

Soil moisture probe installation

All soil moisture probes work best when installed in such a way that surrounding soil disturbance is minimised. These capacitance probes measure the soil moisture out to about 10-15mm from the probe wall. Good contact between the probe wall and the surrounding soil is key. The probe should be installed into a slightly over-sized hole and must be set into a slurry mix to ensure accurate performance.

Drilling a hole using an auger of 36mm diameter is recommended.

Hortus can supply such an auger if required.

The slurry may be made up of soil removed from the site or using a bentonite- sand mix if the soil is too gravelly or rocky. In most cases, the slurry may be made up using soil removed from the hole.

Soil slurry Preparation:

Pass the soil through a sieve to remove any rocks and organic material. Mix the sieved soil with water to form a creamy paste.

Bentonite slurry preparation (only if required)

The bentonite slurry can be used if the soil on site is unsuitable. (ie too stony)

1kg of fine sand
100g Bentonite
1L water
Small bucket
Funnel

Mix the dry bentonite and sand together in a bucket, add water and mix vigorously (and again at regular intervals until it is used).

Probe Installation

1. Locate a suitable position for the probe. Where drippers are used, the probe should be located 10-15cm away from the dripper. Where sprinklers are used, locate the probe within the wetted area and just inside the natural drip line of a tree.
2. After identifying a position for the probe, drill a hole down to 10cm greater than the probe length (e.g. 95cm for an 80cm probe) using a 36mm diameter auger.
3. Pre-wet the soil in the hole by pouring in enough water to fill it to close to the surface. Wait until the water has drained in to the surrounding soil before proceeding. If you do not pre-wet the hole the soil may draw the water from the slurry too quickly and you will not be able to insert the probe. If this happens, you will have to remove the probe, clear the slurry out with the installation auger and repeat the process (Pre-wetting is usually not required with the bentonite slurry).
4. Pour approximately 7000 mL of the slurry mixture into the hole (for an 80cm probe).
5. Push the sensor down into the hole: as the sensor moves down, it will displace the slurry from the bottom. The slurry mix will fill any air gaps around the sensor and provide a consistent contact with the soil.
6. For the probe to measure the top 10cm of soil, the head of the probe should sit 2.5cm below the surface.
7. Remove any surplus slurry mix from above ground level.
8. If probe does not push down to required depth on first attempt (15kg maximum pressure allowed on top of probe), pull out the probe, clean the hole with the auger and repeat the process.