Evaluation of Soil Moisture Sensor-based Watering

University of Florida IFAS Extension Studies

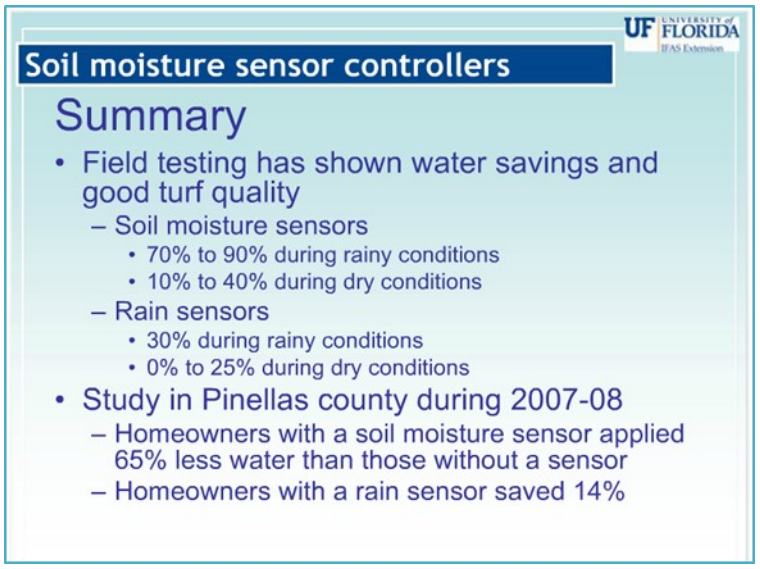
PRODUCT LIST

- Baseline biSensor™ Soil Moisture Sensors
- WaterTec S100™

BENEFITS

In addition to reduced water consumption, soil moisture sensors contribute to deeper plant root growth, reduced soil runoff, and leaching. They also prevent overwatering, which eliminates conditions that are favorable to pests and fungal diseases.

For a number of years, the University of Florida has been testing the use of soil moisture sensors with irrigation systems. In one study, they compared the water savings on irrigation systems equipped with soil moisture sensors with irrigation systems equipped with rain sensors.



These tests showed that irrigation systems with soil moisture sensors saved a significant amount of water when compared to systems equipped with rain sensors.

After 26 months of data collection beginning in 2007, only the homes with soil moisture sensor-equipped controllers resulted in significant savings compared to the homes with no added technology, 65 percent, while maintaining good quality landscapes. Several homes remained in this study and are still occupied with functional soil moisture sensors after five years.

University of Florida research shows that soil moisture sensors can reduce residential irrigation water use by 50%.

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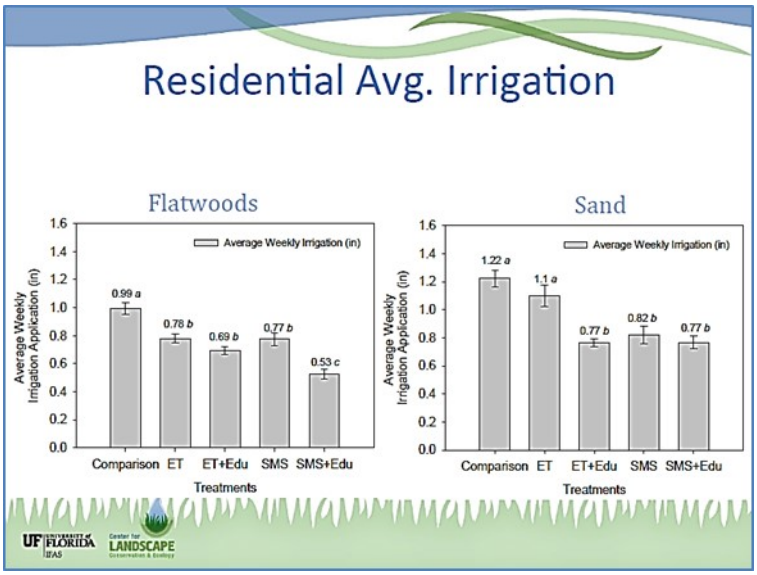
Comparing Soil Moisture Sensors with ET



The University of Florida conducted another year-long study comparing the water savings of soil moisture sensor irrigation controllers with ET-based irrigation controllers. In this study, the participants were high-water users in locations with sandy soil and locations with the flatwoods soil type that occurs in the southeastern United States.

Half of the study participants received ET-based controllers and the other half received Baseline soil moisture sensor irrigation controllers. In each of these groups, some systems were simply installed and left to run, while other systems were installed with an accompanying tutorial on how to use the controller.

Results

The results showed that the participants who received the tutorials saved the most water over the course of the study. In the sandy soil locations, the ET-based controllers and Baseline soil moisture sensor controllers achieved equal water savings, while in the flatwoods soil locations, the Baseline soil moisture sensor controllers showed a significant savings over the ET-based controllers.

IN SUMMARY

Both rain sensor and soil moisture sensor technologies offer water conservation potential in automated irrigation systems. Although rain sensor devices can be effective, they are much less so than the soil moisture sensor devices that we have tested with SMS controllers – typically reducing irrigation two to three times more than rain sensor devices.

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References

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