2013 Brown Mid-Rib Corn Population Trial

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Brown mid-rib (BMR) corn hybrids are of interest to many growers in the Northeast who would like to maximize milk production on homegrown forage. BMR corn has a naturally-occurring genetic mutation that leads to less lignin in the stalk and makes corn silage more digestible. Corn yields can be highly dependent on population, and it is generally recommended to plant BMR corn at lower populations than conventional silage corn. BMR corn has always been considered to be more prone to lodging due to its lower lignin content, and lower populations allow for less stress on each individual plant. However, optimal populations for the Northeast have yet to be developed. With this in mind, the University of

but should not be considered as predictive of actual milk responses in specific situations for the following reasons:

1) Equations and calculations are simplified to reduce inputs for ease of use,
2) Farm-to-farm differences exist,
3) Genetic, dietary, and environmental differences affecting feed utilization are not considered.

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 treatments is real or whether it might have occurred due to other variations in the field. All data was analyzed using a mixed model analysis where replicates were considered random effects. At the bottom of each table a LSD value is presented for each variable (e.g. yield). Least Significant Differences (LSD) at the 10% level (0.10) of probability 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 in 9 out of 10 chances that there is a real difference between the two values. Treatments that were not significantly lower in performance than the highest value in a particular column are tied with an asterisk.

In the example below, hybrid A is significantly different from hybrid C but not from hybrid B. The

Precipitation (inches)	4.79	9.23 *	1.89	2.41	2.20
Departure from normal	1.34	5.54	-2.26	-1.50	-1.44
Growing Degree Days (base 50°F)	312	427	677	554	289
Departure from normal	113	-47	37	-27	-29

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.

* June 2013 precipitation data based on National Weather Service data from cooperative stations in South Hero, VT

BMR Variety by Plant Population Interactions

There was a significant interaction between variety and plant population for starch concentrations. Tations

Table 5. Yield and dry matter content in BMR corn by population, Alburgh, VT, 2013

Population plants ac^{-1}	Yield at 35% DM tons ac^{-1}	DM at harvest %
32,000	27.0	36.9
36,000	24.9	37.6
40,000	23.3	36.4
LSD (0.10)	NS	NS
Trial mean	25.1	37.0

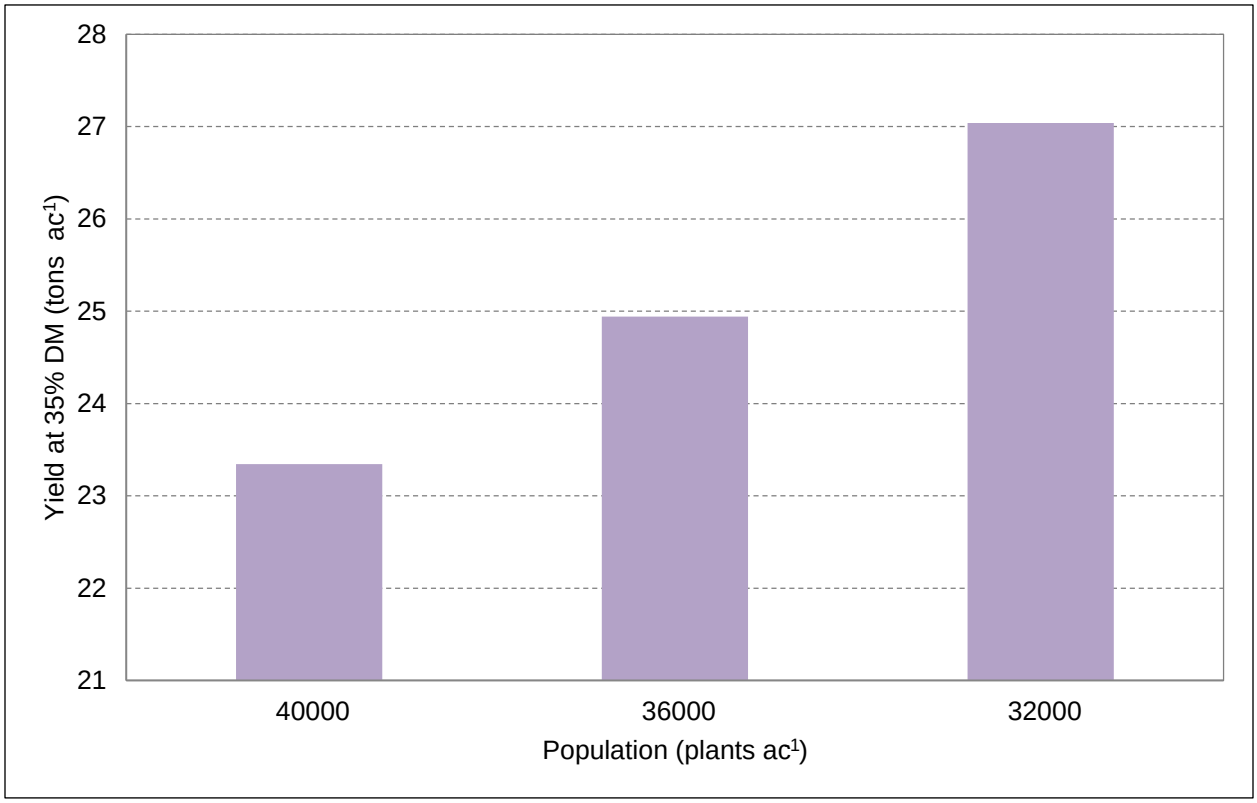

Figure 2. Effect of population on BMR corn yield. There was no significant difference between population rates (p=0.10).

In general, 32,000 plants per acre had the best quality characteristics (Table 6). Plots planted at 32,000 plants per acre showed the highest CP, NDFD and starch concentrations. They also showed the lowest percent NDF and the highest amount of milk per ton and milk per acre. However, these high values were not significantly different from any of the other measurements taken for the populations 36,000 and 40,000 plants per acre.

Table 6. Effects of population on BMR corn quality, Alburgh, VT, 2013.

Population	Forage quality characteristics					Milk	
	CP	NDF	NDFD	Starch	Sugar	ton^{-1}	ac^{-1}
plants ac^{-1}	% of DM	% of DM	% of DM	% of	% of		

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