

Micro-sprinkler system checks



Introduction

It is important to check the performance of both old and new micro-irrigation systems. Old systems need checking because their efficiency decreases as they age and wear. New systems (or near new) need checking to ensure they are performing as designed. A pre-season maintenance schedule should be completed at the start of each irrigation season and should involve a check of:

- sprinkler parts
- sprinkler operating pressures
- sprinkler output and
- sprinkler distribution uniformity.

Visual sprinkler inspection

Ensure sprinklers are upright and operating in weed free conditions. Check for blockages and replace any blocked sprinklers with the same type and size of sprinkler.

Sprinkler operating pressures

Set up and run the system as usual. While it is operating check sprinkler pressures in at least five places per block. This can be done using a pressure gauge. Pressure variation should not be greater than plus or minus 10 per cent of the average pressure over the block. Nozzles (jets) should be checked for wear, particularly on overhead sprinklers. Worn nozzles should be replaced with the correct size as specified by the irrigation designer.

Sprinkler output

To accurately know both how much water to apply and the period of

irrigation you need to know the rate of application (mm/hr). This can be calculated by measuring the discharge from your sprinklers. To measure sprinkler discharge for undertree sprinklers, hold the sprinkler upside down in a bucket for 30 seconds at the same height above the ground as when irrigating. Measure the water in the bucket (in litres). Repeat the operation to ensure the measurement is accurate. The output of the sprinkler in litres per hour is calculated using the following formula:

Sprinkler output (in litres/hour)

$$= \frac{\text{water collected (litres)} \times 3600}{\text{time of collection (seconds)}}$$

The depth of water applied by the system is calculated as follows:

Depth of water applied (mm/hr)

$$= \frac{\text{sprinkler output (litres/hour)}}{\text{area covered by one sprinkler (m}^2\text{)}}$$

(where: area covered by one sprinkler (in m²) = sprinkler spacing (m) x lateral spacing (m).

For example:

A sprinkler applying 70 l/hr on a 7.2 m x 3.6 m spacing will apply:

$$= 70 \text{ l/hr} \div (7.2 \text{ m} \times 3.6 \text{ m})$$

$$= 70 \text{ l/hr} \div 25.9 \text{ m}^2$$

$$= 2.7 \text{ mm/hour}$$

continued >>





Micro-sprinkler system checks continued

Hence, in this example, approximately 10 hrs of irrigation is required to apply 25 mm using this system.

Sprinkler uniformity

Sprinkler distribution uniformity is a measure of how evenly a sprinkler spreads water over the soil. Uneven distribution results in areas which are either too wet or too dry. This makes irrigation scheduling difficult. If you apply enough water to adequately wet the dry spots there will be too much water in the wet spots. Conversely, if you schedule by the wet spots, large areas can be left dry. Sprinkler selection, irrigation system design and the correct operation and maintenance of irrigation systems all affect sprinkler uniformity.



For more details contact the Growcom members access line on 1800 654 222

Disclaimer: This information is provided as a reference tool only. Seek professional advice for irrigation specifics.

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