



CORN YIELD RESPONSE COMPARING TWO ROW CONFIGURATIONS

Twin-row corn production has gained popularity in the Mississippi Delta especially on wide-row, raised-bed systems. Common questions about twin-row corn are “whether yields can be increased by planting at higher populations, and whether certain products are more suited to the system than others”? This demonstration was conducted to help answer these questions, and to assist growers when making decisions on corn seed selection and planting populations.

STUDY GUIDELINES

A corn demonstration trial was conducted at the Monsanto Learning Center at Scott, MS comparing single and twin-row planting configurations on 38-inch wide-row spacing in a raised-bed system. Three DEKALB® brand corn products (DKC64-69, DKC66-97, and DKC69-29 brands) were chosen for this demonstration. Each product was planted in both row configurations at three populations (31,000, 36,000, and 39,000 plants per acre). Twin rows were planted 7.5 inches apart on 38-inch beds with a Monosem® twin-row planter (Figure 1). Field work and preparation was appropriate for the row configuration, with twin rows requiring some extra preparation in making the relatively wide, flat, and stable bed typically needed to optimize the planting performance of the twin-row planter. Corn was planted on April 5 and harvested on September 6, 2012. Standard agronomic practices for the area were implemented with irrigation provided as needed.

RESULTS AND CONCLUSIONS

When averaged across planting populations, twin rows out-yielded single rows by 2.2% or 5 bu/acre. The yield increase of twin rows

over single rows was similar to that obtained in 2011 testing at this location.¹ In other testing, a three-year Mississippi State University study did not find any yield advantage to corn grown in twin rows over single rows on 38-inch centers.² Testing often indicates that twin-row corn production will not necessarily result in greater yields compared to single-row plantings at similar populations, but there is also no indication of a reduction in yield with the twin-row configuration.³ With planting technology (planting speed, E-Set units, hydraulic planter drives, planter adjustments, increasing grower awareness) improving over the years in both systems, yield differences between the two configurations may be diminishing. Precision twin-row planting can offer the potential for corn yield increases by improving plant-to-plant spacing both across and down the rows.

In this demonstration, twin-row corn yields increased with increasing planting populations (Figure 2). Corn yield increased by 3% or 7 bu/acre from the lower planting population of 31,000 plants per acre (ppa) to the higher planting population of 39,000 ppa in the twin-row configuration. With single rows, corn yield increased from a planting population of 31,000 to 36,000 ppa, but there was no further increase in yield when planting at the high



Figure 1. Single and twin-row configurations planted on 38-inch centers.

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population of 39,000 ppa. The results suggest that there may be a greater opportunity for corn yield potential with higher planting populations in a twin-row configuration.

When averaged across row configurations and planting populations, the three DEKALB brands yielded similarly with an overall demonstration plot average of 233 bu/acre. However, the products responded differently to row configuration and planting population (Figure 3). Twin rows out-yielded single rows regardless of the planting population with DKC66-97 and DKC69-29 brands. The twin-row yield advantage ranged from 3 to 6% (6 to 14 bu/acre) with these products. However, twin rows out-yielded single rows only at the lowest planting population of 31,000 ppa with the DKC64-69 brand. Testing in 2011 with DKC64-69 brand showed little interaction of row configuration and population on yield.¹ DKC69-29 brand appeared to benefit the most from higher planting populations in this testing. DKC66-97 and DKC69-29 brands also appeared to respond better to the twin-row configuration.

SUMMARY COMMENTS

Results from this demonstration and previous testing 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 a specific acre. DKC64-69 brand has shown consistency over the past two years of testing with little interaction of row configuration and

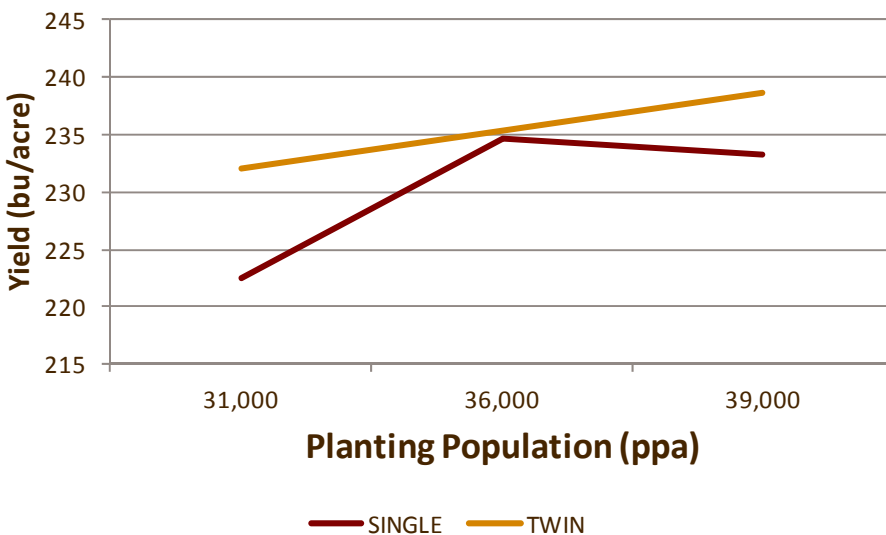


Figure 2. Effect of planting population on corn yield averaged across three DEKALB® brands planted in single and twin-row configurations on 38-inch wide-row spacing in 2012.

population on yield. In both years, the highest yield for DKC64-69 brand was at 36,000 ppa in both single and twin-row configurations. The results are also consistent with extensive commercial experience, and similar to previous results where optimal yields for DKC64-69 brand have been in the 32,000 to 34,000 ppa range.

In this testing, yields of DKC66-97 brand increased with higher planting populations, and yields were higher in the twin-row configuration. In general, the response of DKC66-97 brand to higher populations agrees with previous experience in testing DKC66-96 brand, a similar and related Genuity® VT Triple PRO® product. Yields of DKC69-29 brand also increased with higher planting populations, and higher yields were obtained in the twin-row configuration. Results indicate that yield potential can be greatly influenced by the interaction of product, plant population, and planting configuration.

¹ Corn yield response to population and row configurations. Monsanto Learning Centers 2011 Demonstration Reports.

² Buehring, N.W. et.al. 2003. Corn response to twin and narrow rows with selected seeding rates. Northeast Branch Experiment Station, North Mississippi Research and Extension Center, Mississippi State University, Verona, MS.

³ Bruns, H. A. et.al. 2012. Comparing single-row and twin-row corn production in the Mid South. Online. Crop Management doi:10.1094/CM-2012-0404-01-RS.

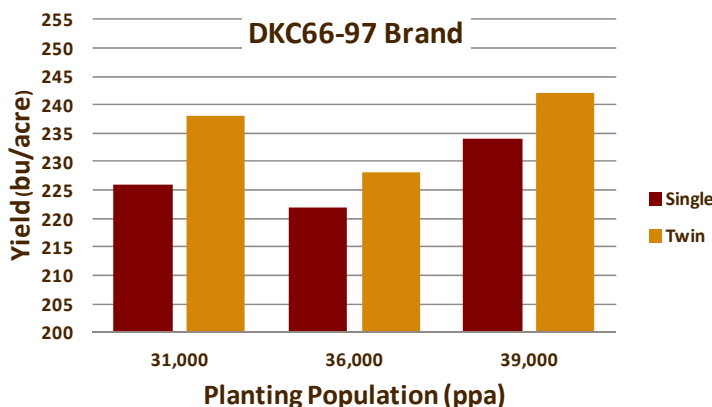
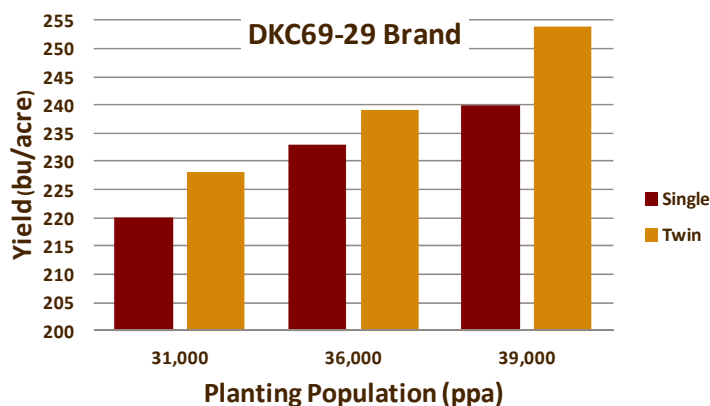
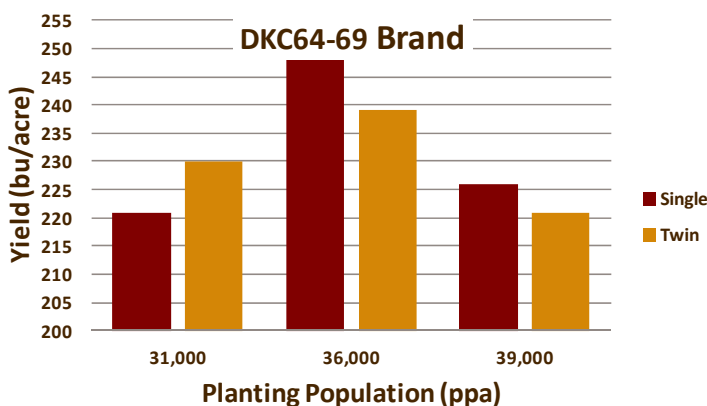
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Figure 3. Effect of row configuration and planting population on corn yield of three DEKALB® brands in 2012.



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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