Irrigation and Water Management

For frost protection irrigation, see section Severe Weather Events *on page 38*

Irrigation is recommended during the dryer periods of the year to reduce tree stress, reduce fruit drop and improve fruit size. In the Far North region, irrigation is essential.

Figure 8: Sprinkler in an avocado orchard.

SETUP

Irrigation should be a sprinkler system, with 1 or more sprinklers (Figure 8) per tree with a radius that allows even water coverage over as much of the area from the trunk to the dripline of each tree as possible.

Tensiometers (Figure 9) or electronic probes for measuring soil moisture should be stationed on a tree in each area of the orchard with differing soil moisture factors. They should be positioned halfway between the trunk and the dripline of a tree, and within the sprinkler area.

MAINTENANCE

An annual check of all irrigation components should be undertaken 4-6 weeks prior to when irrigation is likely to be needed. A visual inspection of lines and sprinkler heads should be undertaken during each irrigation event.

Tensiometers also need to be well maintained, serviced regularly and have good contact with the soil they are installed in.

SCHEDULING

The amount of water an avocado tree uses depends on a range of factors including: the location of the orchard and tree, the size of the canopy, environmental conditions, the time of the year and the crop load. Calculating the amount of water being applied and monitoring the soil moisture status can help to inform irrigation decisions.

As a guide, young avocado trees require approximately the equivalent of 6-11 mm and mature trees 15-30 mm of rainfall per week through summer.

$$Rainfall\ equivelant = \frac{number\ of\ sprinklers\ x\ flowrate\ (liters\ per\ hour)}{wetted\ area}$$

$$wetted\ area = \pi\ x\ radius^2$$

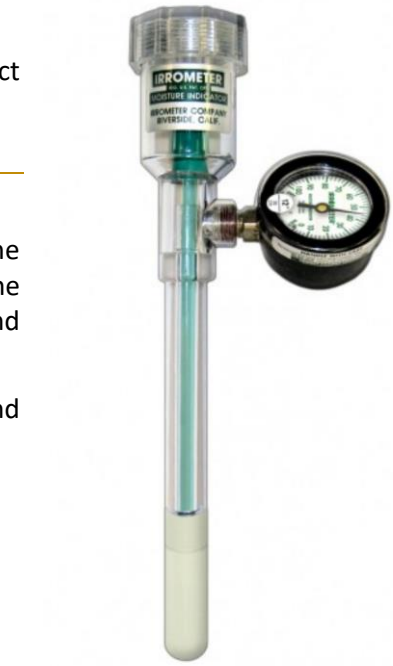

Figure 9: Irrometer Tensiometer

Use tensiometers / irrometers to monitor soil moisture status. Tensiometers measure the tension a tree needs to apply to extract water from the soil and provide a measure on how hard a tree is having to work. Common thresholds to start irrigation with tensiometers are:

- 20-25 kPa in the sandy soils such as those found in the Far North
- 50 kPa in clay soils such as those found in the Mid North
- 30 kPa in loam soils such as those found in the Bay of Plenty.

Mature avocados should be irrigated until the soil moisture is sufficient, and then allowed a drying period before irrigating again (rather than a little-and-often approach).