



Planting Depth Study in Maize

STUDY CONTACT:

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OBJECTIVE:

The objective of the study was to demonstrate the effect of planting depth on maize grain yield.

STUDY DESIGN:

During the 2018/2019 cropping season, maize yield was compared at different planting depths (2.5, 4, 7, and 9 cm) using the MF 9812 precision planter at the AGCO future farm in Zambia.

RESULTS:

Overall grain yield was lower than average due to very low precipitation in this region during the 2018/2019 cropping season. Planting at 7 cm deep resulted in the overall highest yield (6.2 tons/ha) (Figure 1). Comparable yields (about 7% lower) were obtained at the 4 and 9 cm planting depths, whereas planting at 2.5 cm deep resulted in the lowest yield (about 10% lower).

Adequate soil moisture is critical for rapid and uniform seed germination, along with root establishment. Therefore, farmers should always aim to plant seeds where moisture is present. In this trial, according to the yield results, 7 cm was the optimal planting depth. Although there was also adequate moisture at 9 cm deep, the seedlings require more energy to reach the surface.

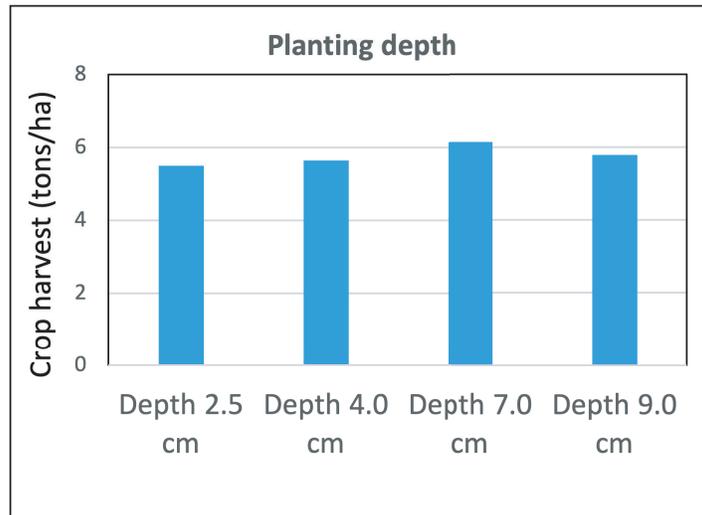


Figure 1: Maize yield in tons/ha dry matter at harvest. Maize was planted at 2.5, 4.0, 7.0, and 9.0 cm planting depth and harvested at maturity



Figure 2: MF 9812 (12 row) precision planter at work at the AGCO future farm in Zambia.



Figure 3: Maize planted using the MF 9812 (12 row) precision planter at 7 cm (highest yield) and 2.5 cm (lowest yield)

ADDITIONAL OBSERVATIONS:

Planting at 7 cm ensured more even emergence and better use of plant resources.

RECOMMENDATIONS & EQUIPMENT SOLUTIONS:

Considering the importance of soil moisture for seed germination, it is recommended to check moisture levels before and during planting and adjust planting depth accordingly. SmartFirmer™ soil sensor measures soil moisture in real time during planting.

PAYBACK

There was an average 0.5t/ha reduction in maize yield from a wrong planting depth as compared to the best yield. This equates to an average increase revenue of \$70/ha.

Assumptions: Average price of maize - \$140/t