Team Name: AQUA-DRO-PONICS

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Abstract:

Organic farming is not easy and needs lot of keen observation and besides all this, the yield is considerable low. To overcome this problem along with the effects of global warming consequences on agriculture and the nutrition depletion of the soil, we have come up with a hybrid hydroponics (aqua-dro-ponics). With organic farming, we are looking for sustainable methods that will be described below. This will be in favour to the farmer and the consumer. It can be built in any size , small scale or large scale.

Introduction

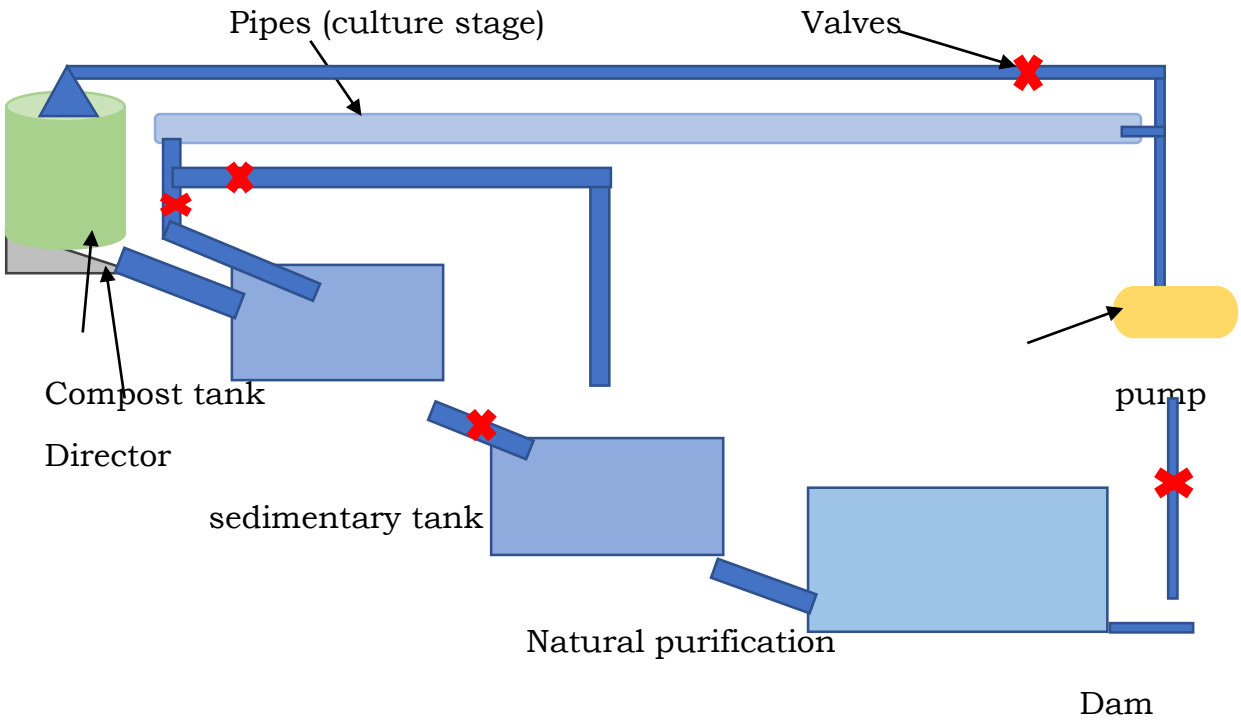
Hydroponics is the method of growing crops without the use of soil. Here the plants are provided with continuous flowing water with added nutrients. This technique was given or introduced by **William Frederick Gericke.**

In the conventional form of hydroponics, we see the use of artificial nutrient supply. In our innovation, we want to reduce the chemical or artificial nutrient supply and induce organic or natural sources of the nutrients needed by the plants. (Explained in the methodology). With the primary income of the crop, this system gives supportive economy of fish culture. We need to induce fish for few nutrients for the plants and also few favourable microbes.

Motivation

India is a developing country and developing countries have a great opportunities and India basically being agricultural practiced society, we can focus on giving our nation clean and affordable food. The farmer is forced to use chemicals for high yield and so the cost of production rises and if there is unfavourable climatic conditions the farmer will go under a great loss. To overcome these issues this hybrid method will give 2 to 3 yields per year and this will compensate the low yield problems. This will also solve the space or land nutrition depletion problems, here pest and weed control is easy or is not needed.

Methodology (block diagram, related figures etc)



As depicted in the illustration, the nutrient supply is the compost tank. Here the compost is added to the natural filtration system layers (rocks, pebbles, sand and some more pebbles to separate the sand and compost.)

- The water here is let to drain slowly with the nutrients in the compost.
- This water is passed into the sedimentary tank as there will be little compost material draining along with the water.
- Here the water sediments for few hours and then is passed on to the natural purification tank, here the aquatic plants and used to oxidize and purify the water.
- In the sedimentary tank the fish that can live in stagnant water is reared and in the natural filtration tank the fish that needs fresh water is reared.
- This way the farmer can have a second or supporting income and from the fish we can get the macro nutrients for the plants.

Social Impact

By this method of agriculture the farmer and the consumers are benefited as the farmer is getting 2 to 3 yields per year with minimum investment on chemicals and the secondary income will support him. The consumers are benefited as they will get organic and chemical free food and also as this is seasonal independent the price of the crop is going to be cheaper due to the high production rate. This will definitely make our lives better and efficient.

Market Survey

Hydroponics is usually practiced with artificial supply of nutrients and this will be seen as chemical input of our diet. In the market there is a good demand for organically produced food crop, or less chemically produced crops. So, we can use this method for good food source and also make sure that our needs are fulfilled in all seasons as hydroponics is season independent.