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### **Soil moisture sensor evaluation in Idaho sugarbeets.**

Precision irrigation management can increase sugarbeet grower profits by improving crop quality, reducing water and pump costs, and building resilience in drought years. Soil moisture sensors provide a method for monitoring soil water status and ensuring crops do not experience drought stress while avoiding excess irrigation applications. The numerous options of commercially available soil moisture sensors can be overwhelming to growers, making it necessary to establish guidelines for navigating the various technology, installation procedures, prices, and performances. This study evaluated the performances of five different types of soil moisture sensors installed in two southern Idaho sugarbeet fields with silt loam and loamy sand soils. Based on metrics of accuracy and precision, sensors ranked from best to worst performance were as follows: Acclima True-TDR315, AquaCheck Sub-Surface Probe, Watermark 200SS, PR2 Profile Probe, GroPoint Profile (installed using a pilot rod), and GroPoint Profile (installed using auger and slurry procedure). Parameters of relative cost and ease of use are also discussed. With the results of this study, growers can make better informed decisions and build confidence in the technology they are investing in for improved irrigation management.

