2015 Dry Bean Planting Date Trial

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Table 2. Dry bean planting and emergence dates at Borderview Research Farm in Alburgh, VT.

Planting date	Black turtle bean emergence	Yellow eye and Pinto bean emergence
	Date	date
22-May	29-May	2-Jun
29-May	12-Jun	12-Jun
4-Jun	14-Jun	14-Jun
12-Jun	18-Jun	19-Jun

The soil type at the project site was a Benson rocky silt loam. The seedbed was prepared by spring plow, followed by disk and spike tooth harrow. Before planting subsequent planting dates, the area to be planted was spike tooth harrowed. All plots were managed with practices similar to those used by producers in the surrounding areas (Table 3).

The plots were 10'x 20', with 30-inch row spacing. Plant populations were taken on 30-Jun by counting the number of plants in 10 feet of the two center rows of each plot. Plots were mechanical cultivated with a four row Brillion cultivator on 17-Jun and 7-Jul. In addition, the plots were weeded by hand once in June and again in July.

All plots were harvested on 22-Sep by hand, the harvest area was two 5 foot sections in each plot. The harvested bean plants were then bundled and hung to dry overnight. Beans were then threshed with an Almaco Large Vogel plot thresher. Beans were then weighed to calculate yields and a DICKEY-John M3G moisture tester was used to determine bean moisture content.

Table 3. Dry bean planting date trial specifics in Alburgh, VT, 2015.

Trial information	Borderview Research Farm Alburgh, VT
Soil type	Benson rocky silt loam
Previous crop	Corn
Tillage operations	Spring plow, disk, and spike tooth harrow
Plot size (feet)	10 x 20
Row spacing (inches)	30
Replicates	4
Cultivation	4-Row Brillion: 17-Jun and 7-Jul
Harvest date	22-Sep

Morningstar Meadows Farm, Glover, VT

The experimental design was a randomized complete block split design with three replications. The main plots were planting date and subplots were variety (Table 4). Planting dates were initiated on 29-May and continued approximately every week for 3 weeks with a White 140 planter using the red seeding plates (Table 5). The varieties were selected based upon varieties commonly grown on Mor

An organic approved fertilizer called MicroSTART 60 (3-2-3) was applied as a starter fertilizer at 350 lbs ac^{-1}.

Table 4. Seed varieties and seed sources for the dry bean planting date trial at Morningstar Meadows Farm in Glover, VT.

Dry bean varieties	Seed source	Seeding rate
		seeds ac^{-1}
King of the Early	Morningstar Meadows Farm, Glover, VT	78,000
Yellow Eye	Morningstar Meadows Farm, Glover, VT	76,000

Table 5. Dry bean planting and emergence dates at Morningstar Meadows Farm in Alburgh, VT.

Planting date	Plant emergence
	date
29-May	9-Jun

Data were analyzed using mixed model analysis using the mixed procedure of SAS (SAS Institute, 1999). Replications were treated as random effects and treatments were treated as fixed. Mean comparisons were made using the Least Significant Difference (LSD) procedure when the F-test was considered significant (p<0.10). In Alburgh, yields were analyzed using the PROC MIXED procedure in SAS using the Tukey-Kramer adjustment, which means that each variety and planting date was analyzed with a pairwise comparison.

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, an   in yield n yield and qua treated ld   treated id

Table 7. Temperature and precipitation summary for Alburgh, VT, 2015.

Alburgh, VT

Table 10. 2015 Dry bean yield by variety, Alburgh, VT

Variety	Yield
	lbs ac^{-1}
Black Turtle	**2240a**
Pinto	843b
Yellow Eye	770b
p-value	<0.0001

Within a column values followed by the same letter are not
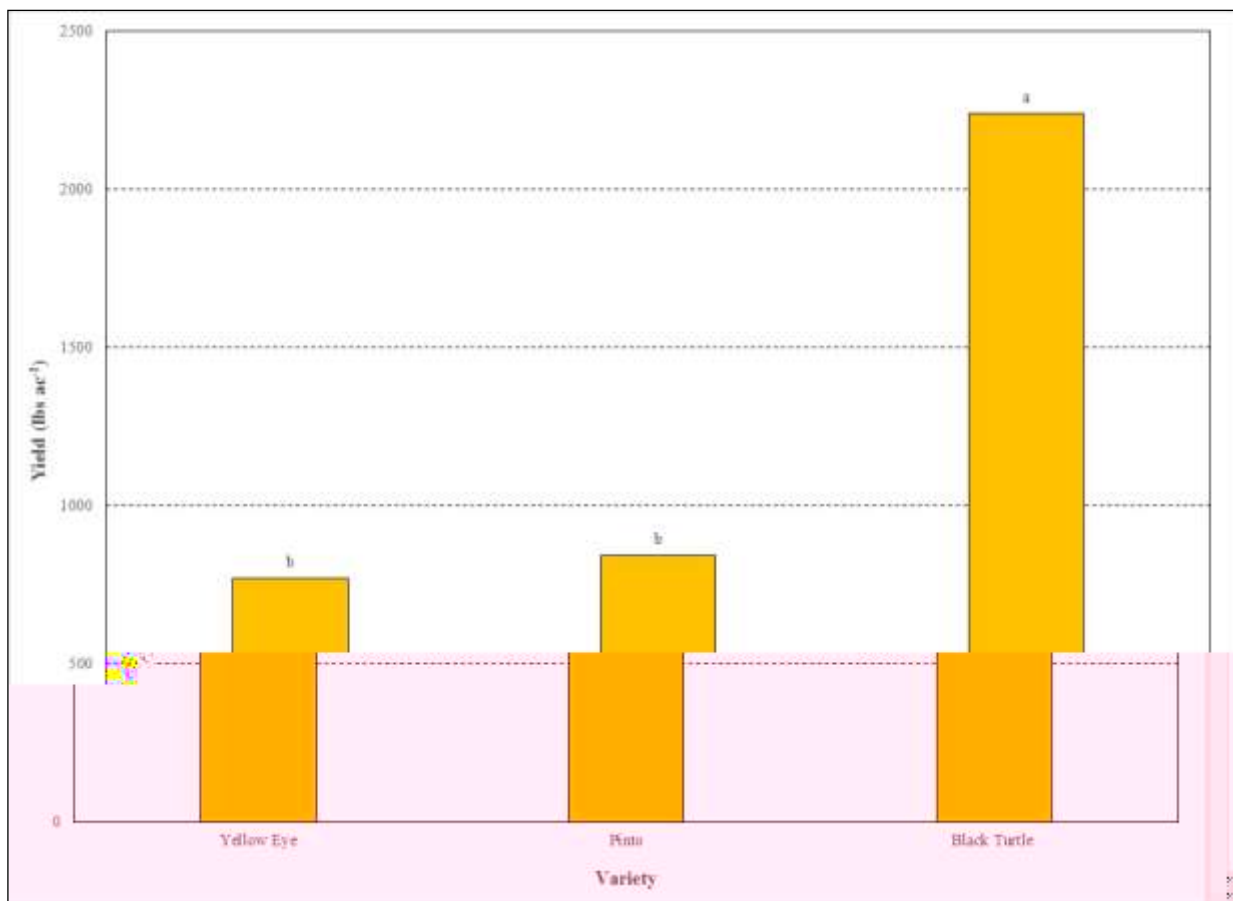significantly different.

Figure 2. Yield between dry bean varieties across all planting dates in Alburgh, VT, 2015.
Treatments that share a letter did not differ significantly by variety.

Morningstar Meadows Farm

Planting Date x Variety Interactions

There were significant interactions between planting date and variety for dry bean plant population and the number of pods per plant. These interactions indicate that dry bean

All planting dates had harvest moistures greater than 13%, necessary for proper storage, and therefore had to be dried down. The average test weight (60.4 lbs bu^{-1}) for the trial was just above the industry standard of 60 lbs bu^{-1}.
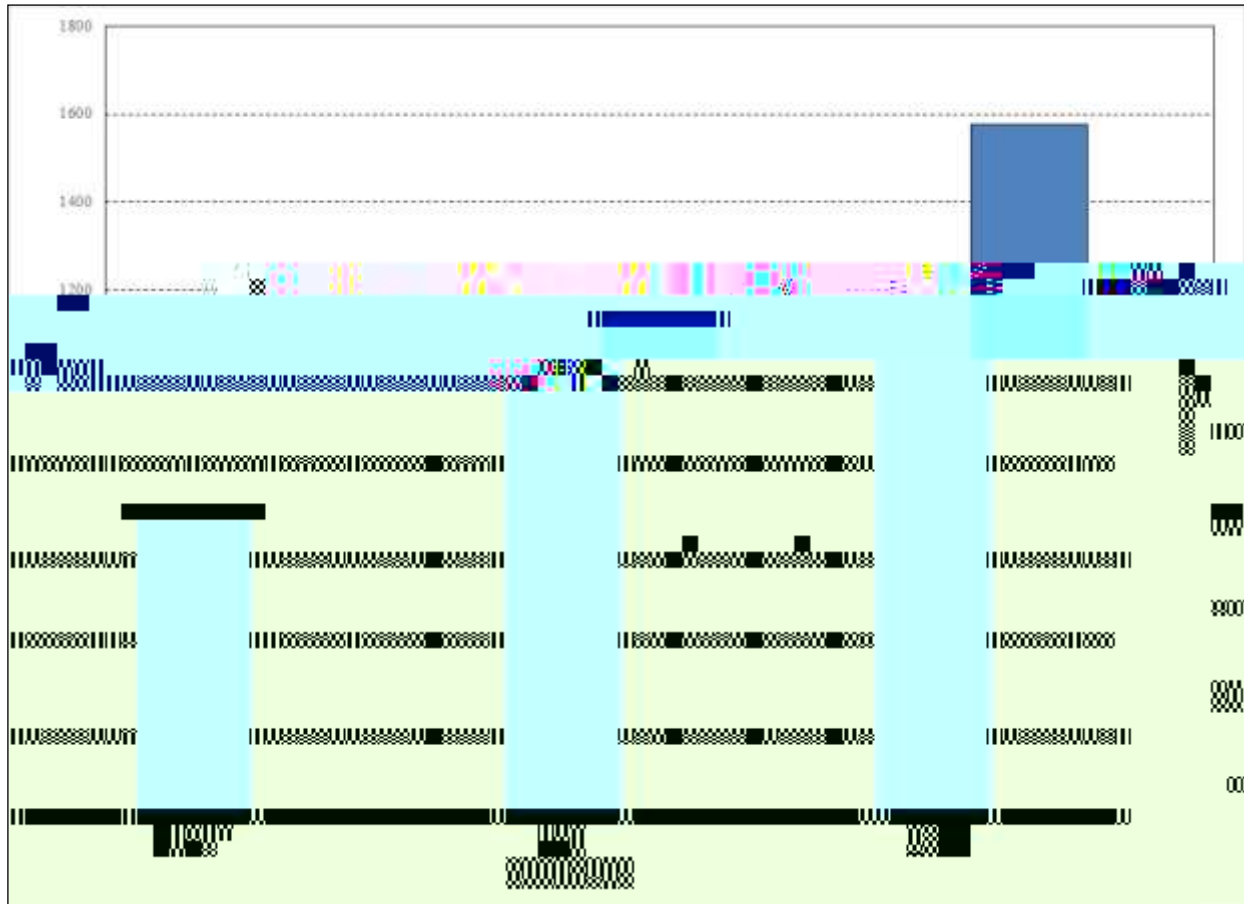

Figure 5. Yield between planting dates across dry bean varieties in Glover, VT, 2015.

Impact of Variety

There were significant differences in plant populations and yield (Table 12, Figure 6). King of the Early had the highest plant population (36,494 plants ac^{-1}) and yield (1467 lbs ac^{-1}). There were no significant differences in the number of pods per plant, harvest moisture, and test weight.

Table 12. Harvest results by variety, Glover, VT, 2015.

Variety	Plant population	Pods per plant	Yield	Harvest moisture	Test weight
	plants ac^{-1}	number	lbs ac^{-1}	%	lbs bu^{-1}
King of the Early	**36494**	12	**1467**	**18.4**	**62.3**
Yellow Eye	30492	**14**	803	19.6	58.4
LSD (0.10)	5106	NS	406	NS	NS
Trial Mean	33493	13	1135	19.0	60.4

Values shown in **bold** are of the highest value or top performing.

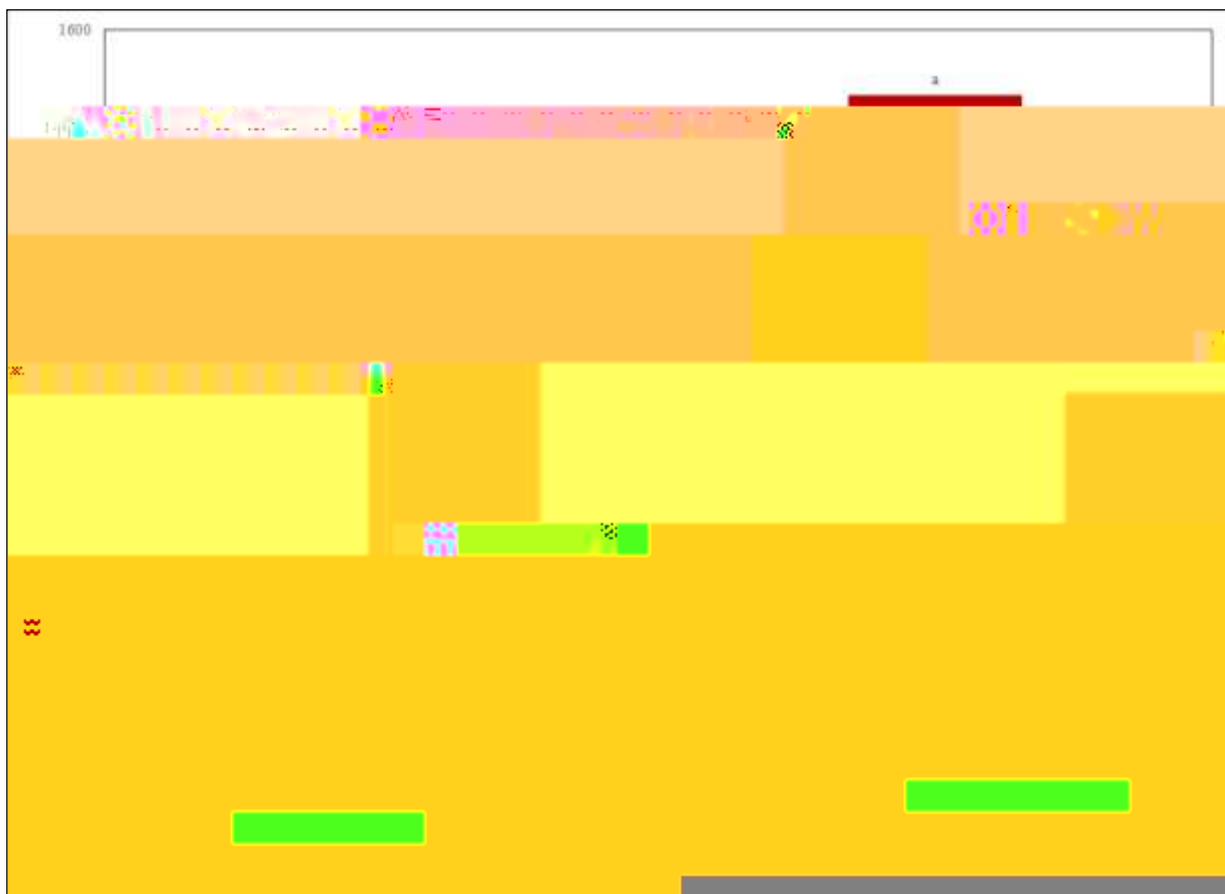NS-Treatments were not significantly different from one another.

Figure 6. Yield between dry bean varieties across all planting dates in Glover, VT, 2015.
Treatments that share a letter did not differ significantly by variety.

DISCUSSION

It is important to remember that the results only represent one year of data. The 2015 growing season brought many challenges during the growing season at both locations. At the Alburgh location, the warm and dry temperatures in May allowed the first planting date of all the varieties to emerge in 7-10 days.

However, the weather changes in June to below average temperatures and higher than average rainfall resulted in 14 days for the second planting date, of all the bean varieties, to emerge. These cool and wet