5. Rainfall and Canopy Wetness

Figure 6. Rain gauges (left and middle) are important for measuring the actual amount of rainfall which will affect how much irrigation is needed. Leaf wetness sensors (right) measure leaf surface or canopy moisture and can be useful in predicting plant diseases (Photos courtesy of Decagon Devices).

Rainfall volume is important for scheduling irrigation. The actual volume, and not just the occurrence of rain, is important for ensuring that the soil/substrate is brought back to the optimal moisture range.

Tipping bucket rain gauges collect rainfall into a funnel and direct the water to measuring spoons. After a certain volume is collected, the spoon tips and the number of tips is recorded and used to calculate rainfall volume. If heavy rainfall is common, rain gauges with two tipping spoons are preferred over gauges with one tipping spoon.

Figure 7. Tipping bucket rain gauge. The right part of the picture shows the two tipping spoons used for measurement.

Leaf wetness sensors can measure canopy or leaf surface moisture, and can be used to predict plant disease by the duration of canopy/leaf wetness. Growers can also use the measurements to figure out when to irrigate crops that are prone to foliar diseases.

Bayer, A. and M. Van Iersel. 2014. What is a weather station and should I have an on-site weather station? *In:* Managing Irrigation through Distributed Networks Knowledge Center. M. Chappell, P.A. Thomas and J.D. Jea-Cox. (Eds.). Published online at https://myelms.umd.edu/courses/1092859. 17p.