ly paralleled actual plant populations and ranged from 28,200 to 43,960 plants/ac. Corn yields in 2008 were lower than harvested in previous years and ranged from 208 to 225 bu/ac. Increasing seeding rates above 37,000 plants/ac did not significantly increase grain yields. Contributing factors probably included a different corn cultivar, corn following corn, and a different growing season. Slow field drying conditions and periods of unusually high humidity and cloudiness resulted in below average seed quality. There was also no yield advantaged to N rates above 220 lb N/ac as would be expected at the lower yield levels.

On-farm evaluations with twin-row corn production have led to several recommendations that are keys to successful implementation of the practice. Good beds that are shaped and firm provide the ideal situation for early, uniform stand establishment. Rollers equipped with middle busters are able to clean the furrows and firm the tops of the beds. The firm and level surface makes it easier to control the planting depth of each row and assures both rows emerging and growing at the same rate. A row off to the side of the row could emerge late or not emerge at all due to poor soil to seed contact. Delays in development are compounded through the growing season as one row becomes dominant to the other. Also, rows planted too near the edge of the bed, can have plants with malformed brace roots that can contribute to root lodging. Nitrogen applications are needed on both side of the row to insure adequate fertility to both rows. The same is true of irrigation with water needed down every row. In conventional systems, some producers choose to water non-traffic middles only, rather than each row middle. With twin-row planting systems, ground cover is achieved more quickly with less opportunity to cross the field after the crop is planted compared to traditional wide rows (38- to 40-in). In soybean production, the twin-row system provides yield advantages of 8 to 12% or more compared to single-row production systems. Research is still underway to determine how much yield advantage twin-row seeding has to single-row seeding for corn. Increasing seeding rates to increase grain yields has been shown in the Mississippi Delta on traditional cotton soils. In single-row, wide-row productions systems, increasing seeding rates tend to produce smaller stalks with less overall stalk strength that lodge more readily. Some cultivars have the ability to withstand higher plant populations that can produce higher yields. The next step in the process will be to identify commercially available cultivars that stand with higher plant populations.

▸ Indepth Corn Hybrid Selection

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Making wise hybrid choices can potentially impact corn profitability more than any other management decision or input during the season. Corn hybrid selection may appear very simple because the main criterion is grain yield. However, picking the best choices involves intensive evaluation of a long list of hybrids using multiple information sources, which can easily become confusing. Hybrid genetics also influence numerous plant characteristics capable of influencing realized yield and profitability. Furthermore, hybrids are available with many additional technology traits with can address production limitations.

Corn hybrid performance may be assessed through information from several sources, including replicated research trials (university or private hybrid trials), demonstration trials and field comparisions. Each of these sources has benefits and limitations. Replicated research trials allow you to compare yield performance of a great number of entries with relatively high precision. High precision is possible, because replication of entries minimize the influence of variability inherent in field trials. Therefore, research trials can be used to pare down choices for further evaluation for your specific conditions. Demonstration or strip trials are best suited to allow you to compare plant characteristics

of a moderate number of promising hybrids. However, strip trial yield data is much less reliable than research trials, because field variability is not accounted for. These trials do allow you to assess plant characteristics of hybrids, such as plant and ear height, canopy closure, leaf orientation, and also evaluate responses including early vigor, drought resistance, stalk or root strength, and disease resistance in many cases. Numerous strip trials are conducted all around the state, so you can likely actively participate in this method of hybrid evaluation during the entire cropping season near your farm or business. Field comparisions offer perhaps the most opportunity to assess hybrid performance to specific cropping, tillage or management systems and/or soil types. However, you cannot practically implement a research or strip trial in every field, so these findings normally result from careful observation during the cropping season. This information is very subjective and limited to only those few hybrids produced on your farm or a single hybrid where a response was associated. Integrating this information can improve your ability to select superior hybrids and utilize them in appropriate management systems where they will likely be more productive.

Many plant characteristics often influence harvestable or realized yield. One substantial factor is stalk lodging. Stalk lodging often occurs in production fields in at least two different ways – root lodging and stalk lodging. Both types of lodging normally significantly hamper combine harvest, reducing the harvestable grain and substantially increasing time, labor and resources required to complete harvest. Root lodging occurs when environmental forces exceed the ability of the root system to provide lateral support to the corn plant. This causes the entire corn stalk to lean or fall from ground level, usually dislodging part of the root system from the soil. Root lodging often occurs well before harvest as plants approach physiological maturity (when plant is still green), because the mass of the plant is more than any other time during the season (maximum ear weight and the stalk is full of water). Stalk lodging occurs when the corn stalks lose integrity causing them to bend, break or otherwise collapse. Therefore, considerable harvest delays and inclimate weather generally increase stalk lodging and losses associated with this damage. Stalk lodging is important when this breakage occurs below the ear.

Hybrid maturity may directly influence harvest date and may also impact profit through its effect on grain moisture. Hybrids grown in the Mid-South may differ in maturity by as much as two weeks, but the highest yielding (best-adapted) hybrids typically are 113-120 days in relative maturity. Large producers can utilize hybrid maturity and planting date to spread harvest and possibly avoid shortcomings associated with limited grain handling infrastructure in this region. Producers may also realize marketing advantages by harvesting earlier and/or spreading harvest over a longer time.

Hybrids are also likely to differ in disease resistance. However, my experience and recent intensive research associated with fungicide use on corn has shown infrequent foliar disease development which has reduced yield potential only in limited situations in Mississippi. The utilization of corn primarily in crop rotation systems has likely substantially reduced yield limitations resulting from diseases in this region, and likely our need to use this as a primary selection criterion.

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