



# TO STUDY THE NECESSITY OF HYDROPONIC FARMING BUSINESS DURING COVID-19 AND ITS IMPACT ON ENVIRONMENT SUSTAINABILITY

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## ABSTRACT

With the advent of new civilization and the growing developments, open-field /soil-based agriculture is facing some major challenges; most importantly decrease in per capita land availability. Due to urbanization, industrialization and many other factors, arable land under cultivation is further going to decrease. Besides, due to rise in temperature, river pollution, decline in ground water level, etc. cause of such circumstances, in near future it will become impossible to feed the entire population. So, soil-less culture also known as hydroponics farming is being considered as far more sustainable than regular farming. It has great impact on environment also cause it uses less water as compared to traditional farming. Water conserving methods of food production under soil-less culture can show promising results all over the world.

Keywords: Hydroponic, farming, Covid-19, environment.

## INTRODUCTION

Due to the ongoing pandemic and the shortage of food products, it's really difficult to feed the entire population. So "hydroponic farming" also known as soil-less farming has been introduced. Hydroponics farming is a type of hydroculture where plants are cultivated without soil using a water solvent containing different types of minerals and fertilizer solutions. The nutrients found in hydroponic systems may come from sources, like other excrement of fishes and other things, manure of ducks or some other type of chemical fertilizers.

Hydroponics is kind of practice of growing plants using a good nutrient-rich solution, skipping the soil. “It has been practiced for many centuries, so its isn’t a new technology”, tells Akhila Vijayaraghavan, the director-founder of Coimbatore farms, adding the Hanging Gardens of Babylon are believed to have been hydroponically grown.

Hydroponics, which is famous for water -saving method or its conservation, of growing pesticide-free produce on rooftops and terraces, is becoming very popular among all the urban farmers. According to various other kind of sources, hydroponics of Indian market shows that it can go at a peak rate of compound annual growth rate of 13.53% between period of 2020/2027. The good thing about hydroponic farming is that plants can be grown where the land is limited or it doesn’t exist, or it is contaminated. In early time period, hydroponics was successfully technique used to supply fresh vegetables. It has been considered that hydroponic farming can be the future of farming to grow foods for astronauts living in space said by NASA.

Hydroponics farming also have a huge impact on environment also or we can say that hydroponic farmers have complete control over the environment, including climate, temperature, humidity, light and air composition. That is, it means that foods can be grown throughout the year, regardless of the season. And the most important thing is farmers can increase their profits by planting crops at the right time. The other benefit of such type of farming is, plants produced hydroponically can use 10% of less water as compared to plants grown in the field. Plants will absorb all the necessary water, while the water which is running of will be collected and returned to the system. In this type of system, loss of water can only occur through process of evaporation and other system leakages. And with the help of this technique, one can have complete control over the nutrients that plants require. Before planting the appropriate plants, farmers can determine what the plants may require, as well as how much the quantity of nutrients can be required at certain stages and the required rate of proportion where they can be efficiently blended or mix with water.

#### NEED OF THE STUDY

This research is done to study more about hydroponic farming and how it can help farmers to grow more plants with the help of nutrients and minerals.

This research also helps us to know that how hydroponic farming can help in environment conservation and its sustainability.

## OBJECTIVES

- To study the importance of hydroponic farming.
- To study the effect of hydroponic farming on environment.
- To study about the sustainability of hydroponics farming keeping in mind the present Covid19 situation.
- To study about the conservation of environment and its impact on general people.

## HYPOTHESIS

- H1: That there is no impact of hydroponic farming on consumers.

H0: That there is impact of hydroponic farming on consumers.

- H1: That there is no effect of hydroponic farming on environment.

H0: That there is an effect of hydroponic farming on environment.

- H1: That there is no sustainability of hydroponics farming keeping in mind the present Covid-19 situation.

H0: That there is sustainability of hydroponics farming keeping in mind the present Covid-19 situation.

## RESEARCH METHODOLOGY :

### DATA COLLECTION METHOD

The data collection method is one of utmost steps of research. Hence, the data collection method includes using the existing data through questionnaire. In present research the data collection methods are both by bibliotheca and field. In bibliotheca data collection method, the investigation of research literature and other studies is done in libraries and referring to books and articles. In the field of this research the data collection are carried out through questionnaires which are designed for this purpose

### SAMPLE OF THE STUDY

A total of 100 +respondents belonging to various age groups were chosen through stratified random Sampling Technique, out of 100+ respondents, all 100+ were usable data They were contacted online via Google form in Mumbai . In the pretext the respondents were handed the three questionnaire based on their experiences related to my research .

### Primary Data

The primary data collected by surveying and filling Google form through divergent audience there were 100+ respondents who answered the survey all 100+ respondent data was used for data analysis and interpretation.

### Secondary Data

Secondary data is a second-hand data that is already collected and recorded by some researchers for their purpose, and not for the current research problem. It is accessible in the form of data collected from different sources such as government publications, censuses, internal records of the organization, books, journal articles, websites and reports, etc.

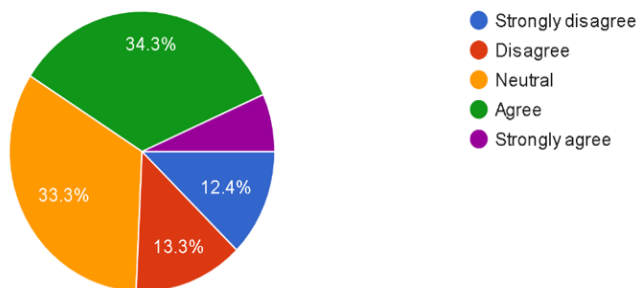
### Research Design :

The research i did is a type of Quantitative Research i got my Primary data through google form by asking them Questionnaire in the survey , On the basis of responses i received in the google form i did my data analysis and data interpretation I choose this method because it was important to collect primary data and understand peoples perception towards the topic.

### DATA COLLECTION AND ANALYSIS

Do you think that hydroponic farming beneficial for consumers?

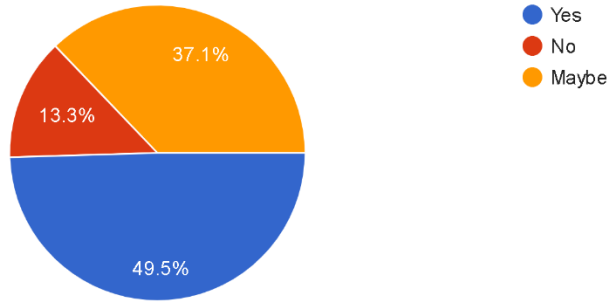
105 responses



According to the above diagram, 34.3% out of 105 responses have agreed that hydroponic farming is beneficial for consumers, 33.3% people have neutral responses, 13.3% out of the mentioned responses have disagreed that hydroponic farming is not beneficial and 12.4% people strongly disagree. It depicts that maximum number of respondents agreed that because hydroponics farming is really beneficial to consumers because it gives them immense amount of organic vegetables to consumers.

Do you agree that hydroponics farming is more sustainable?

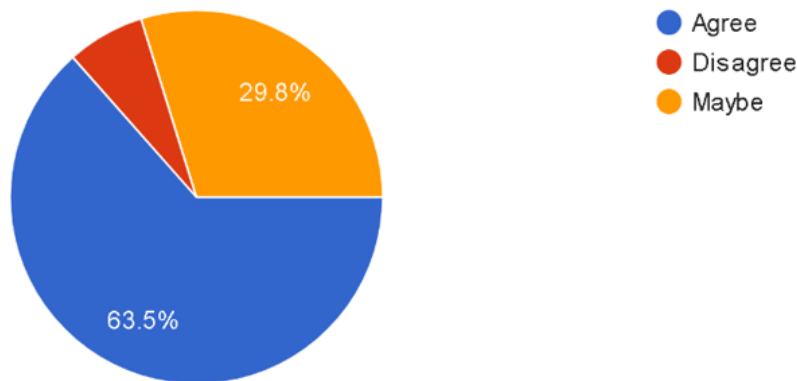
105 responses



Out of 105 responses, 49.5% people agree to the fact that hydroponics farming is more sustainable, but 37.1% people are not sure and 13.3% people says no. From the survey, it can be seen that hydroponics farming is being considered as sustainable and majority of people that is 49.5% people says to the fact hydroponics farming is really sustainable. It will help the people for a longer period of time.

Do you agree that hydroponic farming is sustainable during Covid -19?

104 responses



Out of 104 responses, 63.5% agree to the fact that hydroponic farming is sustainable during Covid19 and 29.8% are not sure about it. From the survey it can be seen that majority of the people have agreed that is 63.5% people have a faith in it that hydroponics farming can be sustainable during covid-19 cause people can get their own vegetables which will help them to avoid shortage of food products.

TESTING OF HYPOTHESIS

- As per question1 of the survey where 105+ participants have responded, it states that H1 i.e., Null hypothesis gets rejected and H0 i.e.alternative hypothesis gets accepted because

34.3% have agreed and 12.4% strongly disagree that hydroponics farming is not beneficial for consumers.

- As per question2 of the survey where 105+ participants have responded, it states that H1 i.e., Null hypothesis gets rejected and H0 i.e. alternative hypothesis gets accepted because 49.5% says yes and 13.3% says no.
- As per question3 of the survey where 105+ participants have responded, it states that H1 i.e., Null hypothesis gets rejected and H0 i.e., alternative hypothesis gets accepted because 63.5% agree and 29.8% are not sure that hydroponic farming is sustainable or not.

## DATA INTERPRETATION

The survey conducted the interpretations are as follows:

- The survey consists of 105 respondents. According to majority of individuals Covid-19 has affected our lives and it also caused shortage of food products. As per the survey conducted hydroponics farming has been considered on a large scale. It's not only beneficial for consumers but it also helps in environment conservation.
- Hydroponics farming is really helpful as it uses less water and the requirements of pesticides/fertilizers is very low. Based on the survey individuals also agree to the fact that its far more sustainable than our regular farming.
- Environment conservation is key factor of hydroponics farming, because it helps the farmers to control the environment that the food products can be grown in any season. So, we can say that hydroponics farming is the future.
- It not only helps in environment conservation but it also provides employment to many people which helps them to earn money.
- Hydroponics farming not only saves environment but it's also cost effective, time effective, and is considered by many people.

## IMPLICATIONS OF THE STUDY

Due to Covid-19 pandemic, people have faced lot of shortage of food products. So, during this period, hydroponic farming has been considered widely. People have started growing vegetables in their balcony, terraces, etc. because it requires less space. And not only that people who are more into organic things for them hydroponic farming is the best solution cause the vegetables grown out of this process is completely organic, that means no hazardous fertilizers, chemicals are added. Secondly, hydroponic

farming is really beneficial for the farmers also cause it requires less water and the most important thing is that people who have limited access to land can also do this hydroponic farming.

## CONCLUSION

Covid-19 has impacted several factors in the society. During lockdown period when everything was shut down, people started facing many problems and among them was shortage of food products. So, seeing this scenario hydroponic farming business has been boosted. People started preferring organic things like vegetables, etc. Hydroponic farming not only help in coping with shortage of food products, but it also helps in environment conservation. As per survey conducted many people agree to the fact that hydroponic farming is far more sustainable during crisis like Covid-19. It also helps an individual to get more nutrition and good health as the food grown out of hydroponic farming will be organic. Hydroponic farming has been started considering as the future of farming.

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