# Smart Soil Monitoring

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This study compares the performance of four different soil testers to see the most accurate and reliable device for measuring soil. The experiment tests the sensors on three types of soil, sandy loam, silty loam, and clay. Data were collected over time for each soil type, including temperature, moisture, and light levels, to test the sensor's response and accuracy under various environmental conditions. For sandy loam, the sensors showed consistent readings across the time. With moisture levels remaining stable and light measurements correlating with changes in environmental conditions. The performance of the sensor was also analyzed in silty loam, where moisture retention was slightly higher, and the sensors responded more sensitively to light. Clay soil demonstrated a slower moisture change, and sensor accuracy was affected by its density and compactness, making it more challenging to obtain reliable readings. Overall, the data analysis suggests that while sandy loam and silty loam soil types performed similarly in terms of moisture retention, silty loam soil provided more reliable readings for light sensitivity. This suggests that the choice of soil can influence the sensor's accuracy, especially in varied environmental conditions. The results of this study offer valuable insights into the effectiveness of different soil testers in real-world agricultural and research applications.

**Awards Won:**