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HYDROPONIC THE CULTIVATION PLANT OF WITHOUT SOIL

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Abstract

Hydroponic farming a proper well planned design of a hydroponic system the risk of water and nutrients it is estimated that use if land in hydroponic farming is reduced by 50% and use of water is reduced by 90%, therefore it is highly beneficial in areas where there water is scare and land is limited Hydroponic farming appeals to some people because of environment concerns, since it uses less water and requires fewer pesticides of fertilizers than traditional farming techniques consuming a diet high in vegetable can improve your health, no matter whether the vegetables reduces the risk of stroke, type to diabetes and some from cancer, and monoculture is not considered a problem.

Keywords: Hydroponic system, soil-less culture, Nutrients.

Introduction:

Human require food water, and living space in order to survive. These things do not exist in endless abundance & are derived both from the abiotic & biotic sources making human inherently depend upon the optimization of land area and the preservation of biodiversity the human population increase in a parallel increase in demand a food species implied and estimated climb that food production will need to be double in order to compensate [1]. Studies showed that by the year 2050 our growing global population would require and estimated of **60%** more food then we produce is finite For instant , agricultural land covers only 38% while arable land cover 11% of the total land area water is also scare resource some water shade in the provide is already critical condition . Adversely affecting the quality of water used in agriculture productivity [2]. Generally plat required four thing in grow happily Anchorage, Nutrients, Air, Water etc. Soil less culture mainly refers to the techniques of hydroponic. The term Hydroponics was come from the Greek words hydro means “water” & pones means “labour” it is method growing plants without soil. Terrestrial plants may be grown with their roots in the mineral nutrient solution only or grown with their solution only or the inert medium such as parasite, ground or mineral wool [3]

The Hydroponic System:

Hydroponics is one of the methods of soilless agriculture through which plants are grown in mineral nutrient water. The mineral nutrient can be introduced into plants. Water supply which is then the readily absorbed by the plants roots. Many vegetables are grown using hydroponics. The principle behind its operation is that the, the land is a mere storage of nutrients needed by plants to grow. Thus, if the some nutrients are to be provided using treated water, the some result may be had. The hydroponic technology allows small farmer to grow food even dry spells. The prolonged dry season; caused by El Nino phenomenon, will not affect the onion, tomato, brinjals, etc. plant production. According the expert, ‘if the time come when there is severe water shortage at least we have a system where we can plant and grow crops with the small amount of water.

TECHNIQUES OF HYDROPONICS:-

This is also known as liquids hydroponics methods as shown in figure 1. Plants grown solution culture have their roots suspended directly in a nutrients solution.

(A) Nutrient Film Technique (NFT)
(B) EBB & Flow Technique
(C) Drip System

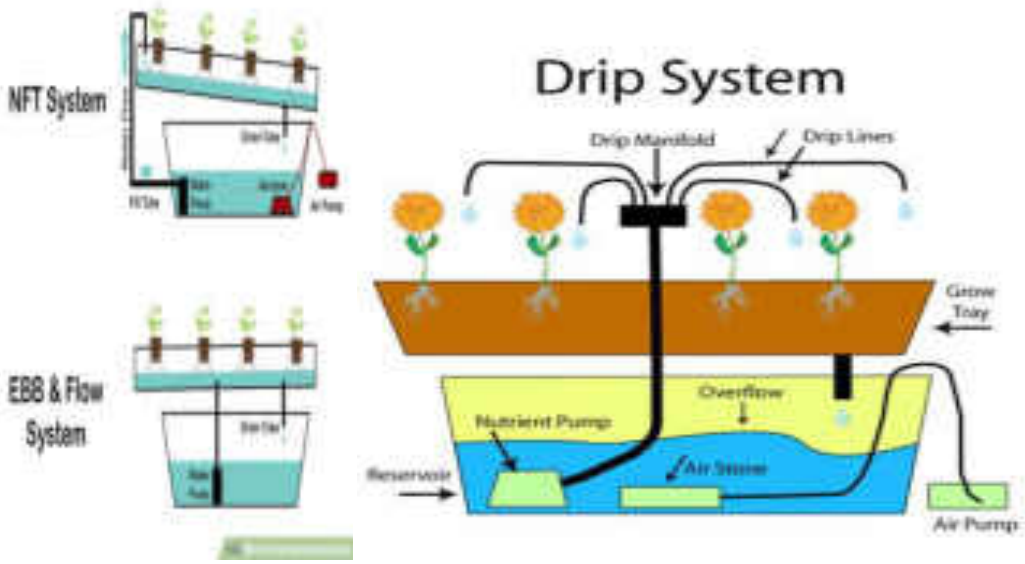

Fig.1. Drip System

Soil less cultivation

Large numbers of hydroponics soil less cultivation techniques are available However, following factors are considered in selecting a technique [5]

Aeroponics:-

As shown in figure 2.In this system, nutrient solution is directly applied continueslyos intermittently to the roots of crops in the form of mist or aero solution. As no solid medium employed, aeroponics can be considered to be a type of water culture.

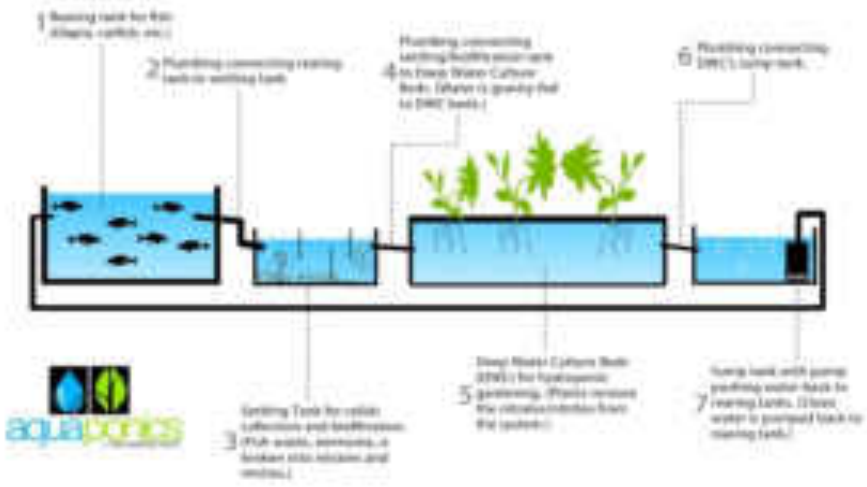

Fig. 2. Aeroponics system

Media cultivation

This is a system in which crops are planted on solid substance rather than on soil & nutrients solution is applied to the media both inorganic & organic media are used. Inorganic media are classified according to their shape into particles, foam fibers & others particle media culture in include sand culture gravels culture, expended clay culture…

Advantages of soil-less cultivation

Over soil-based culture but, the main advantages to soil-less culture are the most accurate control over the supply of water, nutrients, pH, room temperature, etc. increase productivity due to easier & more accurate control of production factors, reduction of labor requirement no needed for soil sterilization, more crops per year etc. here nutrients are fed directly to the roots as a results plants grows. Four times faster with smaller roots , plants may be grown closer & only $1/5^{th}$ overall space and $1/20^{th}$ of total water is needed to grow plants under soil-less culture in compression to soil based culture there no chance of soil born insect pest, disease attack or weed infestation to Despite of many advantage, soil-less culture has some limitation. Application commercial scale has requires technical knowledge high initial investment, through returns are high. Considering the high cost, the soil-less culture is limited to high value crops. Care is required finally energy impacts are necessary to run the system [6].

Conclusion

Hydroponic cultivation systems support the sustainability of food-water security, land usage, and public health

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