

# **Dalena Hardy, Agricultural Economics and Agricultural Journalism**

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## **Maize brace root formation and correlation with juvenile nodes and tassel structure**

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Global warming causing changes in weather patterns is making drought a more frequent occurrence. Drought is a major limiting factor of maize production worldwide. To maintain high production levels, it is important to identify maize lines which are tolerant to water-stress conditions. A significant trait in drought tolerance is an extensive root system. Root systems in maize are composed of not only below ground roots but also above ground roots. These above ground roots are commonly known as brace roots, and they function to keep the plant upright and provide a surface for nutrient and water uptake and gas exchange. Preliminary studies have demonstrated correlations between brace root architecture and tassel branching. There is a negative correlation between central spike length and number of nodes with brace roots. Studies also indicate brace roots emerge from juvenile nodes. The objective of this study is to examine these relationships on a set of 25 diverse maize lines. Leaf traits were measured to identify juvenile, transitional, and adult leaves. These data will be used to determine if juvenile nodes give rise to brace roots. Various measurements of tassel structure will be gathered and statistically analyzed for relationships between tassel traits and brace root architecture. Examining tassel structure and juvenile node number may help in the selection of maize lines with an increased number of brace roots which allow for adaptation to water-stressed environments.