



2.4.2 CLIMATE

Raingauges

Without rainfall, most irrigation systems could not cope with the crop demand and would fall hopelessly behind with the watering schedule. Rainfall is highly variable – the amount will vary from farm to farm, and in many rainfall events, even on individual farms. It is therefore important not to rely on a neighbour for a record of rainfall. You must have a raingauge on your own farm; in some cases, more than one gauge on your farm could be an advantage.

A raingauge is the most essential item for making effective irrigation management decisions. It is also the least expensive item, with potentially the greatest return on money spent.

Benefits of having a raingauge

- Makes a direct on-farm measurement of the amount of rainfall that could be added to the soil moisture.
- When used in irrigation decision making, the information will help minimise soil moisture limiting conditions.
- It is not an expensive investment.

A raingauge is only of benefit when the readings are recorded.

Types of raingauges

There are two types of raingauges that are suitable for measurement on the farm:

Manual

These are the most common raingauges. They are simple to install, operate and read. There are many variations; the most common are:

- Marquis 1000 (or look-alike) is probably the most common raingauge. It is a cylindrical gauge with an internal measuring cylinder graduated with both mm and points. The inner cylinder collects 25 mm and, when full, overflows into the outer cylinder, which can hold up to 300 mm of rainfall. This gauge conforms to quality standards for rainfall observation and is recommended.
- Wedge shaped gauges. This type is less expensive and less precise than the Marquis 1000. The precision is lessened because of the volume of rainfall (usually 150 mm) caught in the one container and the narrow orifice at the top.
- Regenmesser (brand name) type gauges. These are round tapered gauges with a wider orifice than base. They are also less expensive and precise than the Marquis 1000. The gauge is normally calibrated to about 40mm but can catch up to about 100 mm.

Automatic or recording

These have an internal “tipping bucket” to measure rainfall depth. Usually, the bucket holds 0.5 mm and tips when full. Each tip triggers an electric switch; the number of tips are accumulated and displayed as mm on a LCD. The rainfall can be returned to zero after an event. These gauges are more expensive than manual raingauges and vary in price depending on brand and degree of sophistication.

Rainfall amounts must still be recorded.

Taking records

Rainfall measurement is only of value when it is recorded. Committing it to memory is not acceptable practice, as it will be forgotten in a short time.

- Record the amount of rainfall on a rainchart.
- Record at least to the nearest 0.5 mm if using a manual gauge, or the amount on the LCD of a recording gauge.
- The accepted standard is to read rainfall at 9:00 am each day. The rainfall is recorded on the chart for the previous day; for example, if you read 10 mm on 10 January, record this amount for 9 January.
- Note the general form of the rainfall, eg thunderstorm, easterly drizzle etc. Long gentle rainfalls are more effective and beneficial than short intense storms, as more of the rain enters the soil during the gentle rainfall.

Where to put the raingauge

Many raingauges are in poor locations that do not provide a precise or representative measure of the rainfall.

- Ideally the raingauge is set in the ground, but it is more practical in a farm situation to fix it to the top of a post or other object so it will not be blown over or tilted by strong winds.
- It should be in a location where stock cannot damage the gauge or rub against it.
- Site the raingauge away from obstacles such as trees, houses, sheds, etc. The distance from an obstacle should be at least twice and ideally four times the height of the obstacle. If it is too close, the gauge will be underexposed and will result in an incorrect estimate of the rainfall.
- If the gauge is overexposed (on a rooftop, on the crest of a hill, etc) the rainfall measured will be incorrect.
- Avoid siting the raingauge on any slope or where the ground falls away steeply.

June 2001