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Can any water be used in Aeroponics/Hydroponics

Prof.Nagendhiran's Good Practices Guide

Water is a vital component in soil-less farming, be it Hydroponics or Aeroponics. There is definitely 'good water' and 'not so good water'. This article is to show what can be classified as 'good water' and what gets classified as 'not so good' water. We further try to show how the 'not so good water' can be made useable and grow plants almost as good as when using 'good water'.

Parameters of water that matter in Aeroponics/Hydroponics

1. Acidity of the water

Each plant prefers a particular level of acidity in the nutrient solution from which the root feeds. The acidity is more commonly referred as pH. The source water before mixing your nutrients is best when the pH is neutral or the pH value is 7. If there is a deviation it would be best if it is not more than 0.25 this side or that of the neutral value.

Most plants will be comfortable when pH value is between 5.5 and 6.5, however there are plants which prefer acidic(low pH) as well as alkaline(high pH) solutions.

Frequent correction of pH is to be avoided by hydroponic growers as it could potentially upset the nutrient balance of the solution.

2. Salt content of the water

Water soluble salts can be present in water. These could be useful salts like nitrates which the plants need or there could be salts like sodium which are detrimental to the plants.

Generally the soluble salts are measured in PPM which is 'parts per million'. Any PPM of salts like Sodium will proportionally affect your system efficiency. These useless salts could also present a situation which restricts the desirable strength of other salts from being mixed.

Even the presence of useful salts could be detrimental if their PPM is very high. The problem is that the presence of these useful salts restricts the flexibility with which the nutrient solution is formulated and it could lead to a situation where optimality can never be achieved, though near optimal formulations are usually achievable. These useful salts could also present a situation it restricts the desirable strength of other salts from being mixed.

PPM Value of useful salts	Classification
0 to 100	Useable
Above 100	Condition the water (Process of neutralization will be discussed in another article)

PPM Value of detrimental salts	Classification
0 to 40	Useable
Above 40	Condition the water (Process of neutralization will be discussed in another article)

3. Hardness of the water

The hardness of water may be temporary type or permanent type. If contaminated with carbonate/bicarbonate salts of calcium and/or magnesium, it is temporary hardness. This is because the carbonate salts can be neutralized.

Permanent hardness is due to sulphate/chloride salts of calcium and/or magnesium, these are difficult to be neutralized and hence called

permanent hardness. For Aeroponics/Hydroponics we can use soft water or water with temporary hardness.

Permanent or Temporary hardness is measured in PPM which is parts per million of the insoluble salts. An easy way to detect hard water is that soap will not produce lather in it when dissolved.

The most important thing is that if you have soft water, commonly available hydroponic nutrients may be used but for temporary hard water we need to use special hard water formulations which neutralize the hardness causing salts reducing the frequency of pH corrections.

Typical Hardness classifications

PPM Value of hardness causing salts	Classification
0 to 60	Soft
61-120	Moderately Hard
121-180	Hard
Above 181	Very Hard

You may post your queries to suregrowfarm@gmail.com . We will try to address them at the earliest.

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