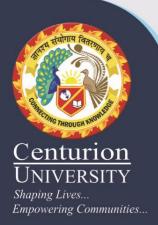


Domain: Smart Agriculture

Course: Growing of Hydroponics Lettuce

Project topic: Nutrient solution





Nutrient solutions

• There are numerous nutrient solution recipes available for hydroponic systems.

•Nutrients can be purchased as a ready-to-mix product or growers can prepare their own solutions based on a standard or modified formula.

•In most systems, two nutrient tanks are required: one to supply the calcium nitrate and the other for the remaining nutrients.

•These two solutions mix as they are injected into the irrigation line.

•Hydroponic nutrient solutions lack the buffering capacity of soil, so the solution pH can change during production.

•The pH, along with oxygen levels, soluble salts and temperature, need to be closely monitored.



Shaping Lives... Empowering Communities...

Component	Stock Solution	mL Stock Solution/1 L
Macronutrients		
2M KNO ₃	202 g/L	2.5
2M Ca(NO ₃) ₂ •4H ₂ O	236 g/0.5 L	2.5
Iron (Sprint 138 iron chelate)	15 g/L	1.5
2M MgSO ₄ •7H ₂ O	493 g/L	1
Micronutrients		
H ₃ BO ₃	2.86 g/L	1
MnCl ₂ •4H ₂ O	1.81 g/L	1
ZnSO ₄ •7H ₂ O	0.22 g/L	1
CuSO ₄ •5H ₂ O	0.08 g/L	1
H ₂ MoO ₄ •H ₂ O or	0.09 g/L	1
Na ₂ MoO ₄ •2H ₂ O	0.12 g/L	1
Phosphate		
1M KH ₂ PO ₄	136 g/L	1



pH and EC of nutrient solution •pH determines the availability of essential plant elements

•Optimum pH range of nutrient solution for development of plants is **6.0 to 7.0**

•Higher EC will prevent nutrient absorption due to osmotic pressure and lower level severely affect plant health and yield.

•Appropriate management of EC in hydroponics technique can give effective tool for improving vegetable yield and quality

•EC(dSm-1) between **1.2 to 1.8** is advised for lettuce





Thank you...