



The Influence Of Planting Depth And Seed Firmers On Corn Stands And Yield

Study Guidelines

A trial was conducted at the Monsanto Learning Center at Scott, MS, to investigate the influence of planting depth and Keeton® seed firmers on corn crop establishment and yield potential. The trial was planted on April 23, 2013 with the corn product DKC62-08 brand Genuity® VT Double PRO® Corn. The treatments consisted of DKC62-08 brand corn planted at three depths: 1.5", 2.25" and 3.0", with and without seed firmers. The planting population was 37,000 kernels per acre. The plots consisted of 4 rows that were 125' long with three replications. Conventional tillage was used and the trial was irrigated.

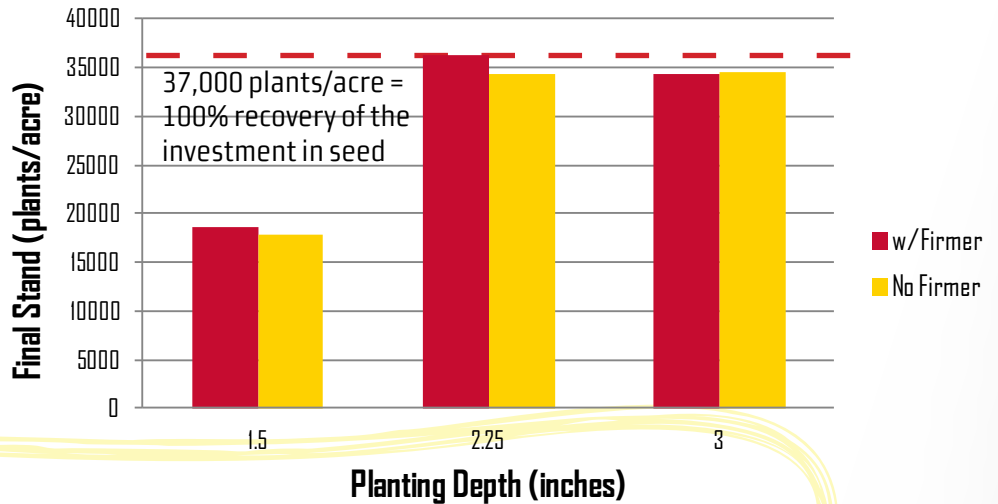


Figure 1. Influence of planting depth and seed firmers on final corn stand.

Results and Conclusions

A Final Stand

Figure 1 shows the final stand based on planting depth with and without firmers. The corn 1.5" deep had a final stand approaching 50% of the seed planted. The 2.25" and 3.0" depths had stands close to the targeted population and were similar to each other. At 1.5" depths, stands were similar with and without seed firmers; however, stands in plots with the firmer treatment were numerically higher. Using seed firmers provided good seed-to-soil contact, thereby allowing more plants to establish in the 2.25" with firmer treatment. At 3" depths, stands were similar across treatments. Figures 2-3 show photographs of treatment comparisons.

When averaged across depths, Keeton® seed firmers improved stands by approximately 1,000 plants per acre. At 2.25" depths, stands were improved by almost 2,000 plants per acre when seed firmers were used and almost 100% of the planted seeds established a plant in the firmer plot. This is a 7% increase in plants established.

Fit X by Y

Figure 4 is a graph and regression equation that indicates 1000 seeds per acre, in the

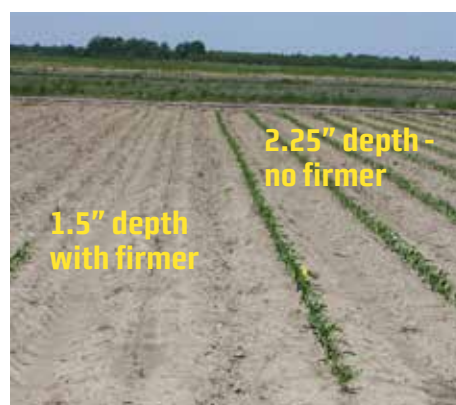
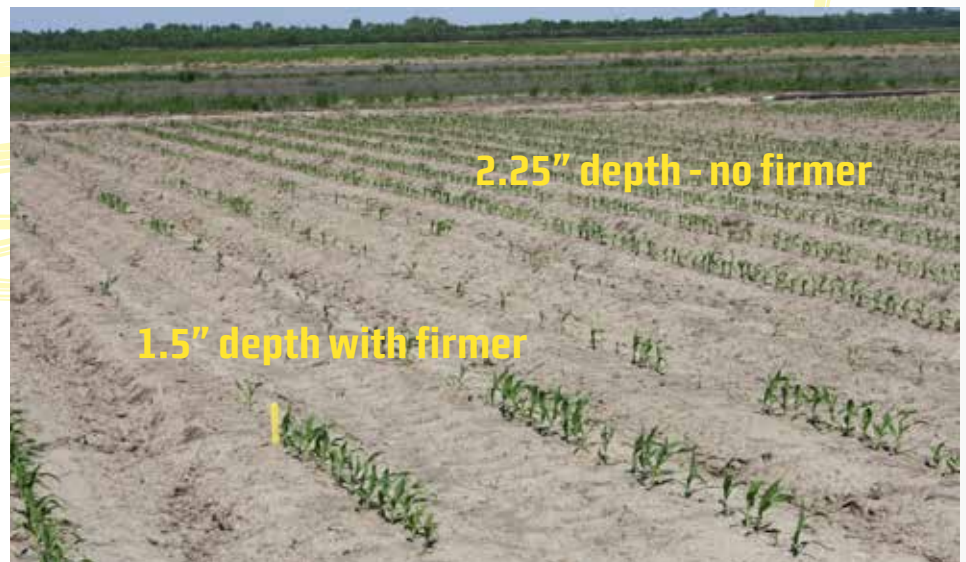


Figure 2. Different replications of the treatment comparison of 1.5" planting depth with firmer versus 2.25" planting depth with no firmer.



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Figure 3. Treatment comparison of 3.0" planting depth, with firmer versus 1.5" planting depth, no firmer.

range tested, had an average yield value of 5.7 bushels of corn per acre. If 5.7 bu/acre is multiplied by the price of corn, it can equal approximately \$30 per acre.

Yield Effects

An average 47 bushel/acre improvement in yield was observed between 1.5" and 2.25" deep planting (Figure 5). This is primarily due to bird predation in the shallow planting. Across depths, an average 11 bushel/acre improvement in yield was observed in the firmer plots. The firmer treatment improved yields at both the 1.5" and 2.25" depths. The firmer treated 2.25" depth, which had the highest population, also had the highest yield. The 3" depth with the firmer treatment yielded less than the non-firmer treated. This indicates that seeds can be pushed too deep and points out the need for proper equipment adjustment.

Summary

Seed firmers help in recovering the investment in seed and help in promoting uniformity across the field. The 2.25" depth with firmer treatment had the highest stands, due to optimal depth and good seed-to-soil contact created by the firmer. The firmer treatment improved yields at both 1.5" and 2.25" depths. The lower yields in the 3" depth with firmer treatment compared to 3" with no firmer, indicate seeds can be pushed too deep and points out the need for proper equipment adjustment.

Seeding depth is an effective tactic to minimize bird predation. If the seed is placed deep enough that birds cannot pull up the kernel, plants are likely to survive and establish a stand. Corn must be planted deeper than soybeans and cotton. Planting corn a little deeper can be better than planting a bit shallower. If corn seed is planted too shallow, the roots can end up on or at the soil surface, which can influence nutrient and water uptake and also standability.

The information discussed in this report is from a single site, 3 replicate 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.

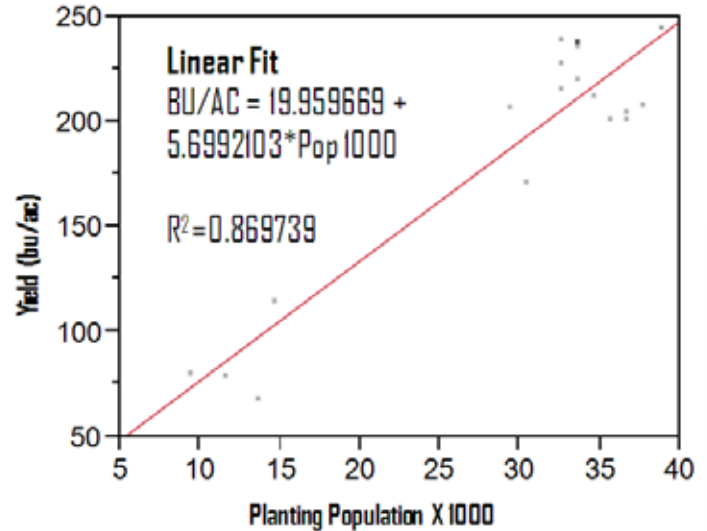


Figure 4. Graph and regression of Planting Population X 1000 by Yield (bu/acre).

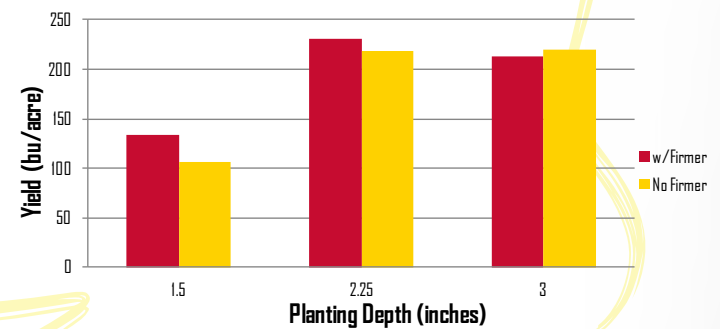


Figure 5. Influence of planting depth and seed firmers on corn yield.

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