

2010 Demonstration Report



THE LEARNING CENTER

at Scott, Mississippi

Corn Planting Depth Effect on Final Population and Yield

Many factors go into raising a successful corn crop, and one easy way to start a crop off right is by planting seed at the optimum depth. Much research on corn planting depth has been conducted in the Midwest, but as a result of very different environmental conditions it is important that seed depth studies are also conducted for corn producers in the Midsouth.

Study Guidelines

In 2009 and 2010, studies were conducted at the Learning Center at Scott, MS to evaluate how different planting depths affect corn stand establishment and final harvest yield. In the trials, two corn products with different relative maturities (RM) (114 and 119 RM) were selected. In each plot, a corn product was planted at 1-, 2- or 3-inch depth. Soil fertility, irrigation, and weed control remained constant across all plots.

Results

Results from the study showed different relative maturity corn products responded similarly to different planting depths. Preliminary results suggest that seed planted at the 2- and 3-inch planting depth resulted in the highest final plant population and highest yield (Table 1). At both the 2- and 3-inch planting depth a more uniform plant stand was established. Planting at these depths also allowed for proper nodal and brace root development, which is vital for maintaining good stands during the season and at harvest.

Corn seed planted at 1-inch depth resulted in non-uniform, below-target final plant populations and lower yields when compared to plots planted at more ideal planting depths. Even though the 1-inch depth did allow for stand establishments, shallow planting still resulted in poor nodal and brace root development (Figure 1). Corn planted at 1-inch depth resulted in an average final plant population reduction of 34% and an average yield reduction of 23% when compared to plots with planting depths of 2 or 3 inches (Table 1).

Determining the ideal plant depth can vary depending on the soil type and available moisture, but in general, planting approximately 2 inches deep will help the seed to germinate and allow the plant to establish an adequate root system. Corn producers should set their planter at these depths, double checking seed depth after planting a short distance

into a field and rechecking planting depth after changing fields. Shallow planting of less than 2 inches can result in an uneven plant stand and poor root formation. Results from this study indicate that there is a very good chance yield will be lost if corn is planted at a depth of 1 inch or less.

Effect of Planting Depth on Harvest Population and Yield

Planting Depth (inches)	Plant Population at Harvest (plants/acre)	Yield (bu/acre at 15% moisture)
1	22,166	192
2	33,666	247
3	34,333	252

Table 1. Effect of planting depth on plant population and yield at harvest.



Figure 1. Effect of planting depth on root growth. Corn planted at 1-inch depth (left), 2-inch depth (middle) and 3-inch depth (right).

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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