Dendrometers & Plant Growth Monitoring

Data from a dendrometer

Dendrometers measure changes in stem or fruit diameter. Over a 24-hour period, values cycle between a maximum and a minimum that is correlated with daily transpiration (Figure 1A).

Over periods of weeks and months, values from a dendrometer should increase as the stem or fruit grows to maturity (Figure 1B).

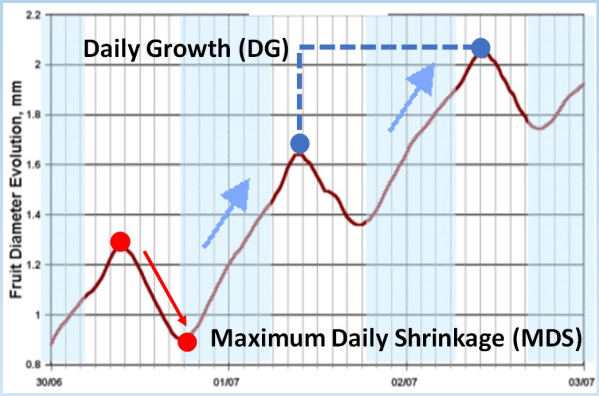

Figure 2.

Why are dendrometers important?

Dendrometers are important because they provide data on plant growth and health. Data can be used for irrigation and nutrition monitoring.

Data can also be used for saving money on water and fertiliser input costs by monitoring how adding, or removing, inputs affects plant growth.

How is plant growth measured?

Dendrometers are a precision sensor to measure plant growth dynamics. Dendrometers can be installed on trunks or fruits to monitor hourly, daily, weekly and seasonal growth dynamics.

As dendrometers are a non-destructive, easy to install and maintain sensor, they are favoured by growers as a plant monitoring tool.

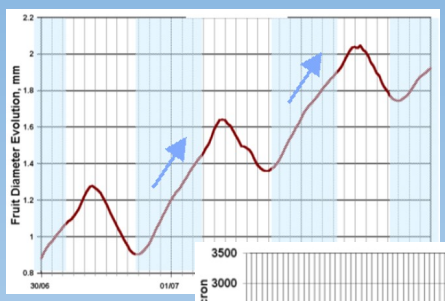

Figure 1A. Three days of dendrometer data.

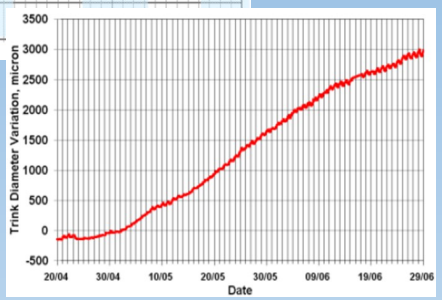

Figure 1B. Three months of dendrometer data.

How to interpret dendrometer data

Two useful ways to view dendrometer data are Daily Growth (DG) and Maximum Daily Shrinkage (MDS) (Figure 2).

DG is how much a stem or fruit has expanded between days—i.e. a measure of growth.

MDS is how much a stem or fruit contracts over a 24-hour cycle. A well irrigated, or hydrated plant, will have a higher MDS value than a stressed plant.

edaphic scientific
environmental research & monitoring equipment
www.edaphic.com.au
info@edaphic.com.au