



SOIL MOISTURE PROBES

Just like fuel gauges monitor fuel levels in a gas tank, soil moisture sensors monitor moisture levels in the soil. Irrigating without using soil moisture sensors is similar to driving without a fuel gauge: you're likely to be overcautious to ensure you get to where you're going!

Soil moisture probes are designed to estimate soil volumetric water content based on the dielectric constant of the soil. The dielectric constant can be thought of as the soil's ability to transmit electricity. The dielectric constant of soil increases as the water content of the soil increases, since the dielectric constant of water is much larger than other soil components, including air. So, measurement of the dielectric constant gives a predictable estimation of water content. Like a fuel gauge tells a driver when the tank is full, soil moisture sensors tell crop producers when their crops do not need additional watering.

BENEFITS OF SOIL MOISTURE PROBES

- ▶ Know which parts of a field need irrigation
- ▶ Know how much water to apply via irrigation
- ▶ Know when to water, which leads to water savings, energy cost savings
- ▶ Improved crop health and productivity

CHALLENGES OF SOIL MOISTURE PROBES

- ▶ Expensive hardware and data plans
- ▶ Raw data can be difficult to analyze and interpret into useful information
- ▶ Installing and removing the sensors every season causes wear on equipment and can be inconvenient for crop producers
- ▶ Poor internet connectivity in rural areas can inhibit data transmission

OTHER INFORMATION

- ▶ Crop consultants recommend having two sensors for each soil type in a field.
- ▶ Some companies provide analytic services for soil moisture data , offering customized irrigation recommendations to crop producers
- ▶ Ag-smart technology can help farmers improve production and reduce costs. As more farmers take advantage of these tools, the overall agricultural industry will benefit.