

2009 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 has already been conducted in the Midwest on corn planting depth, but due to very different environmental conditions it is important that seed depth studies are also conducted for corn producers in the Midsouth.

Study Guidelines

In 2009, a study was conducted at the Learning Center at Scott, MS to evaluate how different planting depths effect corn stand establishment and final harvest yield. For the trial, two corn products with different relative maturities (114 and 119 RM) were selected. In each plot, a corn product was planted at ½, 1, 2 or 3 inch depth. Soil fertility, irrigation, and weed control remained constant throughout all plots.

Results

Results from the study showed the 114 and 119 RM corn product recorded similar response to planting depth. The

shallow planting still resulted in poor nodal and brace root development. Corn planted at 1 inch resulted in a final plant population reduction of 51% when compared to plots planted at 2 or 3 inches.

The 2-inch and 3-inch planting depth had the highest final plant population and highest yield. At both 2- and 3-inch planting depth, good seed-to-soil contact was achieved, which resulted in a more uniform plant stand. 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.

Determining the ideal plant depth can vary depending on the

Corn Product by Relative Maturity (RM)	Planting Depth (inches)	Population Stand Count at Harvest (plants/acre)	Yield (bushels/acre at 15% moisture)
114 RM	½ inch	2,000	0
	1 inch	15,000	153
	2 inches	36,000	245
	3 inches	36,000	253
119 RM	½ inch	2,000	0
	1 inch	20,500	188
	2 inches	33,000	241
	3 inches	35,000	238

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

shallowest planting depth, ½ inch, resulted in an extremely low final population and total crop failure as measured in yield. Planting the corn seed at ½ inch left most seeds just under the soil surface, easily exposing the seed to predators or limiting the seed-to-soil contact needed for germination.

Corn seed planted at 1 inch resulted in non-uniform, below target final plant populations and lower yields when compared to plots planted at more ideal planting depths. When compared to the ½ inch planting depth, the 1 inch depth did allow for the establishment of many more plants; however,

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.

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. ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Technology Development by Monsanto and Design(SM) is a trademarks of Monsanto Technology LLC. ©2009 Monsanto Company.

