

Hydroponics is the Art of Cultivation of Plant without using Soil

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Hydroponic is the very best and very technical technique of agriculture, which is very much discussed nowadays and many people are adopting it in the present time. As we know that all plants that grow are in the presence of photosynthesis. The photosynthesis that occurs is due to sunlight in which chlorophyll is formed. It converts carbon and glucose into oxygen. But this is not the case in hydroponics. Now soil servitors can also grow them by adding nutrients to the water. The beginning of its discovery is called hydroponics. Plants that used to be nutrient-rich from the soil, now those nutrients can also be given through water. Hence it is also known as hydroponics sometimes called soilless farming.

History of Hydroponics

Hydroponics has been running since ancient civilization, due to which we are able to have many productive activities present. The First Start of of Babylon. There were the Babylon In which are wonders of the world. It is of very high tech. system. Using technology time and there was a time. It was completed by floating garden of the are believed to be from



hydroponics that was in the thirteenth century. He built the Man made island. The Aztecs were a fierce tribe. Aztecs made rafts that rafts called as Chinampas And he planted flowers, vegetables and big trees there. In morden approach "Hydroponics term was first given by the scientist. Dr. William F Gerieck in late 1920 to 1930".

How does the Hydroponics work Basic

The water that is used in hydroponics is very much said to be mixed with you and in hydroponics water is brought along with the corresponding nutrients for each crop. Special attention is given to all the activities such as pH temperature water and nutrients.

Hydroponics Methods

1. Deep water culture hydroponics 2. Aeroponics 3. Wick systems 4. Nutrient film technique systems.5. Ebb and Flow systems 6. Drip system.

Nutrient Film Technique Systems

In this technique four to five plants are taken in a system. Then water is used from the side. Various types of nutrients and oxygen are found inside this water. This water is also different

for different types of crops, due to which our plants definitely do well. This system is also a similar system like a drip system or ebb and flow system's.

Advantages of Hydroponics

- ✚ By controlling the environmental conditions in hydroponics, you can get the growth of the plant according to you.
- ✚ The root system in hydroponics is very small. Seedlings can grow quickly in this because there is no mechanical resistance in it.
- ✚ Hydroponics is helpful in small scale industries as it uses less space and can also take more yield. Vertical farming can also be done in this.
- ✚ Disease mites insect do not come much in hydroponics because by adapting the environment according to the crop, we can make the crop growth appropriate.
- ✚ 5. In hydroponic systems there is no change in the weather outside. In this, high quality fruits and vegetables can be grown. That's the benefit in Hydroponics system.

Disadvantages of Hydroponics

- Hydroponics has the disadvantage that hydroponics is a very expensive system in that the simple equipment used to control it is very, very expensive.
- hydroponics solution water is very costly to buy market and There are also events to work in understanding farmers for hydroponics more scientific techniques. It has a small root system. Due to its small size, plants can also be carried which can go up and bear the weight of the structure and other types of heavy fruits cannot be produced.

The Main Reasons for using Hydroponics at the Present Time

Climate: Hydroponics can be done in polyhouse and very easily and can control the external environmental factors well. Due to climate control as an example, we have easily grown vegetables and flowers suitable for any season with hydroponic.

Labour: For doing traditional farming, we first need fertile land and other reasons are also used. As the land obtained from the labourer, we need labourers very much in various activities, but in hydroponic system, all the factors are not required, due to which our labor expenses are also saved.

Land: Presently fertile land in India is decreasing day by day, whose effect on our environment is decreasing first. We are using grassy land to fulfill our needs or we follow our animal by destroying our wildlife, but in hydroponics this problem can be overcome and in less space it is abundant. Production is obtained, which fulfills our food needs.

Examples :- in a hydroponics, 40 kg of vegetables can be produced on 1 square feet of land in less space in three to four months.

Consistency: In hydroponics consistency like seed consistency, fertilizers consistency, growing crop consistency, final product consistency.

Examples: For example India's population is increasing day by day but our crops produce less day by days In hydroponics, vegetables and different types of flowers can be produced in a sustainable manner in any type of all weather, which is very helpful in the existing restaurant because how many restaurants are there in the population of India so Hydroponics is much more effective than traditional farming and it helps in giving 8 to 10 times more production, which can solve our food problem. Using hydroponics enables greater control of plant systems and plant growth by controlling the amount of nutrients and water that plants and have sufficiently to grow as the amount of land for future growing food decreases.

Therefore, it is very important for us to use plant growth system like hydroponic to increase food production. As we know, it always remains evergreen. Due to which we keep getting the available produce and making the constantly in every season, due to which our food problem can be overcome.

Fertilizers: The amount of fertilizers used in hydroponics is very less, so that it does not affect your pocket as well and where you have to use different types and classes as compared to conventional farming, in hydroponic system fertilizers are used in less quantity. have to do. In hydroponics system water run off is zero so water is not waste and fertilizers don't soluble to your daily consumption food.

Water: Hydroponic uses very less water. Hydroponics water consists of a mixture of different types and nutrients solution and hydroponics system use very less water consumption in like that our traditional farming so that is a very important thing to do hydroponics system and takes it many more advantage and grow vegetables, fruits very less consumption of water .

Components of Hydroponics

We need the following components to run hydroponic successfully.

Growing Media: In hydroponics, plants are grown in media, which participate in the growing of plants and their plants root structure. Growing media is called another alternative to soil in hydroponics. Growing media Works to keep the plants stable under water. example:- perlite, vermiculite, coconut fiber. It serves to keep the plants and the roots of the plants irrigated in hydroponics. This makes it easier for the plants to grow and produce good yields.

Air Stone and Air Pumps: Plants drown very easily in water, but the oxygen available in the water should also be present in sufficient quantity. It is a major component. for plant growth media is called another alternative to soil in hydroponics. Plants drown very easily in water, but the oxygen available in the water should also be present in sufficient quantity. It is a major component. for plant growth. like :- 10 PPM. In hydroponics, we use external air pumps and plastic tubing in hydroponics.

Net Pots: In net pots provide hydroponics system to Holds the plants. They are reticulated and in this the roots of plants also grow easily and the roots of their plants also easily do the work of keeping themselves stable in one place. In traditional pots comparison net pots It is a much more accessible structure than the traditional one which makes it very easy to stabilize the plants in hydroponics.

Learning Outcomes

Hydroponics is a modern farming technique which means farming by water and despite having less space, a large amount of safe food can be made available and grown in a hydroponic system in a sustainable way. This technology is being adopted a lot in big cities. In fact, due to increasing urbanization and increasing population, there is also a shortage of land for crops and plants. In hydroponic system, you can grow plants and vegetables etc. in a flat on your terrace or in any corner of the house with great ease. This technique is also good for those people who want to earn a job. It is also a technology providing employment. It is totally different as compared to traditional farming. It does not require much land. Generally, tomato, chili, etc., spinach, brinjal, capsicum, chili, bitter gourd etc. can be grown in hydroponics farming system. In hydroponics system, different types of nutrients are provided to the plants, in which organic fertilizers, chemical fertilizers and fertilizers and can be prepared by method etc. are mainly present. This is a very sophisticated way to increase the production of crops.