Investigating the impact of soil texture on root water uptake using SWaP and 3-D modeling

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Hypothesis and objectives

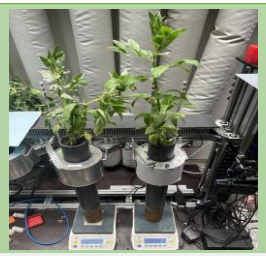
Rhizosphere resistance and its dynamics differ according to the combinations of soil textures, plant, and environmental conditions

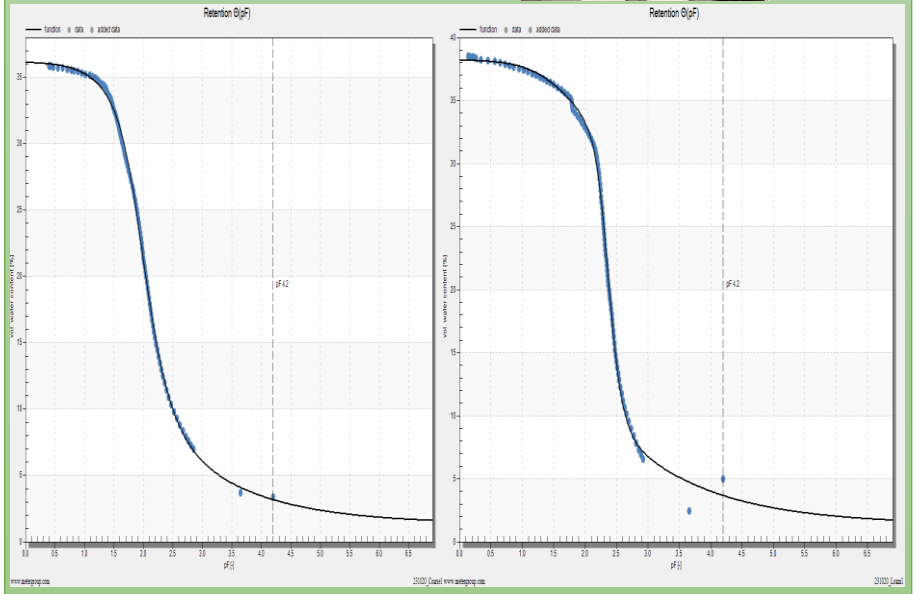
Improvement of our understanding of how soil texture affects root water uptake and how root-shoot contact is affected

Soil Water Profiler (SWaP)

Magnetic Resonance Imaging (MRI)

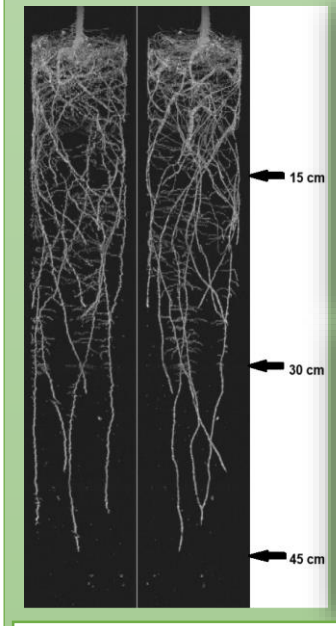
3D Modeling (R-SWMS)

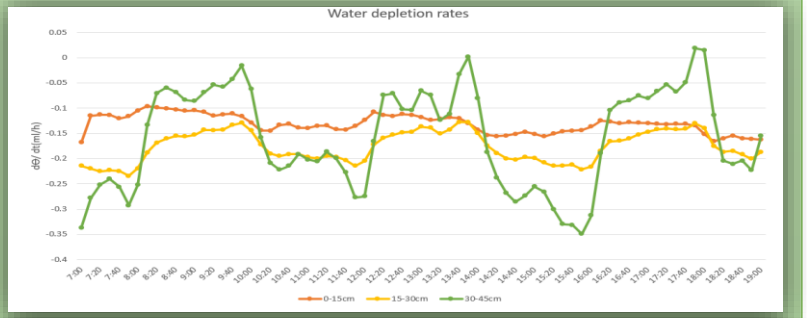


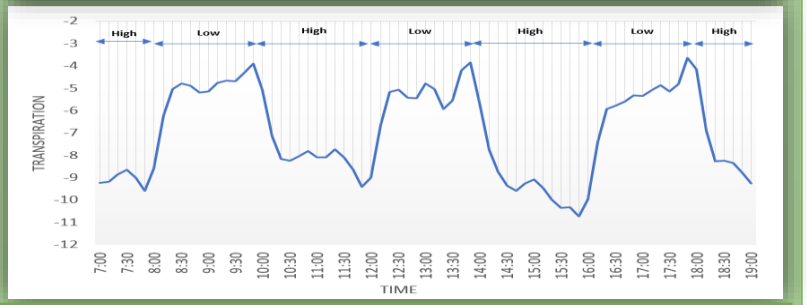


Characterization of two type of soils (loamy and sandy)

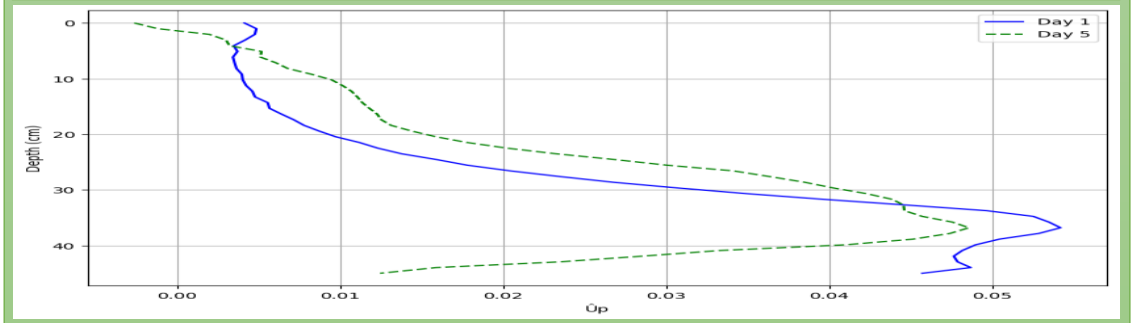
Results







Alteration of low and high light intensity to stimulate Transpiration and to determine root water uptake profiles



Determination of $\hat{U}_p$ at day 1 and 5 using linear regression between transpiration and dϴ/ dt