

Calibrating irrigation scheduling tools using crop growth measurements

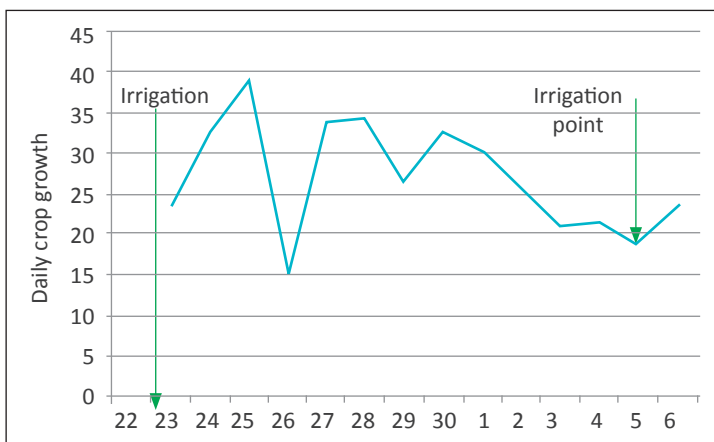
All irrigation scheduling tools should be calibrated so they can be used the most effectively. Crop growth measurements are the simplest calibration method and can be done as soon as the crop starts to develop cane. Crop growth measurements will help determine the irrigation trigger point. At that point the reading on the scheduling tool is taken (for example, mini pan evaporation, tensiometer suction, etc). The tool has now been calibrated for that crop.

Equipment

- Tape measure or measuring stick (a piece of marked conduit works well).
- Bottle lids – for example, milk or juice bottle lids.
- Flagging tape.
- Recording sheet.

Site selection

- The crop should be near full canopy and actively growing.
- The monitoring site should be at least 5-8 rows from the edge and 2-3 m into the paddock.
- Select 25 main stalks, 12 stalks on one side and 13 on the other side. Mark each stalk with flagging tape and place the bottle lids at the base of the stalk (this provides a fixed base for measuring). Number each stalk so that there is a reference for recording.



Taking measurements

- Measure each day, making sure it is at the same time. Take the stalk and measure it from the ground to top visible dewlap (see photo). If the tape measure is hard to use, attach it to a piece of conduit or something similar.
- Record the stalk measurements (see example overleaf). Add these readings together and divide by 25 to give the average growth for the day.

Irrigation trigger points

For a fully irrigated crop, the irrigation trigger point is when the average growth reduces to below 50% of the maximum recorded for two or more days. In the example, this would be about December 4.

For a supplementary irrigated crop, the trigger point will depend on the amount of water available and the region.

Crop growth can stall for a number of reasons, not just irrigation management. Weather conditions such as overcast days can have a major impact. Ideally stalk measurements should be done over more than one irrigation cycle.



Above: Taking measurements.

Left: Graph of daily crop growth.

