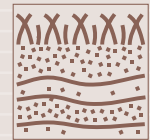


IN SITU HYDRAULIC CONDUCTIVITY TESTS

You will return to the contents of P1 SOIL by clicking the pictogram



P1.60

Determination of the water permeability, also called hydraulic conductivity, is important for agricultural- as well as for environmental soil research.

On the basis of the permeability factor (K-factor) irrigation- and drainage systems are designed. Also with respect to the extend of the spreading of possible pollution the permeability factor of the soil is of great importance. The permeability of the soil can be determined in the laboratory (see P1.87) as well as directly in the field.

09.01.SA Hydraulic conductivity test kit, model Hooghoudt (standard set)

09.01.SB Hydraulic conductivity test kit, model Hooghoudt (extendable set)

In case of direct measurement in the field the auger hole method according to Hooghoudt can be applied. Following this method the determination of the permeability to water of a soil takes little time (by comparison to other methods), requires a limited number of instruments.

The principle of this method is quite simple. A hole is bored in the ground to a certain depth below the groundwater level and after a time the water in the hole will rise to the said water level. The water is consequently bailed out and the time it takes for a new water level to establish itself is recorded. With the help of formulae and/or nomogrammes this rate of water rise can be translated to the average water permeability factor of the different strata of soil.

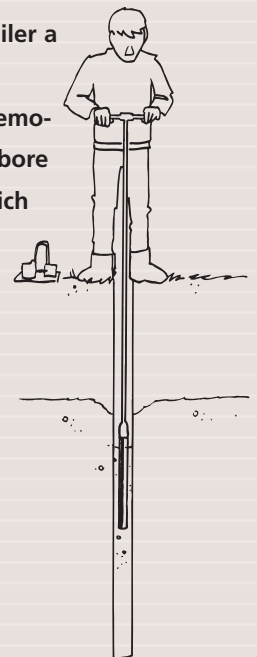
The depth of the bore hole is dependent upon the groundwater level and the thickness and the permeability of the successive layers in the ground profile.

The standard set (09.01.SA) is suitable for measurements to a depth of 2 meter. Basically it contains: an Edelman- and a Riverside auger with an upper part and an extension rod, a bailer, measuring tape with holder and float, a filter and a stopwatch.



Hydraulic conductivity test kit, model Hooghoudt (09.01.SA)

Applying a bailer a portion of the water is removed from the bore hole after which measurement can commence.

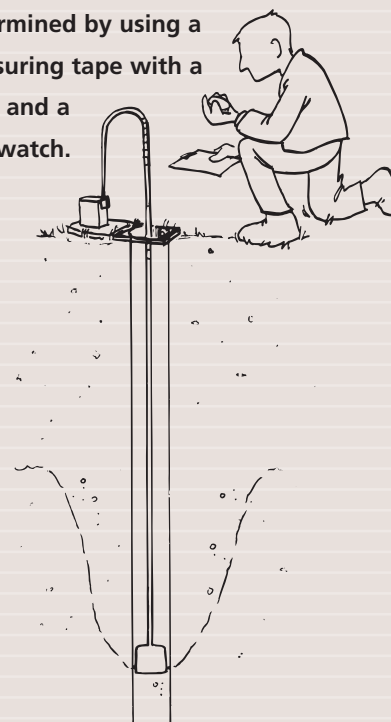


BENEFITS

09.01 Hooghoudt test kits

- The ideal tool to determine drain spacings
- Can be used to distinguish up till two layers
- Casing to stabilize sand below water table

The rise rate of the groundwater is determined by using a measuring tape with a float and a stopwatch.



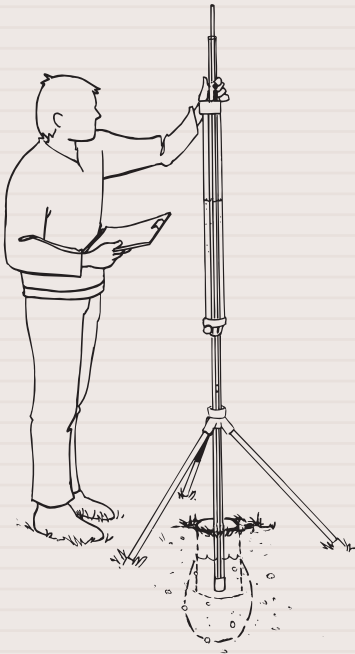
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You will return to the contents of P1 SOIL by clicking the pictogram

P1.60



The extendable set (09.01.SB) is suitable for measurements to a depth of 5 meter. This set includes the same items as the standard set, however the 1 meter long filter has been replaced by an extendable filter with a total length up to 5 meter (also including extension rods for the auger).

BENEFITS

09.07 Guelph permeameter

- Determines permeability in root zone
- Meant for above the groundwater table
- Steady state principle for optimum accuracy
- Simple operation

09.07 Guelph constant head permeameter

The Guelph permeameter is a 'constant head' permeameter that operates in accordance with the principle of the Mariotte bottle. After boring a hole the Guelph permeameter is placed. The water from the permeameter slowly flows into the auger hole and penetrates into the soil. At a certain moment a saturated 'bulb' is formed and the out-flow of water from the storage cylinder reaches a constant value (that is measured).

These measuring data together with the diameter of the auger hole and the level of the water in the auger hole, are used to determine the (saturated) hydraulic conductivity of the soil.

The complete standard set, for measurement up to a depth of 75 cm, fits in a carrying bag and, among other items, contains: the Guelph permeameter, a tripod, drill bits, a vacuumtest manual pump, a fold-up jerry can and various accessories.



Extendable filter (for 09.01.SB)



Guelph constant head permeameter