

A route for steeper, cheaper, and deeper roots

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Plants with thinner roots can grow deeper, a trait which could be exploited in lands affected by drought and nutrient deprivation. New research, to be presented at the Society for Experimental Biology meeting on July 5, shows that maize roots which have fewer cortical cells in the outer layer of their roots are more efficient at accessing water and nutrients.

A research team headed by Prof Jonathan Lynch at the Pennsylvania State University, United States, found that [maize roots](#) show [natural variation](#) in the number of [cortical cells](#) in their roots which can be selected preferentially for cultivation on land where deep roots are an advantage. A field study in collaboration with the Bunda College of Agriculture in Malawi shows that a lower number of cortical cells, reduces the energetic cost of soil exploration by the roots.

Prof Jonathan Lynch said: "A lower number of cortical cells means that the plants spend less nutrients produced by the shoots to maintain the [root cells](#). In drought-stressed maize this trait increases rooting depth, as the plants can spend more nutrients growing deeper, which improves water acquisition, growth, and yield."

By combining this trait with other plant traits such as improved disease resistance, the researchers expect that there is potential to produce improved seeds for agriculture. These plants, due to this new trait, could maintain a high yield in areas where drought is increasingly problematic.

More information: This work will be presented at 10:30 on Friday 5th

July 2013 at the 2013 Annual Meeting for the Society for Experimental Biology.

Provided by Society for Experimental Biology

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