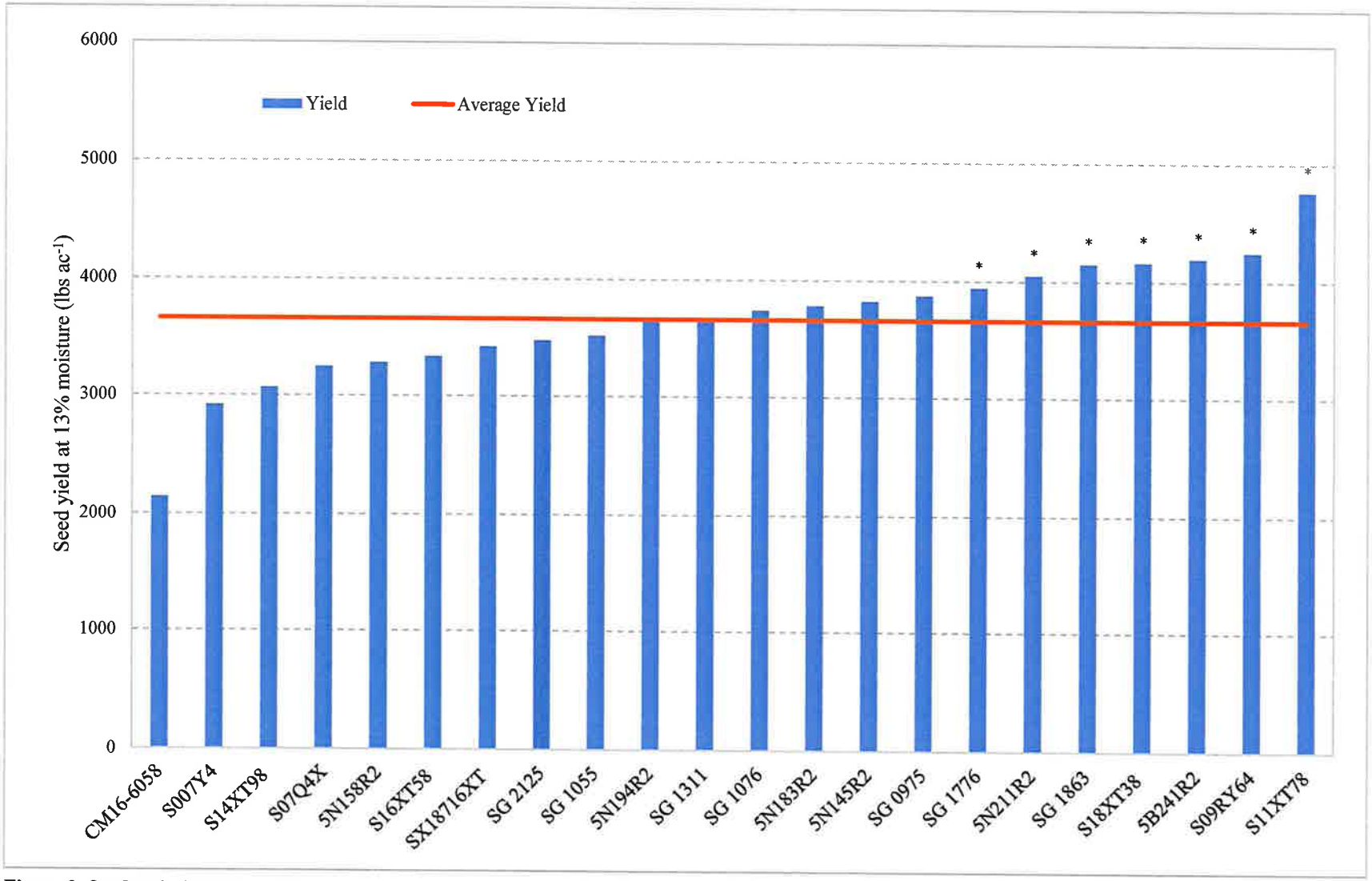

Figure 2. Seed and oil yield at 13% moisture for 22 soybean varieties. The red line indicates the average yield.
*Varieties that did not perform statistically lower than the top performing variety are indicated with an asterisk.
Varieties did not differ statistically in terms of oil yield.

Planting Date Trial

One of the goals of this planting date study is to determine how late soybeans can be planted in Vermont while still reaching maturity and producing adequate yields. In addition, we would like to determine how soybeans of differing maturity groups respond to shifting planting dates. In a planting date study in sunflowers we have instituted, we have found that shifting planting dates can be a tool for farmers to avoid certain insect or bird pest pressures. As more producers in the region look for additional crops to diversify their operations with, we hope to provide this type of additional management information to these producers in order to increase the number of soybean producers in the region.

MATERIALS AND METHODS

The planting date trial included two varieties, one early and one mid-group 1 maturity, planted approximately weekly from 18-May through 15-Jun (Image 2). Plots were planted at a rate of 185,000 seeds ac^{-1} into a Benson rocky silt loam. Seeds were treated with soybean inoculant and planted with 5 gal ac^{-1} 9-18-9 starter fertilizer. Soybean growth stage was recorded for each plot on 1-Aug and 16-Aug. On 17-Oct, the soybeans were harvested using an Almaco SPC50 small plot combine. Seed was cleaned with a small Clipper M2B cleaner (A.T. Ferrell, Bluffton, IN). They were then weighed for plot yield, tested for harvest moisture and test weight using a DICKEY-John Mini-GAC Plus moisture and test weight meter. Soybean oil was extruded from the seeds with an AgOil M70 oil press on 29-Jan 2019, and the amount of oil captured was measured to determine oil content and oil yield.

Image 2. Soybeans are smaller as planting dates progress from left to right.

RESULTS

Impact of Variety x Planting Date Interactions

There was a significant variety x planting date interaction for test weight indicating that the maturities responded differently in terms of test weight when planted on different dates. Generally, as planting dates become later farmers must modify varieties to fit the length of the growing season. Hence with later planting dates generally shorter season varieties begin to outperform longer season types. This trend was observed this year as the 1.0 maturity group variety produced soybeans with higher test weight than the 1.7 maturity

group variety at the later planting dates (Figure 3). The highest test weight was obtained by planting the late maturing variety on the third date and the early maturing variety on the fourth planting. Both varieties eventually showed declining test weights with later planting dates, however the early maturing variety remained higher.

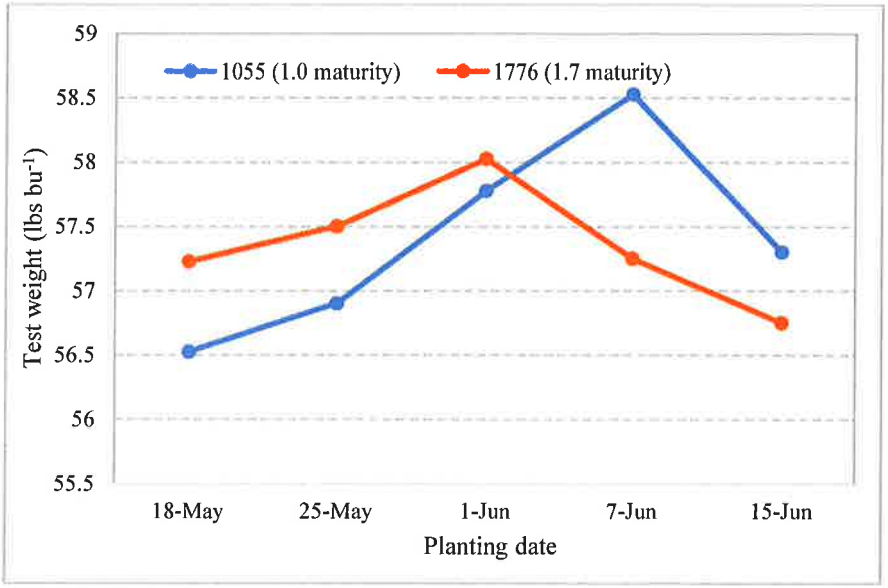

Figure 3. Soybean variety x planting date interaction for test weight, 2018.

Impact of Variety

The two soybean maturities performed significantly different in terms of yield but were statistically similar in moisture at harvest and test weight (Table 3). Moisture at harvest averaged 14.7% and did not differ statistically indicating that both the longer and shorter season varieties reached similar maturity by the time of harvest. Both required some drying prior to storage. Similarly, test weights average 57.4 lbs bu^{-1} for both varieties, which is below the industry standard of 60 lbs bu^{-1}. This is likely due to low rainfall throughout the growing season leading to reduced seed fill. Yields did vary statistically between the two varieties. The late maturing variety, 1776, yielded 3189 lbs ac^{-1} or 53.1 bu ac^{-1}. Overall, this was 475 lbs ac^{-1} more than the early maturing variety 1055. Because the varieties had similar oil contents, oil yield was significantly higher in the later maturing variety, which produced 371 lbs ac^{-1} or 48.6 gal ac^{-1}, more than 10 gal ac^{-1} more than the early maturing variety.

Table 3. Harvest characteristics of soybeans by variety, 2018.

Variety	Maturity group	Harvest moisture	Test weight	Yield @ 13% moisture		Oil content	Oil yield	
		%	lbs bu^{-1}	lbs ac^{-1}	bu ac^{-1}	%	lbs ac^{-1}	gal ac^{-1}
SG1055	1.0	14.7	**57.4**	2714	45.2	10.9	289	37.8
SG1776	1.7	**14.6**	57.4	**3189**	**53.1**	**11.6**	**371**	**48.6**
LSD ($p = 0.10$)		NS	NS	388	6.47	NS	63.2	8.28
Trial Mean		14.7	57.4	2951	49.2	11.2	330	43.2

The top performing variety is indicated in **bold**.
NS- Not statistically significant

Impact of Planting Date

Planting date significantly impacted soybean yield and quality (Table 4). Harvest moistures ranged from 14.2% for the first two planting dates to 15.9% for the fifth planting date. The first four planting dates produced soybeans with statistically similar moisture contents at harvest. Test weights ranged from 56.9 to 57.9 lbs bu^{-1}. The third and fourth planting dates produced soybeans with the highest test weights of 57.9 lbs bu^{-1}. Although these differed statistically, all planting dates produced soybeans with test weights below the industry standard of 60 lbs bu^{-1}. This was likely due to the drought conditions throughout the growing season. Soybean yields ranged from 2408 to 3362 lbs ac^{-1} or 40.1 to 56.0 bu ac^{-1}. Earlier planting dates produced significantly higher yields than later planting dates. Statistically, the first three planting dates produced similar yields, which were almost 1000 lbs ac^{-1} or 16 bu ac^{-1} higher than the fourth and fifth planting date yields (Figure 4). Oil contents also varied across planting dates but, unlike yield, increased with delayed planting dates. Soybean planted in mid-May produced approximately 2% less oil compared to soybeans planted after 1-Jun. However, ultimately with the differences in seed yield this difference in oil content did not carry through to oil yield.

Table 4. Harvest characteristics of soybeans by planting date, 2018.

Planting Date	Harvest moisture	Test weight	Yield @ 13% moisture		Oil content	Oil yield	
	%	lbs bu^{-1}	lbs ac^{-1}	bu ac^{-1}	%	lbs ac^{-1}	gal ac^{-1}
18-May	14.2a	56.9c	3344a	55.7a	9.96b	340	44.5
25-May	**14.2a**	57.2b	**3362a**	**56.0a**	10.0b	342	44.8
1-Jun	14.4a	**57.9a**	3171a	52.8a	11.8a	**380**	**49.7**
7-Jun	14.7a	57.9a	2473b	41.2b	12.1a	291	38.2
15-Jun	15.9b	57.0bc	2408b	40.1b	**12.1a**	297	38.9
LSD ($p = 0.10$)	0.793	0.643	613	10.2	1.66	NS	NS
Trial Mean	14.7	57.4	2951	49.2	11.2	330	43.2

The top performing planting date is indicated in **bold**.
Within a column, planting dates with the same letter performed statistically similar.

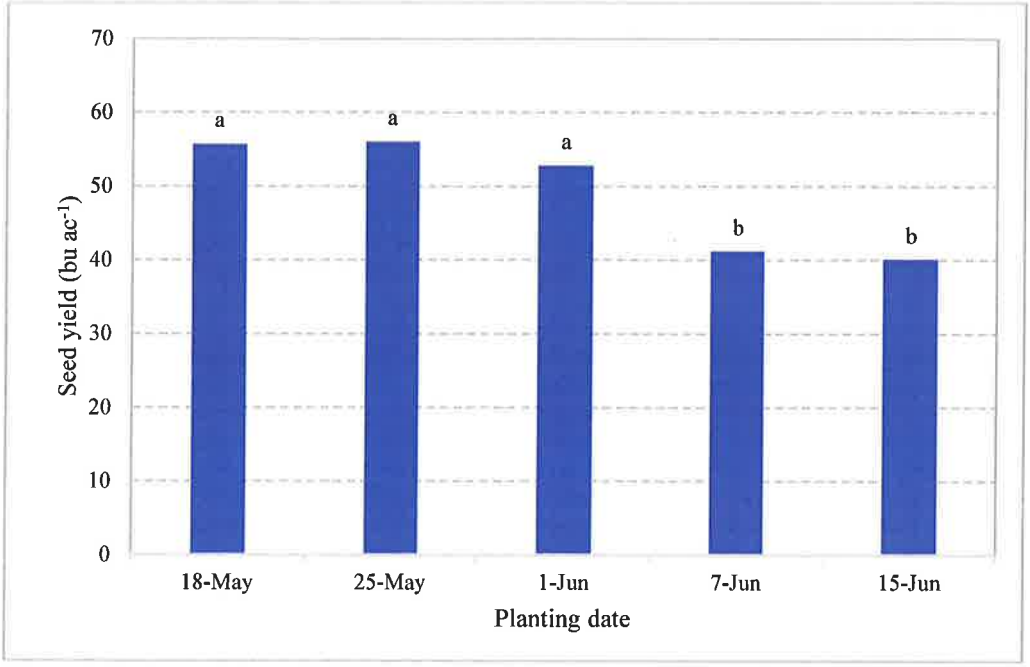

Figure 4. Soybean yield across five planting dates, 2018.
Treatments that share a letter were statistically similar

It is important to note that the trends we have observed between yield and planting date have not been consistent across the two years we have conducted this trial (Figure 5). In 2017, which was wet and cold, soybean yields increased as planting dates were delayed whereas in 2018, which was hot and dry, soybean yields decreased as planting dates were delayed. More years of research spanning different growing conditions are required to identify optimal planting dates in this region.

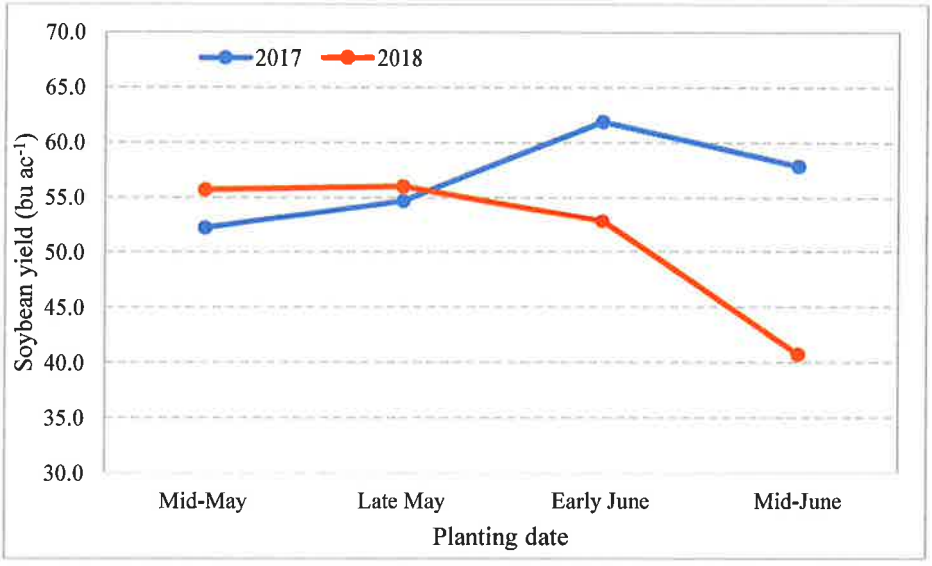

Figure 5. Soybean yield across planting dates, 2017-2018.

Cover Crop Trial

MATERIALS AND METHODS

In the fall of 2017, 18 cover crop treatments were planted at Borderview Research Farm in Alburgh, VT (Table 5). Six of the treatments included a winter grain, either triticale or rye, and were intended to provide both fall and spring living soil coverage. The other treatments included species that regularly winterkill in our region and were intended to provide living fall coverage and winterkilled spring coverage. Biomass was collected in all plots in the fall and spring. In the spring both living and dead material was collected. Due to periods of unusually warm temperatures some of the plots with annual ryegrass and crimson clover survived.

Cover crop residue was incorporated into the soil with disc harrows and the soil finished for planting with a spike-tooth harrow and a field finisher. Soybeans were planted into the previously existing cover crop treatments on 22-May at a rate of 185,000 seeds ac^{-1}, treated with soybean inoculant, and planted with 5 gal ac^{-1} 9-18-9 liquid starter fertilizer. Plots were assessed for plant populations on 11-Jul. Very little insect and disease pressure was observed seen likely due to very hot and dry weather conditions throughout the season. Plots were harvested on 10-Oct using an Almaco SPC50 small plot combine. Seed was cleaned with a small Clipper M2B cleaner (A.T. Ferrell, Bluffton, IN). They were then weighed for plot yield, tested for harvest moisture and test weight using a DICKEY-John Mini-GAC Plus moisture and test weight meter.

Table 5. Fall cover crop mixtures planted in Alburgh, VT, 2017.

Mix	Species	Variety	Over-winters?	Seeding rate lbs ac^{-1}
1	Annual ryegrass	unknown	No	15
	Crimson clover	unknown		6
	Tillage radish	Arifi		3
2	Winter triticale	Fridge	Yes	40
	Tillage radish	Eco-till		2
	Red clover	Freedom		5
	Winter pea	Lynx		20
3	Winter rye	unknown	Yes	40
	Red clover	Dynamite		1
	Forage turnip	Appin		2
4	Winter triticale	Hyoctane	Yes	60
	Red clover	Dynamite		3
	Forage turnip	Appin		2
5	Forage oats	Everleaf	No	60
	Tillage radish	Groundhog		3
6	Winter triticale	Trical815	Yes	60
	Rape	Dwarf Essex		3
7	Forage oats	Everleaf	Yes	40
	Red clover	Duration		5
	Forage turnip	Appin		2
8	Annual ryegrass	Bruiser	No	15.2
	Forage turnip	Appin		2.11
9	Annual ryegrass	Fria	No	22
	Tillage radish	Eco-till		3
10	Forage oats	Everleaf	No	70
11	Tillage radish	Eco-till	No	8
12	Crimson clover	Dixie	No	10
13	Forage oats	Everleaf	No	70
	Tillage radish	Eco-till		3
	Crimson clover	unknown		10
14	Winter rye	unknown	Yes	75
15	Winter rye	unknown	Yes	70 (farm mix)
	Hairy vetch	unknown		
16	Annual ryegrass	Fria	No	30
17	Hairy vetch		Yes	24
18	No cover		No	N/A

RESULTS

Cover crop harvest characteristics varied by treatment and are summarized in Table 6. The top yielding treatment in the fall was mixture 7 (forage oat/red clover/turnip) which produced approximately 2 tons ac^{-1} of dry matter yield. This treatment performed statistically similar to mixture 3 (winter rye/red clover/turnip) and mixture (annual ryegrass/turnip). As many of the treatments consisted of species that do not overwinter, the top yielding treatments in the spring, producing just under 1.5 ton ac^{-1}, were mix 14 and 15 which included winter rye and winter rye/vetch respectively. None of the top treatments in the fall were top yielding in the following spring. This was true even for the treatments that included overwintering species. Soybean yield and test weight did not differ significantly by the preceding cover crop treatments. Yields averaged 3758 lbs ac^{-1} or 62.6 bu ac^{-1} and test weight averaged 55.2 lbs bu^{-1}. These were consistent with the averages observed in our other soybean trials in 2018.

Table 6. Cover crop and soybean harvest characteristics by cover crop treatment, 2018.

Mix	Overwinters?	Fall 2017	Spring 2018	Soybean harvest 2018	
		Dry matter yield		Yield at 13% moisture	Test weight
		lbs ac^{-1}		lbs ac^{-1}	lbs bu^{-1}
1	No	3126	490	3695	55.0
2	Yes	2992	1075	3702	55.0
3	Yes	3562*	720	3573	55.1
4	Yes	3297	768	3820	55.4
5	No	2808	1383	4058	55.1
6	Yes	2221	1378	3847	55.4
7	Yes	**4388**	1229	3886	**55.9**
8	No	3438*	805	**4150**	55.3
9	No	3165	486	4028	55.1
10	No	2961	1288	3703	55.3
11	No	2890	323	3670	55.6
12	No	1590	796	3531	55.1
13	No	2964	1463	4074	55.2
14	Yes	2076	2720*	3325	55.1
15	Yes	1088	**2862**	3512	55.4
16	No	3122	1557	4140	55.6
17	Yes	1104	1714	3662	55.4
Control	No	643	1488	3269	55.1
LSD ($p = 0.10$)	N/A	984	583	NS	NS
Trial mean	N/A	2635	1252	3758	55.2

*Treatments with an asterisk performed statistically similarly to the top performer in **bold**
NS – Not significant

In 2017, we observed a significant decrease in soybean yields when following an overwintering cover crop. This year, the trend was much less pronounced but nonetheless still occurred (Table 7). More research is

needed to fully understand the impact of overwintering and winterkilled cover crops on subsequent soybean yields in this region.

Table 7. Soybean yields by overwintering, 2018.

Overwinter	Soybean yield (bu ac^{-1}) 2017	2018
Yes	60.4	60.0
No	**67.9**	**62.6**
p value	0.007	0.132
Trial mean	64.2	55.2

The top performing treatment is indicated in **bold**.

Soils were analyzed for nitrate (NO_3) content multiple times between the fall cover crop biomass harvest and soybean harvest to investigate if cover crops are impacting soil nitrate-N content. We hypothesized that winter terminated cover crops may provide the crop with more available nitrogen to the soybean seedling compared to the overwintering cover crop. This additional early season nitrogen may provide a yield boost for these soybeans. In the fall, soil nitrate levels were approximately the same in overwinter vs winterkilled cover crop treatments (Figure 6). The following spring when biomass was collected again, the soil nitrate level was approximately 1.54 ppm lower in the overwinter treatments. This trend continues through the end of May at which point the soybeans were planted. It is not until the end of June when soil nitrate levels in the overwinter plots exceed that of the winterkill plots. This trend holds through the end of July. This suggests that the nitrogen in the living material that was incorporated into the soil prior to planting soybeans was mineralized at this point making more nitrogen available than in the winterkill plots. However, by end of July, the soybeans would already be producing nodules and nitrogen for the crop. Hence additional nitrogen at this point may not contribute to yield. It is important to recognize that starter fertilizer was applied at planting to all soybean plots in 2018. This was not the case in 2017 and may be the reason that less yield difference was observed between overwinter and winterkilled treatments. We plan to continue to investigate nitrogen cycling in these cover crop treatments and its potential impacts on subsequent soybean productivity.

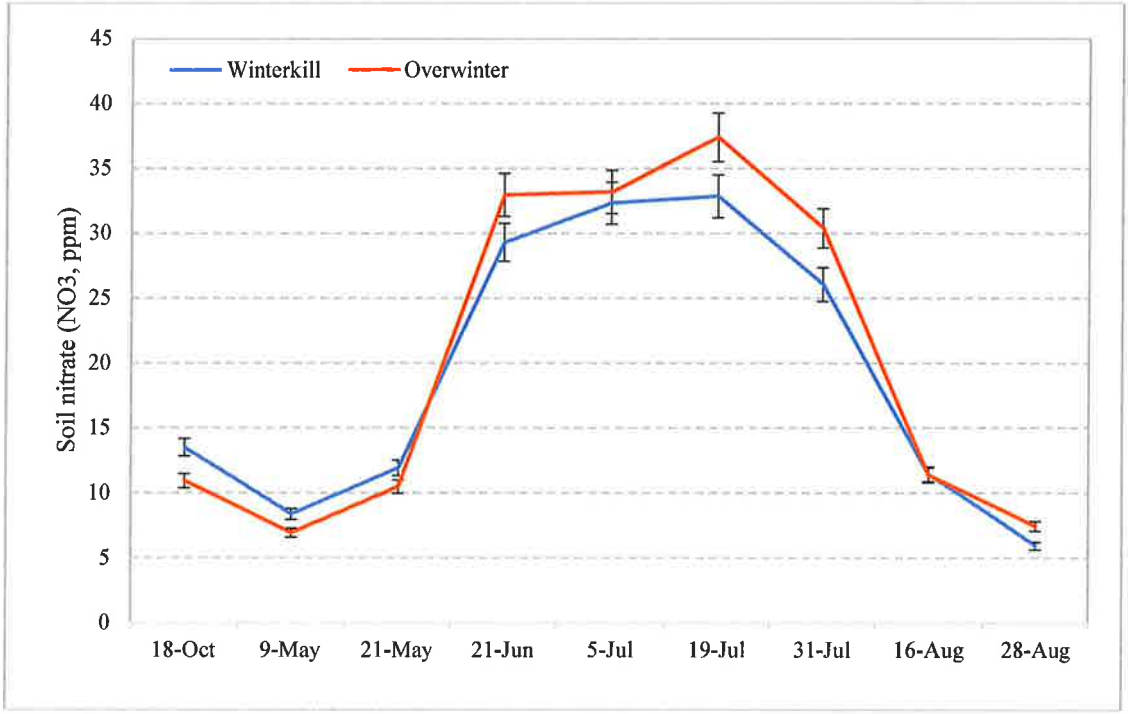

Figure 6. Soil NO_3 content, 2017-2018.

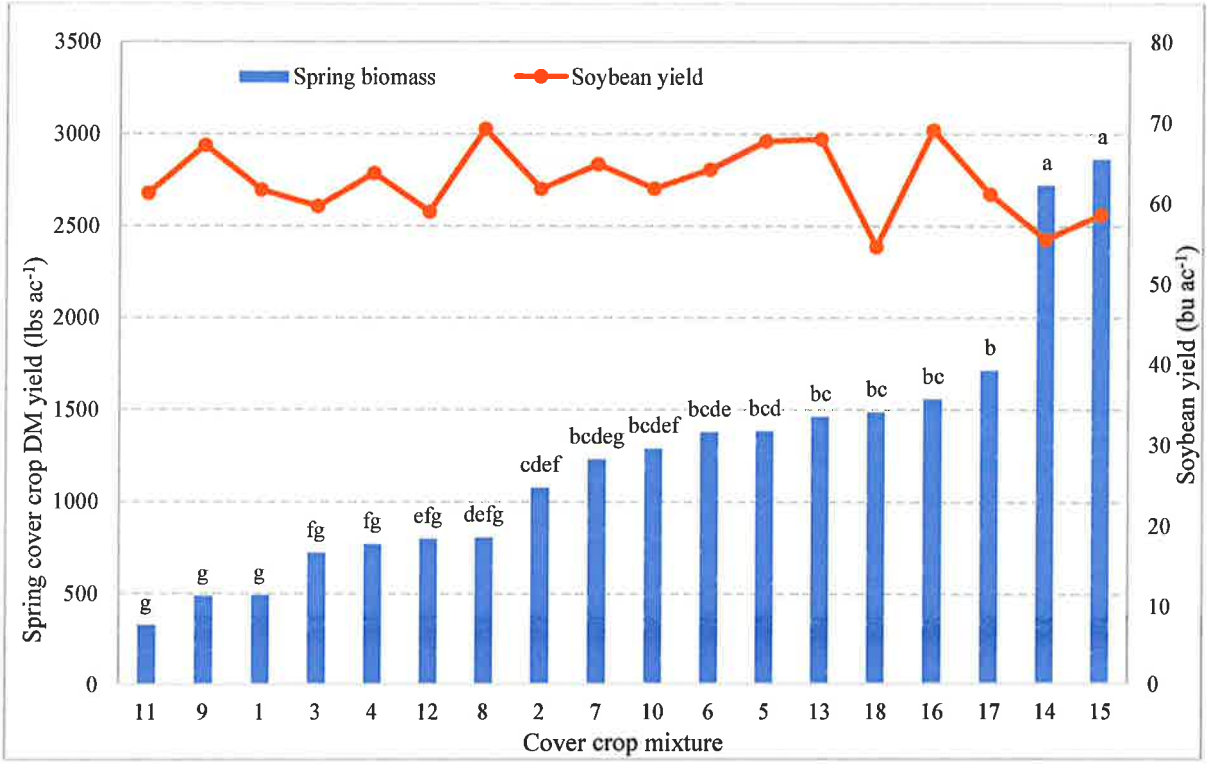

Figure 7. Soybean and cover crop yield by cover crop mixture treatment, 2018.
Treatments that share a letter performed statistically similarly to one another. Soybean yields did not differ.

Soybean Interseeding Trial

The project team continutes to develop strategies to interseed cover crops into established soybeans using an InterSeeder™ cover crop seeder. An established stand of soybeans was interseeded with winter rye on 28-Sep at a rate of 100 lbs ac^{-1}. Sections of four rows of soybeans were interseeded followed by four rows left as controls. This was repeated in this alternating pattern to create three replicates with two treatments. The cover crop establishment was assessed on 29-Oct by recording the percent ground cover in each plot using the Canopeo® smartphone application. The winter rye established very well into the soybean rows and did not complicate harvest (Image 3). Percent ground cover for the two treatments is summarized in Table 8. We will continue to investigate cover crop seeding methods and timings that support cover crop establishment and high yielding soybeans.

Image 3. Interseeded soybeans nearing harvest.

Table 8. Ground cover by cover crop treatment, 2018.

Treatment	Ground Cover %
Winter Rye	**12.2**
No Cover	3.20
Trial Mean	7.67

Outreach

During this project several outreach events were held in which this project and soybean production information were highlighted. Information on soybeans was shared with over 622 farmers and stakeholders. In March 2018 we held our Dairy Producer's Conference and Grain Grower's Conference which attracted 112 and 137 attendees, respectively. Materials summarizing past soybean trials were available at this event as well as program staff to discuss soybean production with attendees. In July we hosted our 11th Annual Field Day at Borderview Research Farm which attracted 216 attendees. At this field day soybean projects were highlighted and results from past projects summarized. Attendees were encouraged to walk through the trials, which were labeled with treatments, and information about the trials was made available in a booklet given to every attendee. Program staff were available during this session to discuss soybean production with growers. Soybean cover cropping information was shared with 155 New England & New York Certified Crop Advisors at their annual Professional Development Conferences held in Portsmouth, NH and Syracuse, NY during 2018/2019. Soybean trial data was also shared on February 28, 2019 at the Maine Grain Conference in Presque Isle, which attracted 102 attendees. Two blogs highlighting results from our variety and planting date trials were posted to our Outcroppings blog. Reports summarizing the trials are also available on our website and are made available in print at our conferences. All this information is available on our website www.uvm.edu/extension/cropsoil.

Images 4 and 5. Visitors investigate the soybean trials during the field day.