

## TEN WATERING RULES OF THUMB

1.

### START

Roots need near 100% humidity, ideally at all times. Go below and the root tip begins to die back. The root tip is responsible for the taking up of the vast majority of minerals and water. Kill the tips and the root has to regenerate one before going forward.



### 2. ROOTZONE

Roots have to grow from where there is no water and nutrients to where there is. Keeping them in abundant water and nutrients slows their growth leading to a condition known as over-watering, where

roots won't develop in balance with the upper part. On the opposite side, letting it dry for too long will cause Under-Watering. Both situations will cause health problems and nutrient delivery problems.

### 3. KEEP ALL DRAINS OPEN

Well drained medium can have water applied for a longer period because the excess drains quickly from the medium when the application ceases. Poorly drained mediums have much shorter but slower application time because it will take longer to drain the excess water away from the root surface.



### 4. DETERMINING ROOT HEALTH

In general, a square meter of full canopy will use 4-6 litres of water per day. No matter how many plants on the square meter. If using less water, either the roots are having a tough go or humidity could be too high, temperatures could be too low, and so on.

4.



### 5. WATER CYCLE

When figuring water cycle on a crop of more than one plant, base timing on an average of all plants. We want to rewater most mediums (except aeroponics) when about 50% of the total volume of the water is used or gone. Set automatic systems to turn on when 50% of the total crop is ready. To accomplish this, keep conditions the same; medium, plant age and size, light exposure, air currents, and so on. Above all else, keep crops developing equally.

5.



### 6. WEIGHING

With organic or inert medium, water when 50% of the water you applied last time is gone. The grower can weigh the container bone dry, water to drainage and weigh again. The difference is how much water the container will hold. Lifting and weighing is key. This is very precise in the early days after planting, later on the grower should take into account that the plant is gaining weight.



### 7. HUMIDITY

In aeroponic systems, you have to be good at judging when the root surface has just lost the free moisture on it while not falling much below 100% humidity (air). This will require constant monitoring and adjusting.



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### 8. KEEP ROOTS IN THE DARK

Roots like the dark and really try to grow away from light. Keep them as lightless as possible in systems that are thin walled PVC, or an air chamber.



9.

### 9. NEVER TOO MUCH WATER

You cannot put more water in a container with medium and drainage holes, than what it can hold. Once you stop watering, the excess water will drain out and the physical properties of the medium will determine the amount of water available. However you can keep it too wet by watering for too long and/or too often (Over watering).



### PREFERABLY DON'T WATER AT NIGHT

During the dark periods (nights) the plant is using much less water. Mediums that hold water seldom need watering during the night as long as the grower adjusts the irrigation cycle, to water in the last or first half hour of light. Aeroponics or clay pebbles will need an infrequent application a few times during the night.



10.

## WATERING BASED ON WEIGHT OF THE POT



Watering is a very important factor that shapes the development of the roots throughout the pot. A healthy root system has the following characteristics:

- Medium-sized and large whitish roots.
- There should be roots throughout the pot, from top to bottom.

### Watering issues



**Overwatering or watering too frequently;** will stifle the development of roots in the lower half of the pot.

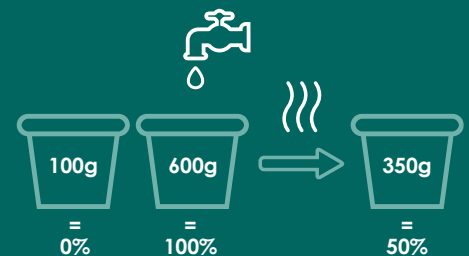
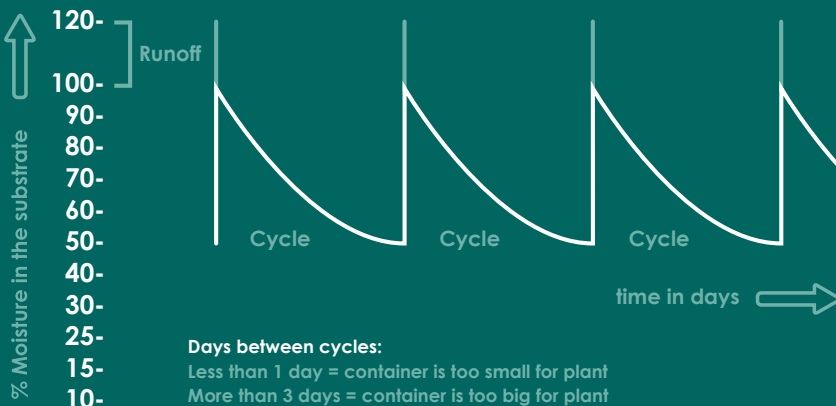


**Underwatering or pots that are not watered frequently enough;** will lead to a lot of dead root matter in the upper half of the pot.

### Water cycle

Roots grow when they have enough water, but allow plants time to dry out a bit and use up all the minerals present.

Water the plant when 50% of the water you applied last time is gone.



Watering after filling approximately 600g (=100%)  
 Wait watering until the pot weight is app. 350g (=50%)