2011 LEARNING CENTER
at Scott, Mississippi
DEMONSTRATION REPORT

CORN YIELD RESPONSE TO POPULATION AND ROW CONFIGURATION

The effect of population and row configuration on corn performance continue to be topics of high interest for many growers. Research data continues to demonstrate that the individual response of each corn product can vary. In 2011, the Scott Learning Center planted up-and-coming corn products at low, medium, and high populations to evaluate the response to row configuration. This study was a continuation of a demonstration intended to answer questions on the agricultural practices of plant population and row configuration, and assist growers when selecting seed.

Study Guidelines

Testing was conducted at the Monsanto Learning Center at Scott, Mississippi in 2011 to evaluate the effects and interaction of plant population, row spacing, and germplasm on yield potential. Corn plots were planted using either a 38-inch single-row or twin-row configuration. Twin rows were planted 7.5 inches apart on a 38-inch bed with a Monosem® Twin-Row planter. Populations were 30,000; 32,000; 36,000; and 40,000 plants/acre. All treatments were replicated and planted in large plots (151 ft x 4 rows). Nitrogen was applied at 240 lbs/acre, and standard agronomic practices for the area were implemented.

DEKALB® DKC64-69 brand, DKC66-96 brand, and DKC67-88 brand, all with Genuity® VT Triple PRO® technology, were chosen for this demonstration. DKC64-69 is a 114 day product that is medium in height with mid-placed, large ears. DKC66-96 is a 116 day product with a shorter plant type and relatively small, low-placed ears. DKC67-88 is a 117 day product that is tall with high ear placement of medium- to large-sized ears.

Results

When comparing the average of the three corn products across all treatments, DKC64-69 outyielded DKC66-96 and DKC67-88 by nearly 15 bu/acre and 19 bu/acre, respectively (data not shown). On average, twin rows produced 2% more yield (5.3 bu/acre) than single rows (Figure 1). While the yield response to plant population across products suggests a decrease in yield with high plant population (Figure 2), this trend is very dependent on which corn product was planted. Across all three products, yields at 30,000, 32,000, and 36,000 plants/acre were fairly similar. However, the average yield across 30,000, 32,000, and 36,000 plants/acre was 2.6% greater than 40,000 plants/acre.

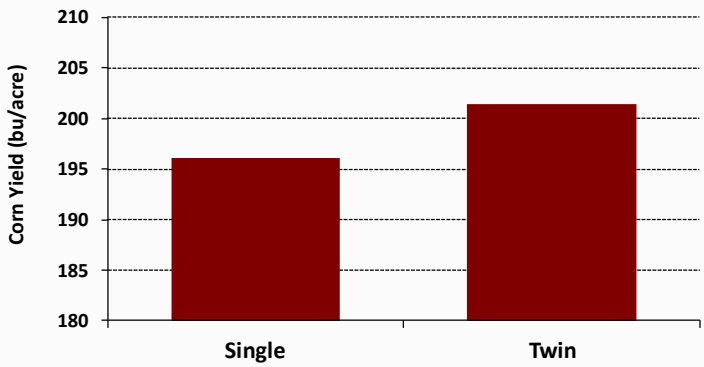

Figure 1. Yield results by row configuration.

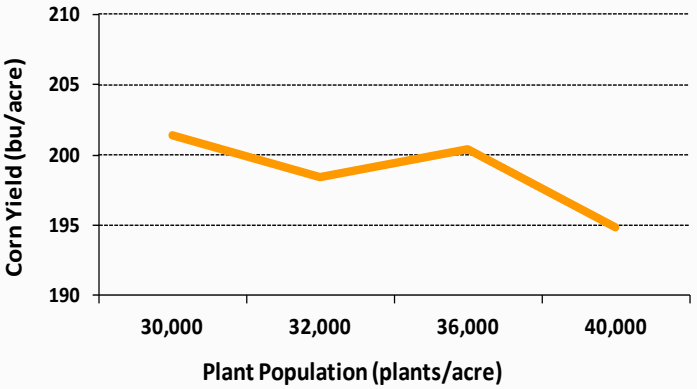

Figure 2. Yield response by planting population.

Summary Comments

Results from this study can provide information on average yield response to row configuration and planting population. Additionally, the row configuration and population data become more valuable when considering which product to place on what acre. For DKC64-69, the interaction of row configuration and population did not have a strong effect on differences in yield; however, 36,000 plants/acre in both single and twin rows had the highest yield (Figure 3).

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DKC66-96 responded to the twin row configuration with 10% more yield (21.2 bu/acre) than single rows. Based on the results, utilizing twin rows along with higher plant populations with DKC66-96 can increase yield potential (Figure 3).

For DKC67-88, there was an increase in average yield for single row configuration compared to twin rows. Increasing population had a negative response in yield for single rows, while 36,000 plants/acre provided the highest yield in twin rows for DKC67-88 (Figure 3).

Results from a similar demonstration at the Scott Learning Center in 2010 indicated that germplasm can strongly affect the optimum plant population and row configuration in terms of yield potential. Additionally, corn with shorter plant heights and lower ear placement were more likely to withstand wind damage that can cause stalk lodging. This adaptation allows for higher plant populations, near 38,000 seeds/acre, and thereby higher yield potential. Results from DKC66-96 in 2011 somewhat support the success of higher plant populations with shorter plant products.

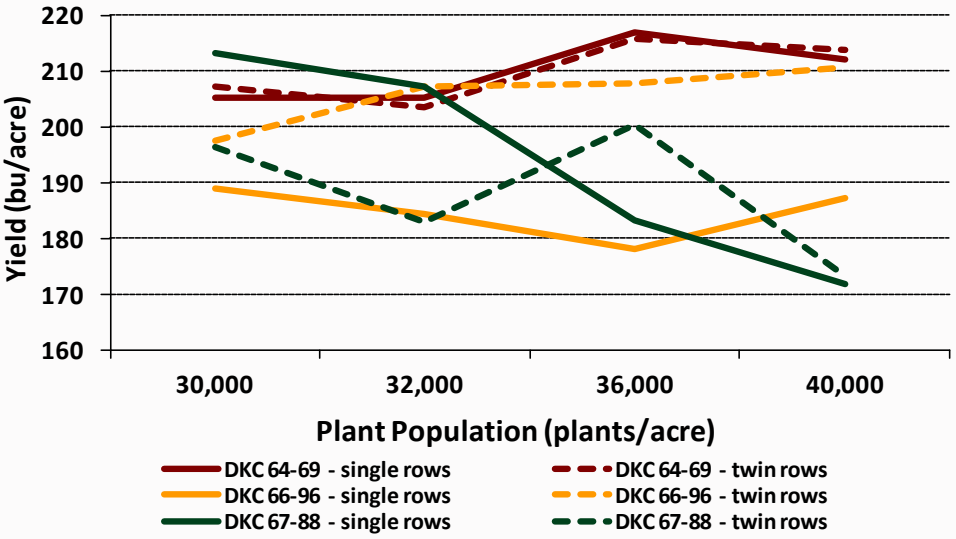

Figure 3. Yield response of DKC64-69, DKC66-96, and DKC67-88 brands, in 38-inch single rows and twin rows, planted at four different planting populations.

Yield potential is greatly influenced by the interaction of product, plant population, and planting configuration. Continued studies such as these should be able to direct the systems approach that is most valuable on a particular acre in order to maximize profitability.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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