

Measuring Soil Water Infiltration

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About Hort360

Hort360 is the horticulture BMP program, designed to give production horticulture growers a 360-degree view of their farm operations.

Hort360 assists growers to identify potential risks and off-farm impacts of their practices, capitalise on business opportunities and highlight unnecessary farm expenses. It is a whole of farm business approach, and it's being embraced by growers and horticulture stakeholders throughout Queensland.

Measuring Soil Water Infiltration

Measuring soil water infiltration is a basic way to understand how water is absorbed into the soil on your farm. The rate that the water infiltrates the soil will indicate soil structure and compaction. By minimising traffic and improving soil carbon the water infiltration rate can be improved, minimising runoff, and improving yields. By completing tests in various locations on the farm, the results can be used to manage different soil types and can show if your soils are improving.

Tools required

- Water
- Hammer or mallet
- Block of wood
- A piece of sturdy pipe (this one was 6-inch diameter)
- A stopwatch
- Glad wrap
- A ruler



Method

1. Place the pipe on a flat piece of ground you would like to test. Remove any large pieces of vegetation or rocks.
2. Place the block of wood across the top of the pipe and hit it with the hammer so the pipe goes into the soil about 100mm. If the soil is very dry and compacted or rocky, use a knife to cut a slice into the soil for the ring without disturbing the soil too much.
3. Line the pipe with a piece of glad wrap. This stops the soil surface getting disturbed when adding the water.
4. Insert the ruler and add 25mm of water in the glad wrap. For a 6-inch pipe, the correct amount of water is 444mL.
5. Slowly pull the glad wrap away and start the stopwatch. When the water disappears into the soil and it is just glistening, check the time and note how long it took.

The test can be completed multiple times in the same spot to see if the infiltration rate changes as the soil becomes more wet.

Results

Use the table below to help interpret the results by converting the time it took in seconds for the 25mm of water to infiltrate into centimetres per hour.

sec	cm/h	sec	cm/h	sec	cm/h	sec	cm/h
5	1591	160	44	540	15	3500	2.3
10	796	180	40	620	13	4000	2.0
20	398	200	36	700	11	5000	1.6
30	265	220	33	800	10	6000	1.3
40	199	240	31	900	9	7000	1.1
50	159	260	28	1000	8	8000	1.0
60	133	280	27	1100	7	9000	0.9
70	114	300	25	1300	6	10000	0.8
80	99	340	23	1500	5	12000	0.7
100	80	380	21	2000	4	15000	0.5
120	66	420	19	2500	3	20000	0.4
140	57	460	17	3000	3	30000	0.3

A video of the method is available on Growcom's YouTube page at: youtu.be/awvoKMQCSbY