

The Hoaglands Solution for Hydroponic Cultivation

This hydroponic nutrient solution was developed by Hoagland and Snyder in 1933 and it's one of the most popular solution compositions for growing plants (in the scientific world at least !). The Hoagland solution provides every nutrient necessary for plant growth being appropriate for the growth of a large variety of plant species. The solution described by Hoagland in 1933 has been modified several times (mainly to add iron chelates and the like, but you can use the salts you normally use for preparing your solutions as long as you append to the concentrations given for each element) but the original concentrations for each element are shown below.

N 210 ppm
K 235 ppm
Ca 200 ppm
P 31 ppm
S 64 ppm
Mg 48 ppm
B 0.5 ppm
Fe 1 to 5 ppm
Mn 0.5 ppm
Zn 0.05 ppm
Cu 0.02 ppm
Mo 0.01 ppm

As you may notice, the Hoaglands solution has a lot of N and K so it is very well suited for the development of large plants like Tomato and Bell Pepper. However, the solution is very good for the growth of plants with lower nutrient demands such as lettuce and aquatic plants with the further dilution of the preparation to 1/4 or 1/5.

Also remember that the amount of iron you use should be in proportion with the amount of phosphate placed inside the solution, when used at higher strength, there exists the

possibility of iron precipitation if non adequate chelates are used. If possible, try using DPTA instead of EDTA (which is not so good a chelating agent for hydroponics).