

2011 LEARNING CENTER at Scott, Mississippi DEMONSTRATION REPORT



CORN RESPONSE TO POPULATION, ROW CONFIGURATION, AND SOIL TYPE

In response to grower requests, modern and/or recently released corn brands were planted to 38-inch twin rows (TR) or 30-inch single rows (SR), at three populations, and evaluated for yield on a sandy loam soil at the Scott Learning Center. Additionally, the same corn brands and populations were evaluated in 30-inch SR on a silty clay soil. These evaluations can be considered when determining planting population and row spacing options that can help maximize yield potential and profitability, while minimizing the risk of lodging and the costs associated with lodging and harvest loss.

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/row configuration, and corn brand on yield potential. Demonstrations were conducted in two locations, one with a silty clay soil and one with a sandy loam soil. Seven brands ranging from 111 to 118 day relative maturity were evaluated. Populations were 33,000; 36,000; and 39,000 plants per acre (ppa). Corn plots were planted using either a 38-inch TR or 30-inch SR configuration. At the location on silty clay, only 30-inch SR were established.

RESULTS—SANDY LOAM LOCATION

Effect of Row Spacing/Configuration and Population.

Across all corn brands, the 38-inch rows yielded similarly regardless of population (Figure 1). The 38-inch TR yielded 196 bu/acre at 33,000 ppa and 193 bu/acre at 36,000 and 39,000 ppa, for an overall average of 194 bu/acre. Averaged across corn brands, the 30-inch SR responded differently to populations. In 30-inch SR, 36,000 ppa yielded 9 bu/acre more than at 33,000 ppa and 11 bu/acre more than at 39,000 ppa.

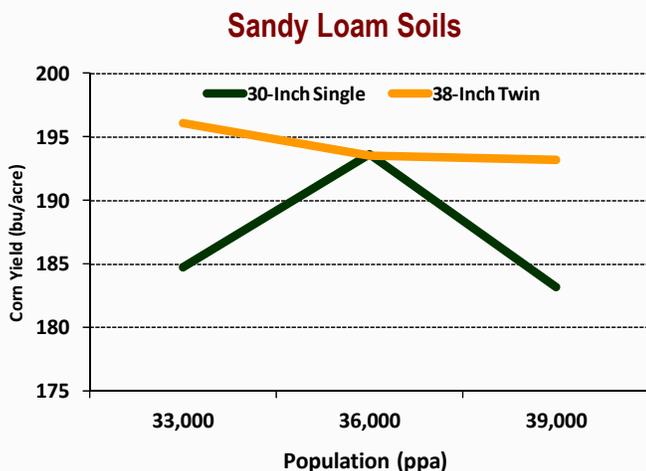


Figure 1. Effect of row spacing/configuration and population on corn yield across seven brands in sandy loam soils.

Sandy Loam Soils

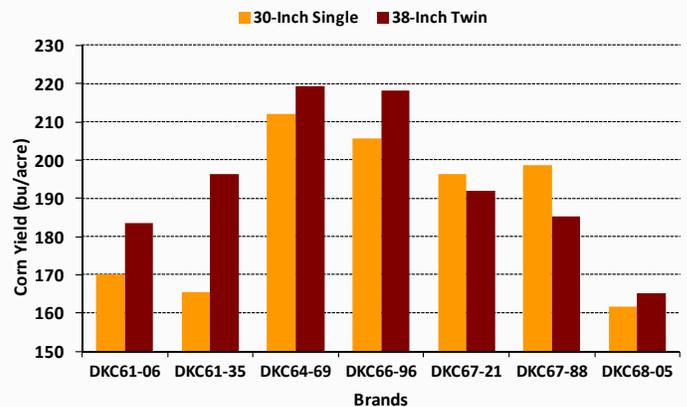


Figure 2. Effect of row spacing/configuration and corn brand on corn yield across three populations in sandy loam soils.

Effect of Row Spacing/Configuration and Corn Brand.

Most brands had greater yields in 38-inch TR compared to 30-inch SR (Figure 2). The magnitude of the response varied by brand.

Effect of Population and Corn Brand.

Yield response to different populations varied by corn brand (Figure 3). DKC67-21 and DKC68-05 brands decreased in yield as the populations increased. DKC66-96 brand showed very slight positive response to increased populations. DKC61-06, DKC61-35, DKC64-69 and DKC67-88 brands had maximum yield response at 36,000 ppa.

Effect of Population and Row Spacing/Configuration on Corn Brand Response.

Tested brands demonstrated a variety of responses to row spacing/configuration and population (Figure 4). The choice of brand had the greatest effect on yield potential, which emphasizes the importance of understanding how various brands perform in a local environment. The earlier brands (DKC61-06, DKC61-35, DKC64-69, DKC66-96) yielded the most and had a more positive response to population increases in 38-inch TR compared to later

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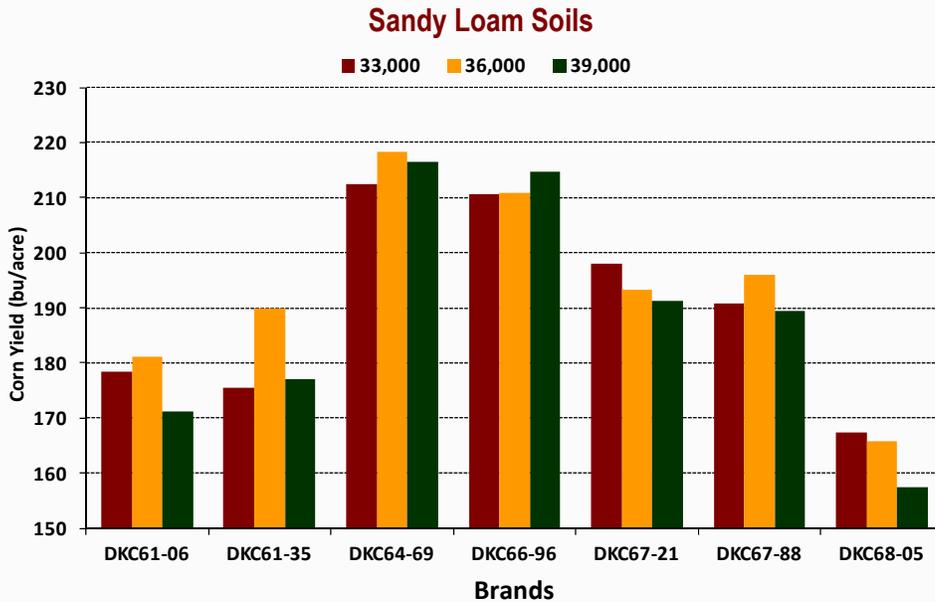


Figure 3. Effect of population and brand on corn yield across 30-inch single and 38-inch twin rows in sandy loam soils.

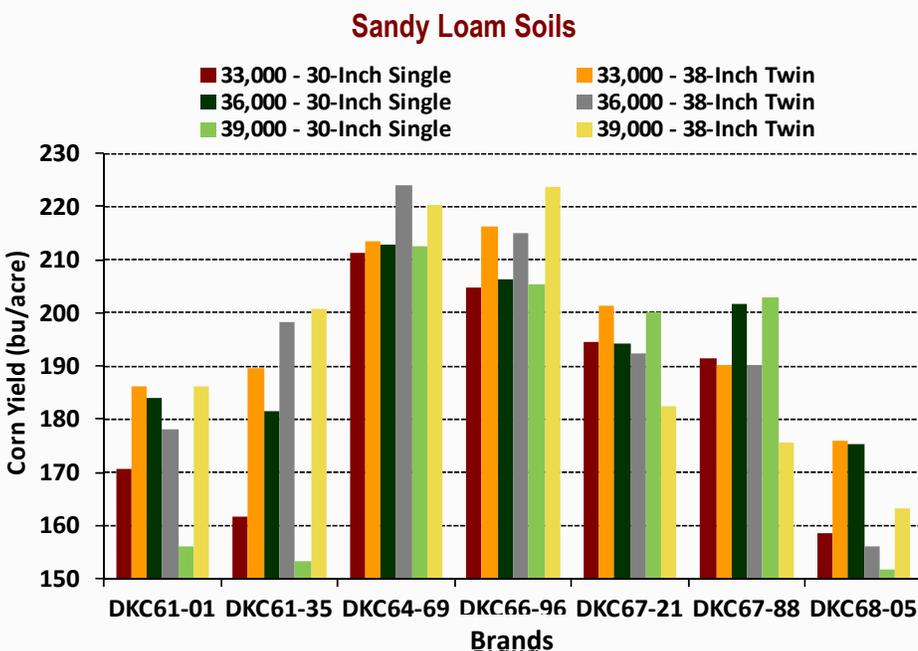


Figure 4. Effect of population and row spacing/configuration on corn brand yield performance in sandy loam soils.

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brands (DKC67-21, DKC67-88, DKC68-05) that tended to perform better in 30-inch SR and generally had a negative yield response to higher populations in 38-inch TR.

RESULTS— COMPARISON OF THE SANDY LOAM VS. SILTY CLAY LOCATIONS

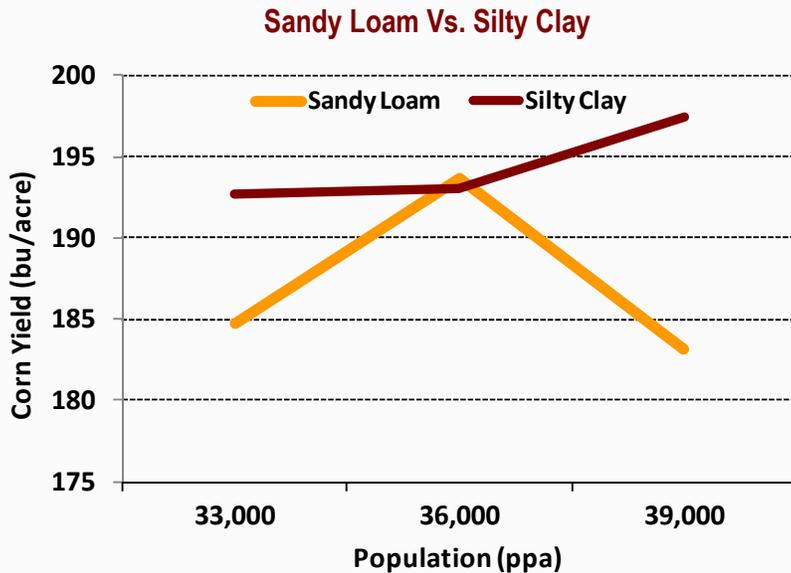
The silty clay location yielded more and had a more positive yield response to higher populations than the 30-inch SR treatments at the sandy loam (Figure 5).

Brands differed in their response to soil type and population (Figure 6). Soil type had a large effect on the yield performance of DKC68-05 brand, which clearly performed better if placed on silty clay soils. Soil type did not have a large effect on the response of DKC64-69 or DKC67-88 brands to population, although DKC64-69 brand performed better on sandy loam soils, while DKC67-88 brand performed better on silty clay soils. Several other differences and similarities could be identified, which is an illustration of the importance of understanding how each brand reacts in different environments and soil types, at different populations.

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SUMMARY COMMENTS

Corn brand adaptation to the area was critical to optimizing yield potential. Both row spacings/configurations provided good yield potential, with the 38-inch TR doing slightly better in most scenarios. Most often, 36,000 ppa was the optimal population. However, corn brands differed in their response to soil type, population, and row spacing/configuration.

Overall, these demonstrations illustrate the importance of selecting brands that demonstrate consistent performance in an area. After selection, understanding how the individual brands perform on different soil types, respond to different populations, row spacings and configurations can help maximize yield potential.

Figure 5. Effect of population on corn yield across seven corn brands in 30-inch single rows in different soil types.

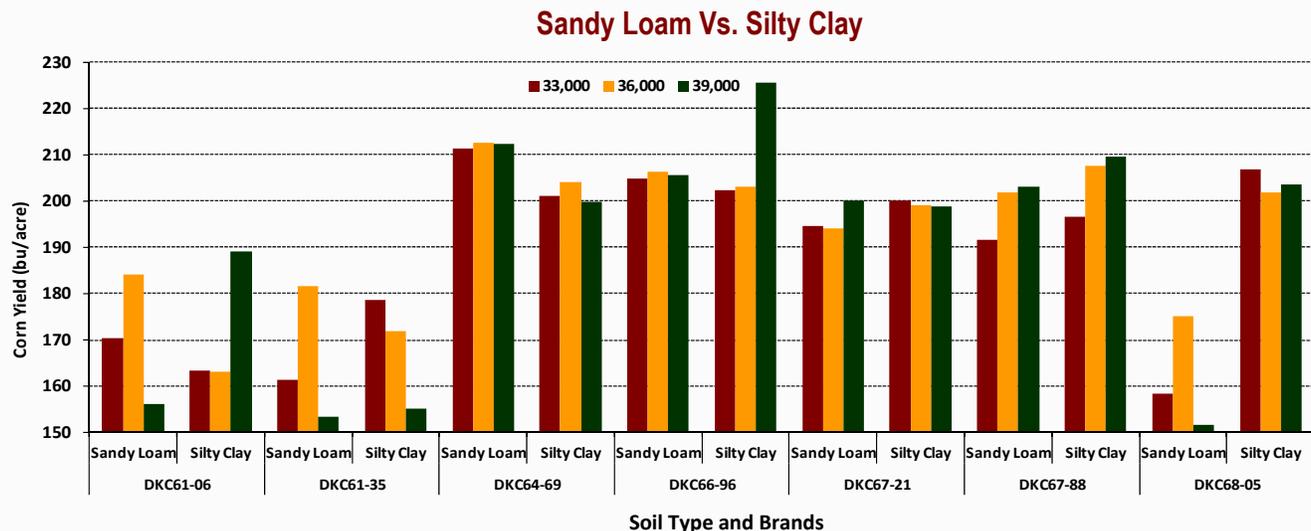


Figure 6. Effect of soil type and population on corn brand yield response in 30-inch single rows.

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.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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