



# **Studies on Benefits of Organic Food Products in Human Life during Covid-19**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Organic food products have gained considerable attention in recent years due to their perceived health and environmental benefits. This comprehensive review examines the scientific evidence surrounding the advantages of consuming organic foods compared to conventionally produced counterparts. Firstly, organic farming practices emphasize the use of natural fertilizers and biological pest control methods, avoiding synthetic pesticides and genetically modified organisms (GMOs). Numerous studies have demonstrated that organic produce tends to have lower pesticide residues, reducing the potential health risks associated with pesticide exposure. Moreover, organic farming promotes soil health and biodiversity by minimizing the use of synthetic chemicals and fostering sustainable agricultural practices. Healthy soils are essential for nutrient-rich crops and contribute to long-term environmental sustainability. Additionally, organic agriculture typically utilizes crop rotation and intercropping techniques, which enhance soil fertility and resilience. Furthermore, organic livestock production adheres to stringent animal welfare standards, including access to outdoor grazing and the prohibition of routine antibiotic use and growth hormones. As a

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result, organic meat, dairy, and poultry products often contain higher levels of beneficial nutrients such as omega-3 fatty acids and antioxidants. In terms of nutritional quality, several meta-analyses have suggested that organic fruits and vegetables may have slightly higher levels of certain vitamins, minerals, and antioxidants compared to conventionally grown counterparts. While the differences may be modest, the cumulative effects of consuming organic foods over time could contribute to improved overall health outcomes. Beyond individual health benefits, supporting organic agriculture also has positive implications for environmental conservation and sustainable food systems. By minimizing chemical inputs and promoting biodiversity, organic farming helps mitigate soil erosion, water pollution, and greenhouse gas emissions associated with conventional agriculture.

*Keywords: Biodiversity; environmental; organic; benefit; pollution; food.*

## 1. INTRODUCTION

“M.S. Swaminathan, the father of India’s Green Revolution, once told that the wars of the future will be won by those with food, and not by those with guns. The democratic distraction that the coronavirus has unleashed shows us the power of that statement. A strictly nutritional perspective, scientists have found little advantage in Organic Foods. In 2012 deep review of 240 studies found that Organic food were not significantly more nutritious than their conventionally grown counterparts. For nutrition experts, the endless debate on the benefits of Organic produce is just a distraction from the real issue at hand, which is that a majority of European do not reach the recommendations of the world health Organizations of (WHO) on a daily consumption of vegetables and fruits of any type- around 400g per day which is a more pressing concern” [1]. “From health perspective, the level of pesticide residues was found to be lower among organic produce and more recent study from 2014 revealed that fewer pesticide residues and 20%to40% higher levels of antioxidants in organically grown crops. It is however unclear whether antioxidants can improve human health, and their precise role is still being debated. Numerous organic food ingredients consumed by developed regions such as North America and Europe are majorly produced and exported from Asia, Latin America, and Africa” [1]. This, the restriction on transportation has affected the availability of organic food in stores and supermarkets. Pandemic has given organic living an unprecedented leg up. “According to the United States Department of Agriculture, India 30 % to the total certified organic producers in the world, but accounts for just 3.3 percent (1.9 million ha) of total organic cultivated area at 57.8 million hectares. With Covid-19 bringing in various changes in the behavior pattern of every

individual the way we consume food has also transferred considerably. As we all are aware that organic food is produced in a natural way and is free from harmful chemicals pesticides there fore it does not affect human health in harmful ways. The organic products are produced using techniques such as green manure to fertilize the land and crop rotation to enhance the soil health, the yields are safer and healthier consequently. Organic foods products helps to support the local economy in Covid 19 period it is helps to maintain the norms of the social distancing by online organic food purchasing. Organic food do not travel as well, some people grown locally for their consumers to eat healthy. Organic foods promotes a better profit margin for Indian farmers in pandemic period. Organic foods supporting organic forms produces a number of financial benefits that helps there small business and their families” [2]. Many organic food producer that can achieve 95% of their conventional yield after 5-year transition period after going organic food can helps the people in Covid period and create a healthier family.

### 1.1 Coronavirus Boost –Impact on Consumer Demand Organic Food Products

“The Covid-19 pandemic, much like every health crisis in the history of mankind, has worked as a catalyst to large scale behavior changes. The social media and internet has been flooded with tips and tricks on how people can survive in pandemic. Shortage of resources, often deprive people of the necessary nutrition on a daily basis. The most common items used in organic supplement this is right way to build immunity system help you fight against Covid 19” [3].

**Gooseberry (करोँदा):** “Indian gooseberry, also known Amalaki, is a vitamin c powerhouse, which is a crucial part of the immunity package.

Categorized as an adaptogen, it supports the body's healthy response to stress of all kinds, and with the properties of antioxidants, stress. It's high vitamin c content allows it to treat seasonal coughs, common cold, influenza, as well as protect" [3].

**Guduchi (गिलोय):** "The tree Amrit or nectorplants in Ayurveda. Guduchi is also called "Giloy". While the entire plant is used medicinally in Ayurveda, the stem is favored for supporting a healthy response to infection by optimizing the body's immune response. The plant is also valued for supporting cognitive health, and also helps in improving memory and learning functions" [3].

**Tulsi (तुलसी):** "Tulsi has been used for thousands of years to support a healthy response to physical emotional and environmental stress. Modern research has classified Tulsi as an adaptogenic herb known to support the body's healthy stress response. Adaptogenic herbs have been used in Ayurvedic medicine for to promote and support health" [3].

**Turmeric (हल्दी):** "A bioactive compound called curcumin, found in turmeric, helps in boosting the immune function with its multiple benefits as an antioxidant and antimicrobial properties, turmeric is a staple in Ayurvedic medicine. It comes in several different forms, with the most common being turmeric powder, used in cooking, herbal teas or as an organic supplement" [3].

**Kalmegh (कालमेघ):** "Kalmegh also known as green chiretta, kalmegh is a powerful medicinal herb, which contains antioxidant, and anti-inflammatory properties that are used to treat liver problems. It's biggest relevance in the current time is its ability to boost immunity, and it's antimicrobial and immune modulatory qualities that are used for management of the symptoms of common cold, sinusitis and allergies, and many more" [3].

**Ashwagandha (अश्वगंधा):** "Backed by Ayurveda, this ancient medicinal herb is a rejuvenate, and known to give the stamina of a horse. Popularly known as Indian winter cherry or Indian ginseng. Ashwagandha comes with multiple health benefits it is an adaptogen, and it's anti-stress properties supplement the body's abilities to respond and adapt to physical, emotional, and environmental stress" [3].

**Black pepper (कालीमिर्च):** "Modern research has confirmed several of black peppers health benefits. The active component of pepper, called" piperine", contains natural alkaloids that account for the plants medicinal use. Recent studies associate black pepper, and it's active ingredient piperine, with antioxidants activity as well immune system support. Piperine may play a role in stimulating digestive enzymes and supporting healthy pancreas function" [3].

## 1.2 Benefits of Organic Food Products during Covid 19

- The coronavirus pandemic helped a lot of people to realize the importance of choosing healthier options to eat.
- Coronavirus pandemic organic produce is purchased fresh and pure food from farmers. Supermarket and other shops we do not know how long the produce has been stored. Organic place purchases fruit and vegetables fresh from the farmers markets.
- Coronavirus pandemic every people go with goodness and quality of the products. Organic food products follow the seasonal cycle and are only available when they grow naturally. People expect any and every organic food products all year round which leads to fruit and vegetables being grown outside of their season.
- Organic food products it is healthier for you and more nutritious. Organic produce it is fresher, tastier, free from chemicals and seasonal.
- Organic food products supports local farmers directly organic produce come from local farmers. Are you buying organic food products are you directly supporting Indian farmers and increases his economical status.
- Organic food products preserve the environment organic food reduce your chemical exposure as it contains fewer pesticides. Organic farming is better for the environment because it's practices involve less pollution soil erosion and energy. It is reduced the greenhouse gas emissions per hectare by 20% and some varieties of food that have increased. Root vegetables like potatoes, carrots and onions and meat products like beef and sheep.
- Levels of antioxidants in milk from organic cattle are between 50% and 80% higher than normal milk. Organic wheat,

tomatoes, potatoes, cabbage and onions have between 20% and 40% more nutrients than non organic foods.

- The NGO sector in India is very strong and has established close linkage to large number of marginal farmers. Many NGO or engaged promotion of organic farming and provide training extension services information and marketing services to farming communities.

**List 1. Major products produced in India by organic farming**

Commodity	Tea, Coffee, Rice, wheat
Spices	Cardamom, Black Pepper, White Pepper, Ginger, Turmeric, Vanilla, Tamarind, Clove, Cinnamon, Nutmeg, Mace Chilly
Fruits	Mango, Banana, Pineapple Passion Fruit, Sugarcane, Orange, Cashew nuts, Walnut
Pulses	Red Gram, Black Gram
Vegetables	Okra, Brinjal, Garlic, Onion, Tomato, Potato
Oil seeds	Mustard, Sesame, Castor, Sunflower
Others	Cotton, Herbal extracts

Source: APEDA

**2. MATERIALS AND METHODS**

The research was conducted using a descriptive survey method, which meant that after the problems were thoroughly and meaningfully formulated, specific objectives were decided upon. Based on these objectives, techniques of investigation, extension tools, and major statistical plan of analysis were decided upon. Additionally, the presentation of the study was developed and given a definite shape in the form of an outline of the study. Finally, an effort was made to make a thorough review of the relevant literature relating the previous research in this field in order to understand the findings of the study in the wider context and to evaluate their relevance in the set objectives. Locale of the study Uttar Pradesh was chosen as locale of the study. This was done with the intension that U.P. is a major state of the country. District under study Kanpur city was purposively selected for this study as the researcher hailed from this place [4,5]. This helped the investigator to collect the necessary information accurately and timely. The researcher, being from the same place could easily have dialogues and discussions with respondents during pilot study and final data collection. Selection of area Kanpur district of

different zones, Out of which 4 zones were randomly selected from Kanpur district. Selection of respondents was prepared separately from district, 30 respondents were selected randomly from each zone [6]. Thus, in all 120 respondents were selected for study purpose. Prior to finally dividing the to title of the project a pilot survey of the area was conducted. This gave an idea about the place of the study and nature of the samples that could be drawn and types of aspects and problems, which could be explored out [7].

**2.1 Pilot Study**

Prior to finally dividing the to title of the project a pilot survey of the area was conducted. This gave an idea about the place of the study and nature of the samples that could be drawn and types of aspects and problems, which could be explored out.

**2.2 Pre-Testing of Instruments**

Before collecting the necessary data from the finally selected sample of 120 respondents were identified other than those including in the final selection of respondents. These 120 respondents were interviewed with the help of schedules and questionnaires developed for collecting the data. This helped the investigator in making necessary changes in the instruments to be finally used their wording and composition.

**2.3 Data Collection Procedure and Statistical Technique Used**

Preparation of interview schedule was prepared for taking a view of the respondents and asking questions to them. This schedule was prepared with a consultation of the guide so that the maximum relevant answers could be obtained from the respondents. This interview schedule comprised four sections: socio-economic status of the respondents, awareness and perception of respondents about knowledge and impact of social faced by farmers in agriculture.

Data collection the necessary evidences were collected in line with the objectives of the study. All the 120 respondents were inclusively approached by the researchers. By personal contact, all the respondents were interviewed with the help of the structured schedule developed for the study. Period of data collection was initiated from 15 Dec. 2020 to 15 Jan, 2021.

## 2.4 Statistical Analysis

The following statistical techniques have been applied in the analysis of data.

### 2.4.1 Percentage

Single comparisons were made on the basis of the percentage, for drawing percentages, the frequency of a particular cell was multiplied by 100 and divided by total number of respondents in that particular category to which they belonged.

Percentage =  $\frac{\text{The sum of all the respondents}}{\text{Total number of all the respondents}} * 100$

### 2.4.2 Arithmetic mean ( $\bar{X}$ )

The average ( $\bar{X}$ ) was calculated by adding the total scores obtained by the respondents and divided it by the total number of respondents and divided it by the total number of respondents using the following formula:

$$\bar{X} = \frac{\sum x}{N}$$

Where,

$\bar{X}$	=	Average or mean
$\sum x$	=	Total number of scores obtained by respondents
$N$	=	Total number of respondents

### 2.4.3 Standard deviation ( $\sigma$ )

S.D. is the square root of mean of the squares of all deviations, the directions being measured from the arithmetic mean of the distribution. It is commonly developed by symbol sigma ( $\Sigma$ ) for summation.

$$S.D. = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$$

Where,

S.D.	=	Standard deviation
$(x - \bar{x})^2$	=	Variables from mean
$n$	=	Total number of items

### 2.4.4 Weighted mean

It is average which is calculated on the basis and coding. If  $X_1, X_2, X_3, \dots, X_n$ , are the codes

and  $W_1 + W_2 + W_3 \dots W_n$  are their respective weights, then:

$$\text{Weighted mean} = \frac{W_1X_1 + W_2X_2 + W_3X_3 + \dots + W_nX_n}{W_1 + W_2 + W_3 \dots W_n}$$

$$= \sum_{i=1}^n \frac{W_i X_i}{W_i}$$

### 2.4.5 Rank

Ranks were calculated from the value obtained from the weighted mean scores. So, rank were given on the basis of the highest to the lowest frequency / mean score.

## 3. RESULTS

Table 1 reveals that the benefits of human health by the respondent during Covid 19, 80.0% of respondents were agree with organic food products provide stronger immune system and reduce allergies and obesity with mean score 1.8, standard deviation 1.3 and rank I followed by 75.0% respondents were agree with organic meat and milk can be richer in certain nutrients omega 3 fatty acid with mean score 1.75, standard deviation 1.2 and rank II in the research study [8]. 65.8% respondents were agree with organic food prevent us deadly disease like cancer with mean score 1.66, standard deviation 1.1 and rank III followed by 62.5% respondents were agree with organic food can contribute in better health with mean score 1.63, standard deviation 1.1 and rank IV in the research study. 57.5% respondents were agree with organic food products does not side effects when eaten with mean score 1.58, standard deviation 1.1 and rank V followed by 47.5% respondents were agree with organic food products are free from hazard chemical contamination with mean score 1.48, standard deviation 1.0 and rank VI in the research study of organic food products during Covid-19.

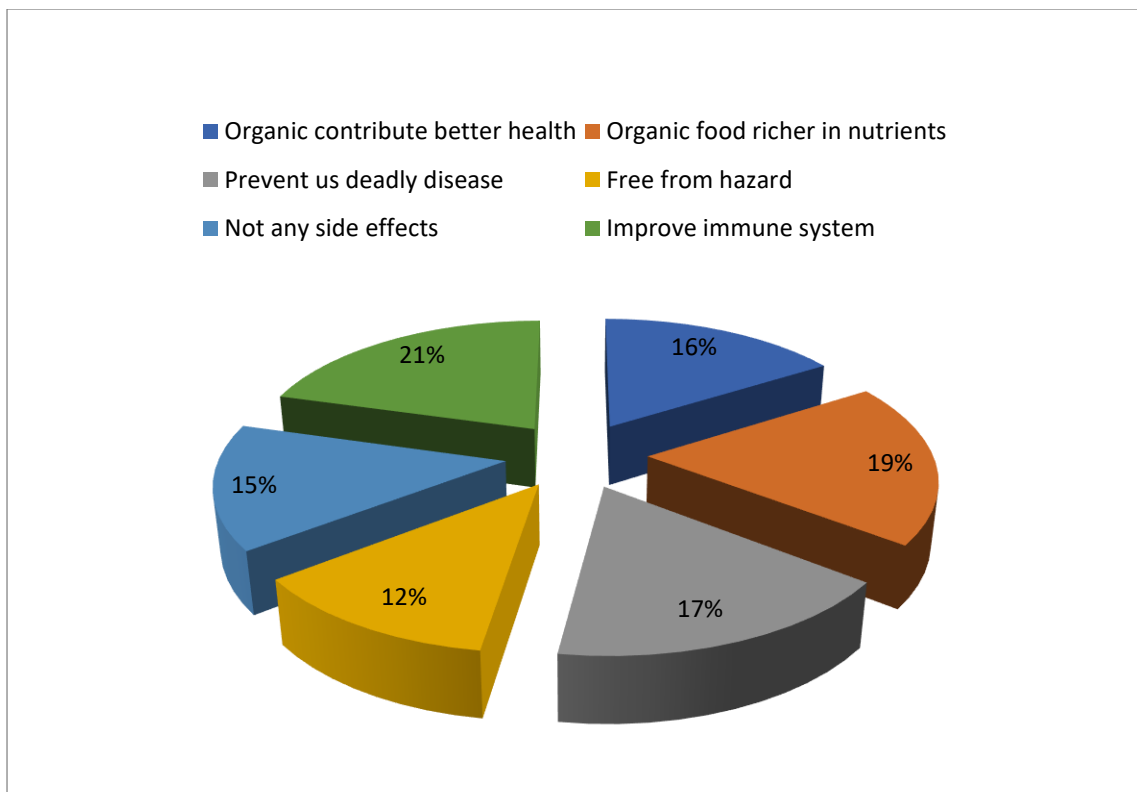
This Table 2 shows that environment health benefits of organic food products during Covid19, 75.8% of respondents were agree with production of organic products totally environment friendly with mean score 1.76,

standard deviation 1.2 and rank I followed by 75.0% respondents were agree with organic food reduce the pollution and protect water and soil with mean score 1.75, standard deviation 1.2 and rank II in the research study. 65.0% respondents were agree with you feel organic food reserve ecosystem with mean score

1.65, standard deviation 1.1 and rank III followed by 57.5% respondents were agree with organic food preserve agriculture diversity with mean score 1.58, standard deviation 1.1 and rank IV in the research study of organic food products during Covid 19 [9,10].

**Table 1. Benefits of human health by organic food products during Covid-19**

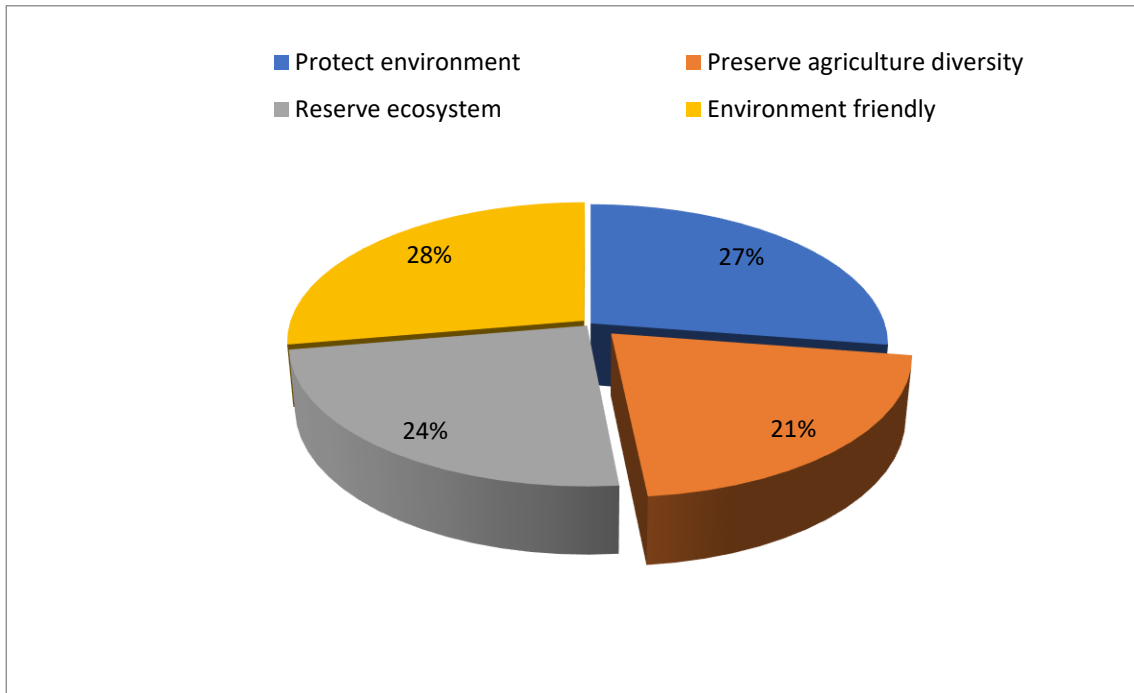
S. No.	Benefits	Yes	No	Mean Score	SD	Rank
1.	Organic contribute better health	62.5	37.5	1.63	1.1	IV
2.	Organic food richer in nutrients	75.0	25.0	1.75	1.2	II
3.	Prevent us deadly disease	65.8	34.2	1.66	1.1	III
4.	Free from hazard	47.5	52.5	1.48	1.0	VI
5.	Not any side effects	57.5	42.5	1.58	1.1	V
6.	Improve immune system	80.0	20.0	1.80	1.3	I



**Fig. 1. Distribution of respondents according to the benefit of human health**

**Table 2. Benefits of environmental health by organic food products during Covid 19**

S. No.	Benefits	Yes	No	Mean Score	SD	Rank
1.	Protect environment	75.0	25.0	1.75	1.2	II
2.	Preserve agriculture diversity	57.5	42.5	1.58	1.1	IV
3.	Reserve ecosystem	65.0	35.0	1.65	1.1	III
4.	Environment friendly	75.8	24.2	1.76	1.2	I



**Fig. 2. Distribution of respondents according to the benefit of environmental health**

#### 4. CONCLUSION

Beyond individual health benefits, supporting organic agriculture also has positive implications for environmental conservation and sustainable food systems. By minimizing chemical inputs and promoting biodiversity, organic farming helps mitigate soil erosion, water pollution, and greenhouse gas emissions associated with conventional agriculture.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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