

botanist



Quick start

Sensor Installation

User and Installation Guide

EN

Contents

Contents	2
Instruction for use	3
SIGNAL WORDS	3
CE compliance.....	4
Botanist Starter Kit	4
Botanist Starter Kit.....	5
1. Preparation	6
Preparation before installation: Step 1-8.....	6
Installing AA batteries	6
2. Planning the field	8
Planning the field: Step 9-12.....	8
Planning the field	8
3. Installing Gateway.....	9
Installing gateway: Step 9-12.....	9
Installing Gateway.....	9
4. Installing Sensors.....	10
Installing Sensors: Step 13-20.....	10
Installing Sensors.....	10

Instruction for use

This instruction for use manual describes the installation and intended use of Botanist sensor. The operator must read and understand the intended use of this product.



CAUTION: Always ensure with manual that sensors are correctly mounted and installed, signal words are indicated with **NOTE:** or **CAUTION:** or **WARNING:**

SIGNAL WORDS

- **NOTE:** Signal word used to indicate a notification or a suggestion.
- **CAUTION:** Signal word used to indicate a potentially failure, could result in minor or moderate breakage.
- **WARNING:** Signal word used to indicate a potentially failure, could result in damage and system failure.

CE compliance

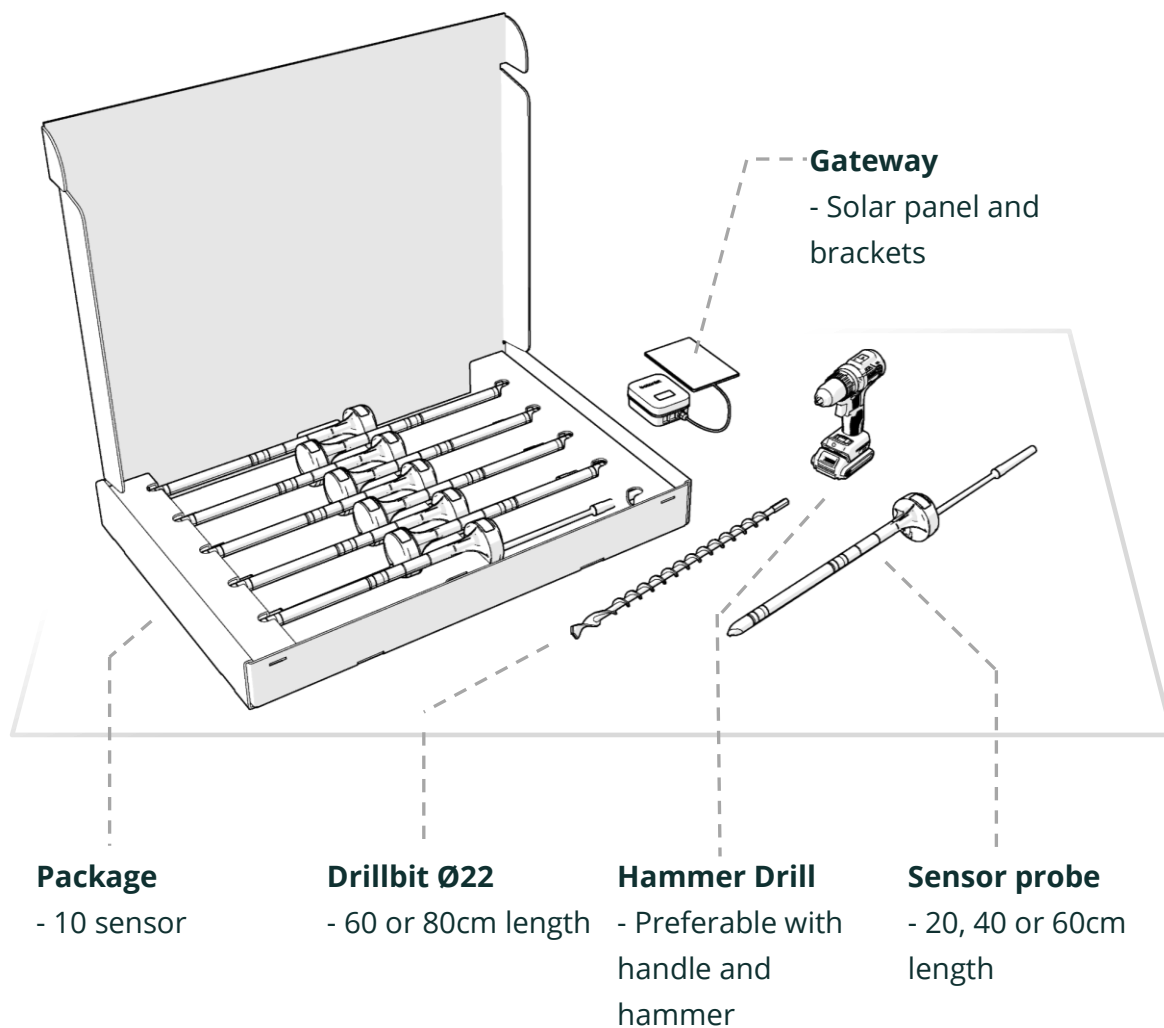
Botanist soil sensor is CE-marked and designed to comply with the Radio Equipment Directive 2014/53/EU (RED) and RoHS Directive 2011/65/EU (incl. (EU) 2015/863). Cybersecurity requirements under RED Article 3(3)(d) and 3(3)(e) apply via Commission Delegated Regulation (EU) 2022/30 (as amended), applicable from 1 August 2025

Harmonised standards applied (typical for Bluetooth LE equipment + RED cybersecurity + RoHS):

- Radio (RED Article 3(2)): ETSI EN 300 328 V2.2.2
- EMC (RED Article 3(1)(b)): ETSI EN 301 489-1 V2.2.3; ETSI EN 301 489-17 V3.3.1
- Safety / EMF (RED Article 3(1)(a)): EN IEC 62368-1:2020 + A11:2020; EN 62479:2010
- Cybersecurity (RED Article 3(3)(d)): EN 18031-1:2024 (published with restrictions in the OJEU)
- RoHS technical documentation: EN IEC 63000:2018



Botanist Starter Kit



Botanist Starter Kit

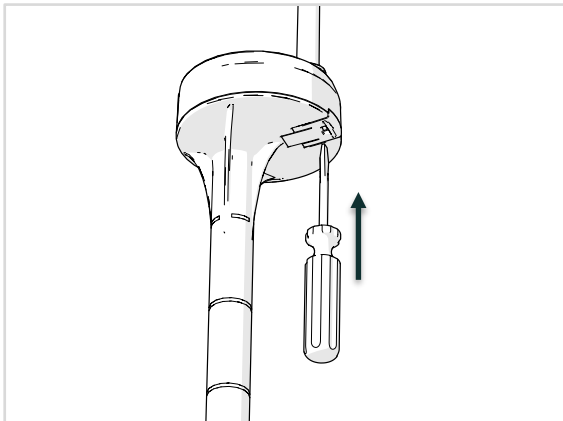
- 10 sensors (20, 40 or 60 cm length)
- 1 drill bit (40 or 60 cm depth)
- 1 gateway

1. Preparation

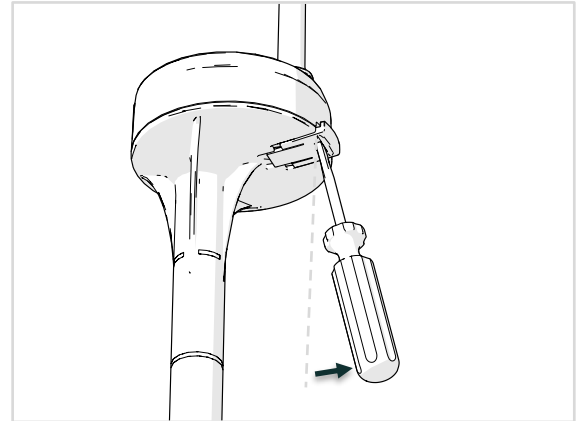
Preparation before installation: Step 1-8

Sensors comes without AA batteries. This step needs to be carefully followed before installing the soil sensor in the field.

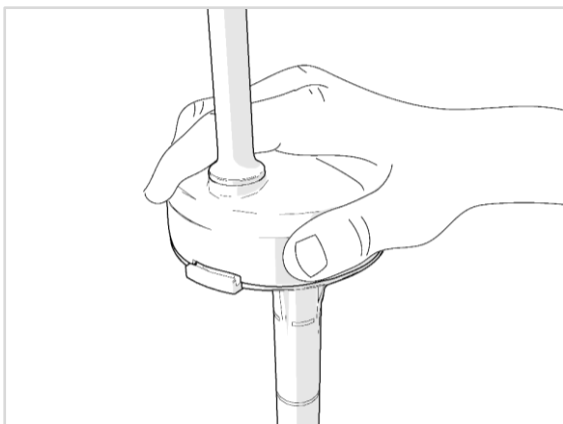
Installing AA batteries



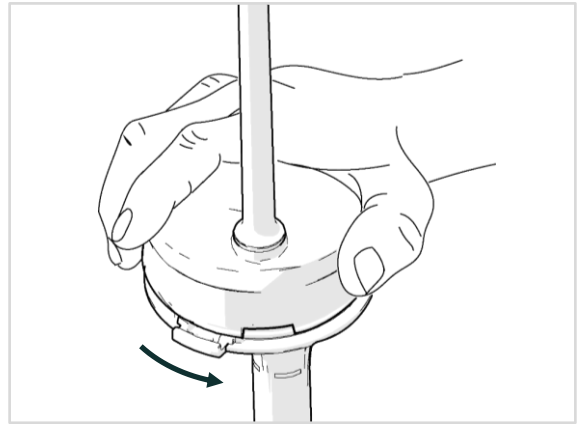
1 Use a flat screwdriver, insert the tool, and flip out the lock.



2 The lock is now in open position.



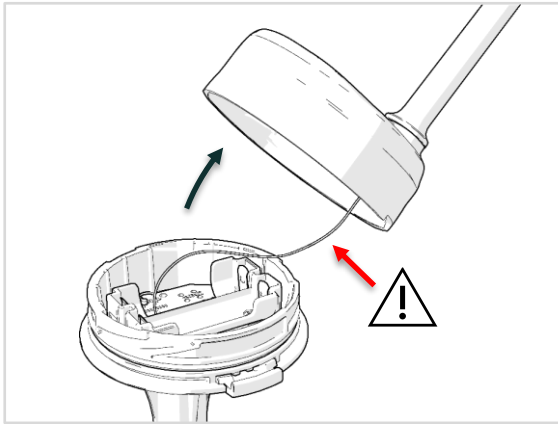
3 Rotate lid firmly.



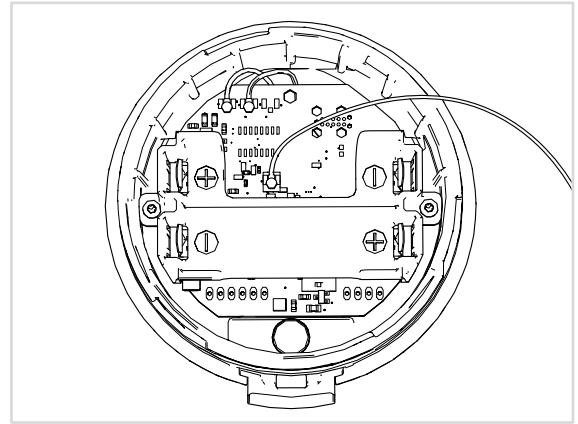
4 Now open the lid carefully.



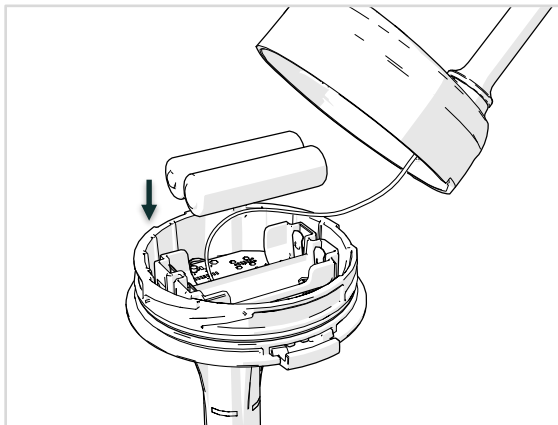
CAUTION: Make sure to carefully undo the lock and firmly open the lid. Do not snap the antenna wire!



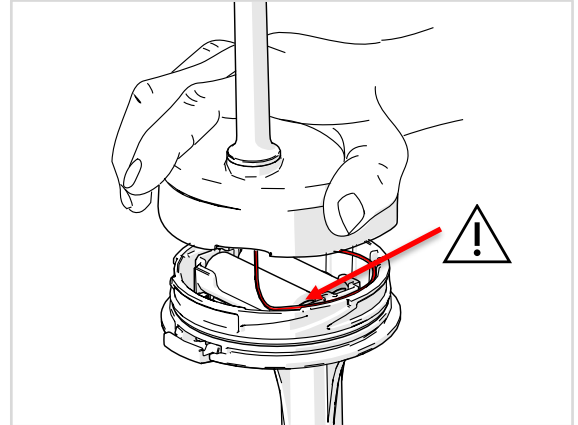
5 Open the lid carefully.



6 Locate the plus + and minus - poles.



7 Place the batteries. Guide the antenna around battery holder.



8 Carefully **NOT** pinch the antenna wire, place the lid and close carefully.



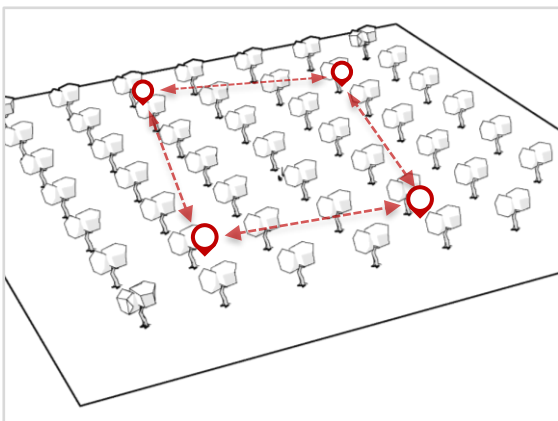
WARNING: Make sure to carefully place the antenna cable inside and around battery holder, don't pinch the cable. This will damage the antenna.

2. Planning the field

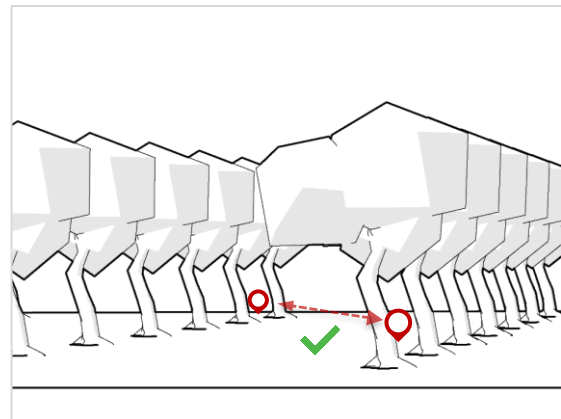
Planning the field: Step 9-12

Planning the field depending on how many sensors you are planning to deploy. If the view from one sensor to another is line of sight, you can place approx. 300 meters in between. If there are tall grass, blocking trees, or hill in between you need to place the sensor strategically and closer. **30-50 meter** between is often good.

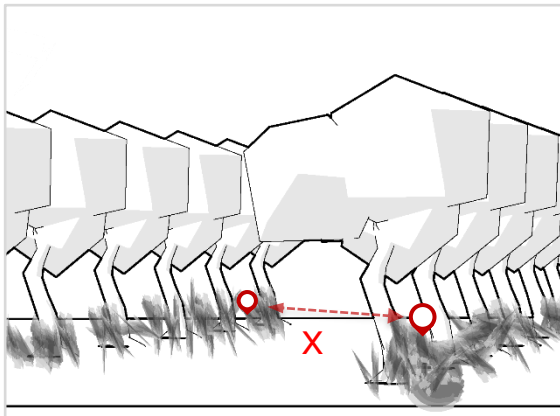
Planning the field



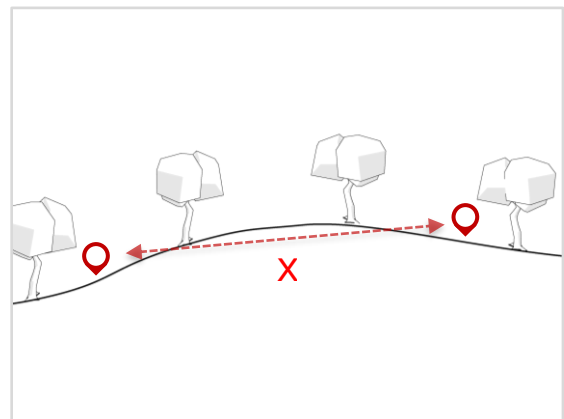
9 If its flat and good sight, you can set out e.g. 30-50 meter between,



10 Diagonally between rows will give a good signal.



11 If it's too tall vegetation, the signal can be broken



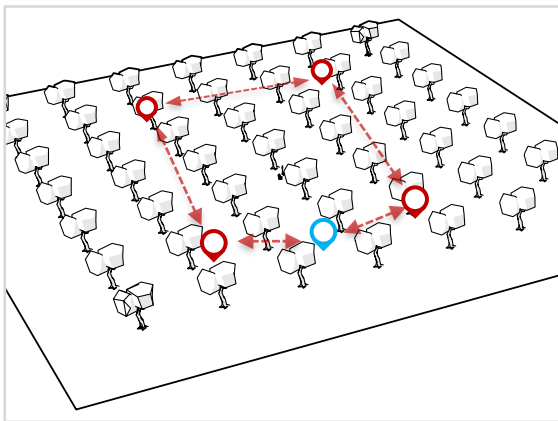
12 If there is hillside, you need to consider one sensor on the hilltop.

3. Installing Gateway

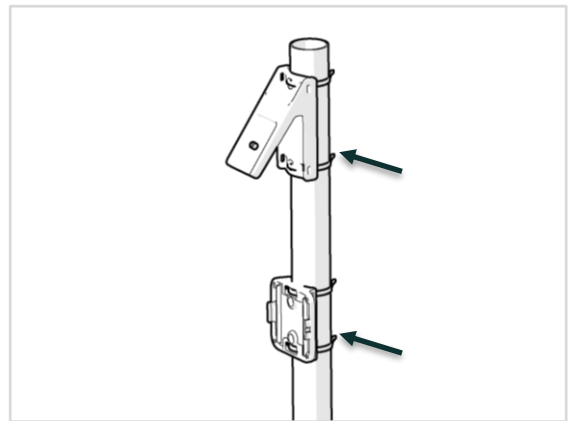
Installing gateway: Step 9-12

You should first install the gateway, then line of sight to one or more sensors. If there are tall grass, blocking trees, or hill in between you need to place the sensor strategically and closer. One Gateway can handle more than 100 sensors, but it can be smart to add more Gateways to lower the risk for lost signal.

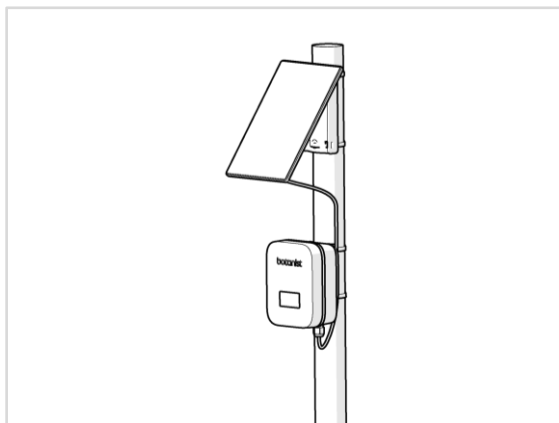
Installing Gateway



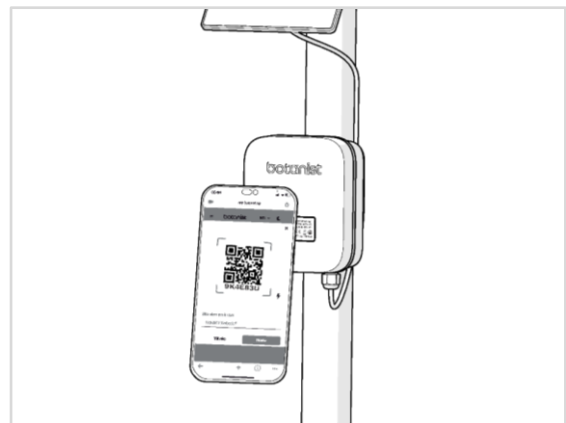
9 Install the Gateway so it can reach more than one sensor



10 Mount the brackets to a pole, using zip ties or screws



11 Mount the solar panel facing the sun. Attach the Gateway.



12 Scan the QR code using “add device” in *app.botanist.ag*



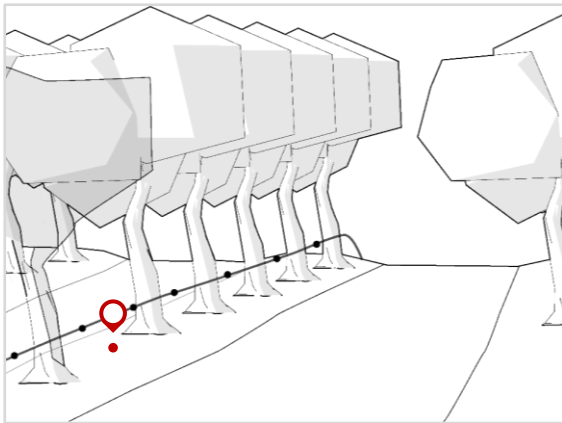
NOTE: Make sure to set the sensors strategically to see more than one, so the mesh network can find more ways.

4. Installing Sensors

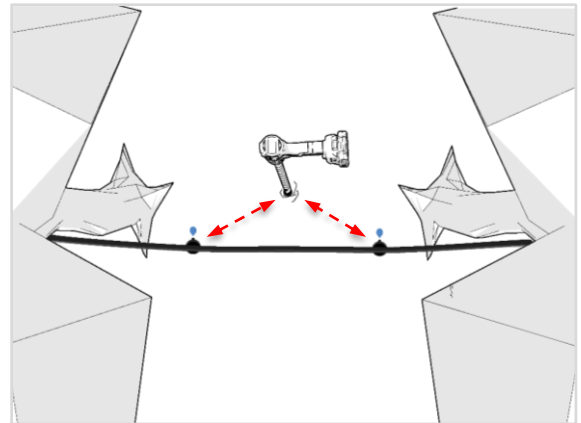
Installing Sensors: Step 13-20.

Gather the drill bit, drill and necessary equipment for installation. If there are tall grass, lots of blocking trees, or hill in between you need to place the sensor strategically and closer to each sensor. Handle the sensors carefully and be sure to follow the instructions.

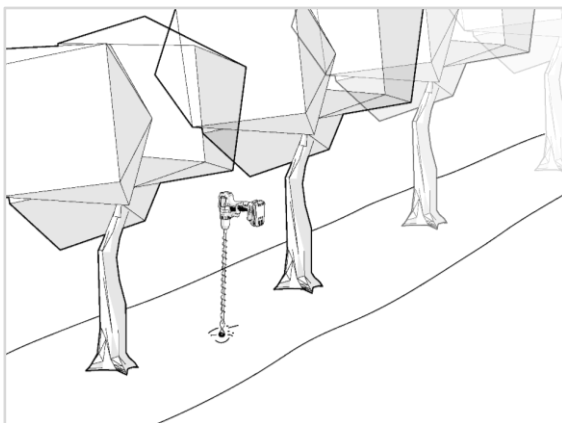
Installing Sensors



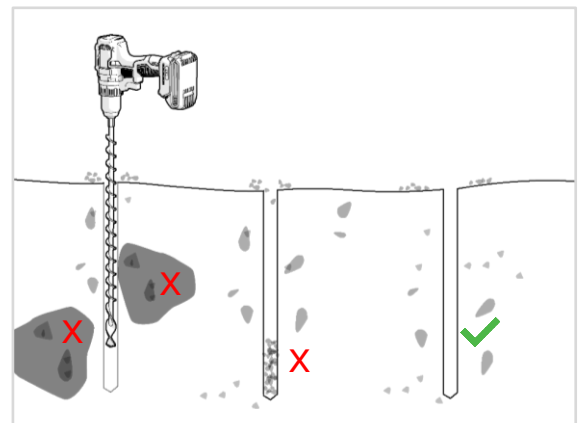
- 13** Find a location after first planning the field.



- 14** Find a position between drippers, most likely to have same conditions as the roots.



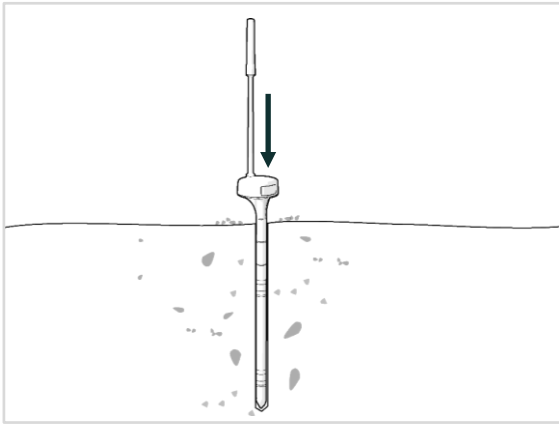
- 15** Drill a straight hole. Avoid large stones disturbing the measurement.



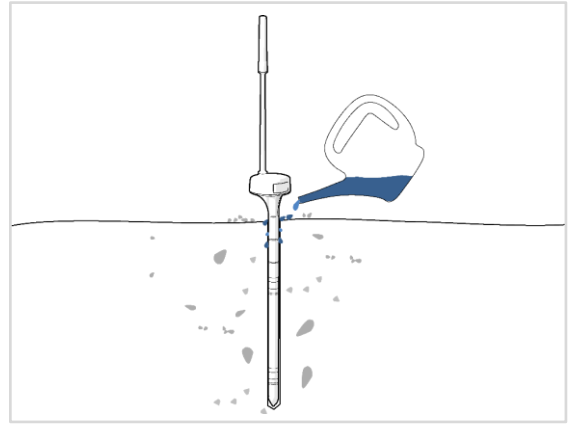
- 16** Avoid rocks and soil into the hole after drilling.



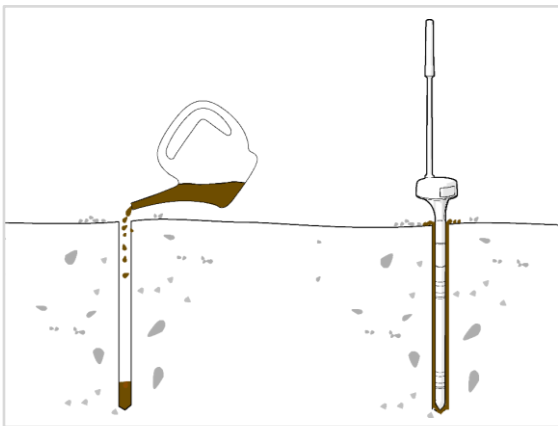
CAUTION: Drill a clean and straight hole, avoid very rocky soil, this can harm the probe and not give the correct measurement.



17 Carefully push the sensor into the hole. Ensure tight fit to the soil.



18 If the sensor is loose, pour in some liter with water to ensure full contact with soil.



19 If you need to fill up the gap. Make a slur out of soil, mix it with water, pour in the hole and then push the sensor down.



20 Scan the QR code using **"Add device"** in *app.botanist.ag*



CAUTION: Make sure to have a good fit between probe and soil. This is crucial to get a good measurement.

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