

HANDOUT: Sensing Substrates for Automated Irrigation Scheduling

Important Factors to Consider

1. Container Size

- Height vs. Width (Gravitational Effects on Container Capacity)

2. Substrate Physical and Chemical Properties

- Air-Filled Porosity (AFP)
- Water Holding Capacity (WHC)
- Plant Available Water (PAW)
- Electrical Conductivity (EC)

3. Types of Sensors (3 most common)

- Capacitance Sensors (measure total water, i.e. WHC)
- Time Domain Reflectometry (TDR, also measure WHC)
- Tensiometers (measure Matric Potential, i.e. PAW)

4. Sensor Placement

- The MOST important consideration for repeated, precision measurements. Very important for automated (sensor-driven) irrigation decisions
- Consider WHAT you want to measure (e.g., accurate measurement of salts, EC), nutrient applications and nutrient leaching



