What is a weather station and should I have an on-site weather station?

1. Introduction

A weather station is a collection of instruments and sensors that measure local weather conditions. Commonly measured environmental variables include light, temperature, relative humidity, rain, and wind. An on-site weather station allows for monitoring of the microclimate in your growing area. Weather conditions can vary over short distances, especially for measurements such as rainfall, which means that off-site measurements may not be accurate enough for irrigation scheduling purposes. Cold pockets can also be highly variable, making on-site weather stations a valuable tool in monitoring and use in freeze protection.

Figure 1. Weather station including a rain gauge, light sensor, anemometer, leaf wetness sensor, and temperature and relative humidity sensor enclosed in a radiation shield (Photo courtesy of Decagon Devices).

Station placement is critical for accurate measurements. Weather stations ideally are installed away from buildings, pavement, and trees and in a flat area. Placement under a tree or near a structure could alter measurements. Greenhouse structures can also impact measurements, especially light measurements, but plants would also be exposed to the same shading. For specific guidelines on weather station placement from Campbell Scientific, click here: ftp://ftp.campbellsci.com/pub/outgoing/apnotes/siting.pdf

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