

Ready-to-Use Leaf Wetness Sensor



DETECT LEAF WETNESS DURATION WITH A SENSITIVE, CALIBRATED, STANDARDIZED SENSOR

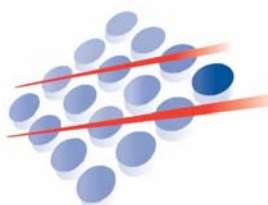
Many diseases affect plants only when moisture is present on the leaf surface. The Dielectric Leaf Wetness Sensor detects the presence and duration of wetness on a leaf's surface, enabling researchers and growers to forecast disease and protect plant canopies. The Leaf Wetness Sensor approximates the thermal mass and radiative properties of leaves to closely mimic the wetness state of a real leaf. Because the sensor does not take resistance based measurements, it requires no painting or user calibration, and it can detect ice formation as well.

Leaf Wetness Sensor Specifications:

Measurement time: 10 ms
Power: 2.5 VDC @ 10 mA to 5 VDC @ 7 mA
Output: 250 to 1500 mV
Operating Environment: -20 to 60°C
Expected Lifetime:
 2+ years continuous use
Probe Dimensions:
 11.2 x 5.8 x 0.075 cm (4.4 x 2.3 x 0.029 in)
Cable Length:
 5 m standard, extension cables available
Connector type: 3.5 mm plug
Datalogger Compatibility: (not exclusive)
 Decagon Em50, Em50R, Em50G
 Campbell Scientific CR10, 10X, 21X, 23X, 1000, 3000, 5000

Applications

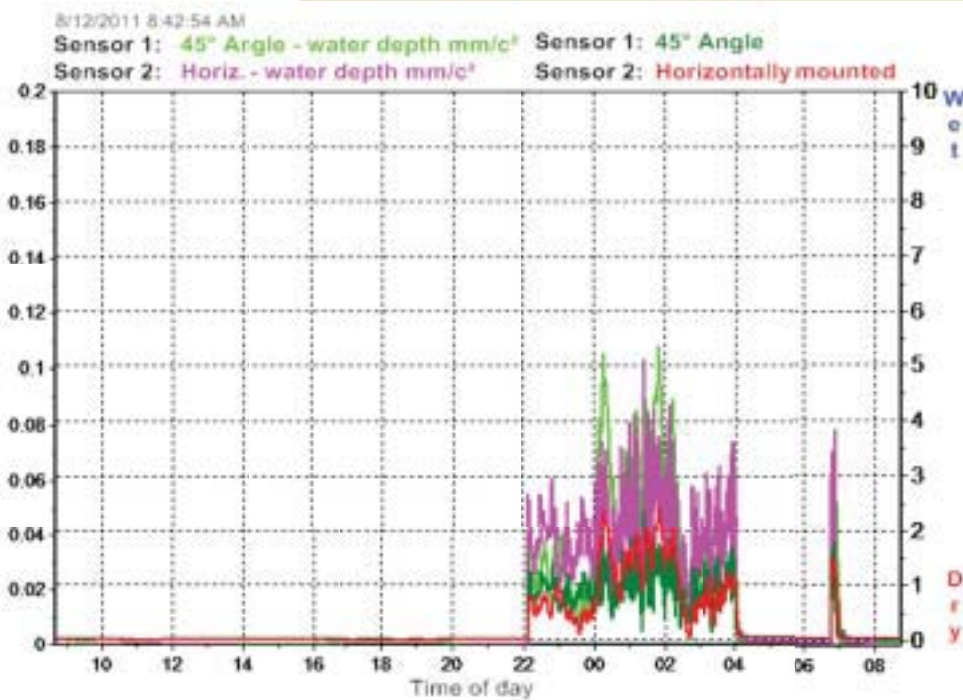
- Disease forecasting and modeling
- Ecological and Agricultural Research



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Water Depth in mm



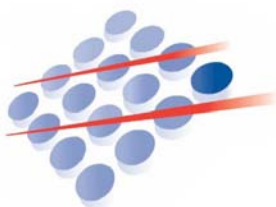
Using leaf wetness in lieu of a rain gauge?

A standard tipping-bucket rain gauge requires around 0.2 mm of water before it records rain fall. The leaf wetness sensor (LWS), on the other hand, can measure trace amounts

Leaf wetness is shown in both degree of wetness on a relative scale of 1–10, and water depth in mm. One sensor is mounted at a 45° angle, while the other is horizontally oriented. The above graph shows dew formation at approximately 10:00 PM when temperatures drop below the dew point.

of moisture, including dew and ice. Dr. Bruce Bugbee and his colleagues at Utah State University get precipitation measurements with a resolution of 0.02 mm—10 times that of a rain gauge—by using an LWS in their solar powered environmental observatory. Because the surface of the LWS measures dielectric, it can be calibrated to measure tiny amounts of moisture quite accurately. It can also warn students and maintenance workers that walkways might be slippery or icy.

See Dr. Bugbee's live leaf wetness data, as well as other measurements, by visiting weather.usu.edu.



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