EFFECTS OF PLANTING DEPTH ON CORN STAND ESTABLISHMENT AND YIELD

TRIAL OVERVIEW

- Accurate planting depth is directly related to even seed emergence, and is a critical aspect of creating the perfect environment for every seed.
- Across the Midwest, 1.75 to 2.25 inches is the typical recommendation for corn seeding depth. This ensures good seed-to-soil contact, places seeds into adequate moisture during the planting window, and ensures the establishment of a strong nodal root system.

RESEARCH OBJECTIVE

- To evaluate the impact of planting depth on corn establishment and grain yield.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Huxley, IA	Clay Loam	Soybean	Conventional	05/31/2017	10/19/2017	220	34,000

SITE NOTES:

- A 108 RM SmartStax® RIB Complete® corn blend product was used for the trial.
- Plots were planted with a 6-row John Deere® MaxEmerge® Plus planter fitted with Precision Planting® 20/20 SeedSense® and hydraulic DeltaForce® equipment.
- 165 lbs/acre of anhydrous ammonia was applied in the spring before planting.
- Treatments consisted of 3 different planting depths: 1 inch, 2 inches, and 3 inches, with 5 replications.
- Each treatment was 6-rows wide and 200-ft long in 30-inch row spacing.

UNDERSTANDING THE RESULTS

Figure 1. Corn seedlings depicting different mesocotyl lengths due to different planting depths. From left to right: 1 inch seeding, 2 inch seeding, 3 inch seeding.

- Yields were positively correlated with final harvest population, where the 2 inch seeding produced the most plants at harvest and the highest yields, and 3 inch seeding produced the lowest harvest population and the lowest yield.

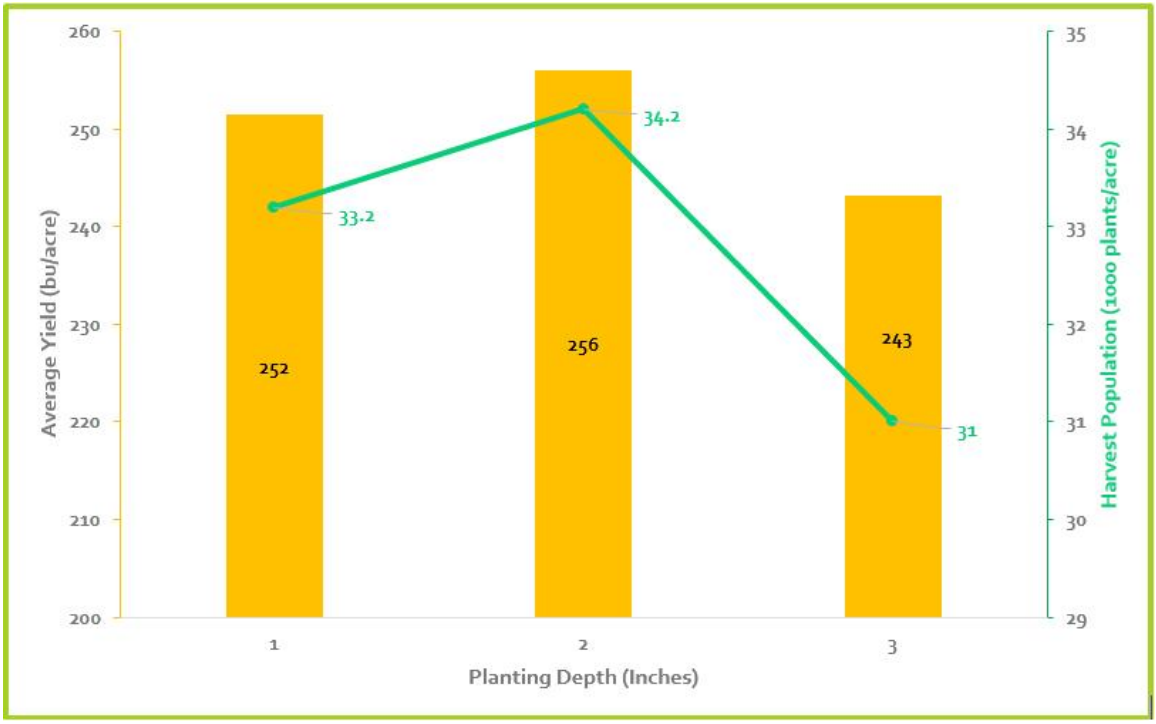

Figure 2. Average yield and harvest population across different planting depths.

WHAT DOES THIS MEAN FOR YOUR FARM?

- Uniform germination and emergence are required to optimize yield potential.
- Achieving this depends on planting depth and the soil conditions (particularly moisture and temperature) during and after planting.
- In dry, light textured soils, planting deeper than 2 inches may be required to place seeds where moisture levels are consistent to ensure uniform imbibition and germination.
- In heavy textured soils, as at the site of this trial, seeding depth should not exceed 2 inches. While performance of the 1 inch seeding was comparable to the 2 inch seeding this season, this may not be the case in most years.
- In most cases, planting shallower than 1 inch is not recommended.