

pH Meter and EC (CF) Meter

1. Why Use pH and EC Meters?

A pH meter measures the acidity of the water on a scale from 0 to 14. This scale is not a linear scale but an exponential scale. This means the difference between a pH of 6 and a pH of 7 is gigantic.

When the pH is too high or too low the roots cannot take up the nutrients in the proper amounts. Generally this will show up in the plants as deficiencies of one nutrient or another and as burnt leaf tips caused by over-fertilization of one nutrient. The result is that growth will slow, the yield will be low and ultimately the plant may die.

One remedy is to give the plants fewer nutrients but then they are certain to develop even more deficiencies and the yield will not be as good as it could be.

When the pH is just right it is unlikely that deficiencies will occur. The plant will be able to take up the nutrients in the correct proportions and over-fertilization will be a thing of the past.

With the wrong pH half the recommended nutrients will cause over-fertilization.

With the right pH the full recommended dose will make for healthy and strong plants.

An EC/CF meter measures the electrical conductivity of the water. Clean water has a low EC/CF.

When you add nutrients and pH adjusters the EC/CF will go up. You can use this for measuring how many nutrients can put in the water without causing over-fertilization.

It can be hard sometimes to eyeball the required amount of nutrients. Sometimes you're not quite sure how big your container water is or you have no means of measuring the nutrients accurately.

Even if all these things are no problem, it is still possible that the recommended dosage of nutrients as printed on the label is too low for your plants and your plants would benefit from a higher dose.

Using an EC/CF meter together with a pH meter, you can measure the optimum dose for your plants without causing over-fertilization.

2. How to use pH and EC/CF Meters

Growing in soil

The pH should be 6.4 when you sprout the seeds or plant the clones. As the weeks go by slowly lower the pH until it is 6.0 during the last month of flowering. This will allow the plants to take up fewer nutrients when they are little and more nutrients when they are growing and flowering.

Similarly, the EC/CF should be 1.0 when you sprout the seeds or plant the clones. Slowly raise the EC/CF to 2.0 for the last four weeks of flowering.

3. General Tips

The pH can be lowered by using vinegar or you can buy special pH down from the bigger garden supply stores. These stores will also sell pH up.

Adjusting the pH can be maddening sometimes because the scale is exponential. In practical terms this means that you have to lower the pH or raise the pH by adding very small amounts of adjusters.

If your pH is too high and you add too much pH down you have to add pH up. This can go on for a while and then your EC/CF might be too high.

Recalibrate the pH and EC/CF meters about once a month. Some meters need a special storage solution for the sensor.

Please be sure to buy this storage solution as well, it will make the difference between a well-working meter and a useless meter.

Do not use the EC/CF meter without also measuring and adjusting the pH. If you use the EC/CF meter only you almost certainly will kill your plants by over-fertilization. You can however use a pH meter without an EC/CF meter as long as you don't add more nutrients than recommended on the label of the nutrients bottle.