



## A partial study of vertical distribution of conventional no-till seeders and spatial variability of seed depth placement of maize in the Alentejo region, Portugal

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**Abstract** The requirements for a good stand in a no-till field are the same as those for conventional planting as well as added field and machinery management. Among the various factors that contribute towards producing a successful maize crop, seed depth placement is a key determinant. Although most no-till planters on the market work well under good soil and residue conditions, adjustments and even modifications are frequently needed when working with compacted or wet soils or with heavy residues. The main objective of this study, carried out in 2010, 2011 and 2012, was to evaluate the vertical distribution and spatial variability of seed depth placement in a maize crop under no-till conditions, using precision farming technologies and conventional no-till seeders. The results obtained indicate that the seed depth placement was affected by soil moisture content and forward speed. The seed depth placement was negatively correlated with soil resistance and seeding depth had a significant impact on mean emergence time and the percentage of emerged plants. Shallow average depth values and high coefficients of variation suggest a need for improvements in controlling the seeders' sowing depth mechanism or more accurate calibration by operators in the field.

**Keywords** Maize · No-tillage · Seeding depth · Sensing · Seeder

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