



ARE ORGANIC PRODUCTS ENVIRONMENT AND ECONOMICALLY FRIENDLY? ARE THEY AN ECONOMICALLY VIABLE PROPOSITION FOR INDIA? AN IN-DEPTH ANALYSIS.

Aditya Aggarwal

ABSTRACT The paper discusses the use of organic products as an extremely important tool in controlling the adverse impact of climate change that the world has been experiencing. The farming of these products is important in controlling the negative effect of environmental degradation. The problem in India is the cost benefit analysis in shifting to organic farming, given the fact that India's farming sector largely consists of marginalized farmers. The government's policies as well as subsidies would definitely give a push towards environmentally friendly practices. **Research Question:** The paper will attempt to critically study the impact of organic products on the environment as well as on the economy. Is everything organic good? Could this be an economically profitable proposition across the board in India?

KEYWORDS :

INTRODUCTION



Source: Google image

Figure 1: Organic Production

Organic production is primarily with respect to agricultural production. It is a type of production process that is involved in the agricultural sector. For the longest time in history agriculture could be described as organic. It was only in the 20th century, when population started growing at a fast rate, and the capacity to increase agricultural production started being restricted due to the paucity of land, that alternative techniques of intensive agriculture production started being developed. Besides this, the development of industrial agricultural production emerged. This required large quantities of produce in the shortest time. At the time of independence, the main dilemma facing the Indian Economy was lack of food for its citizens. The government of that time had the pressing issue of providing food. The system that was in place in the agricultural sector at that time was not able to provide sufficient food grains for its people. A large amount of precious foreign exchange was utilized in importing food grain. This was a worrying phenomenon as India was primarily an agricultural economy, and one that was not able to feed its people.

It was with this background that research and development within the agriculture sector was encouraged. The issue that had to be kept in mind was the fact that agricultural production could not increase through extensive cultivation. The only viable alternative was to increase intensive cultivation. The reason for the economy to find an alternative to imports was the arm-twisting attitude of the exporting countries. They would export under stringent conditions, and as India was short of foreign exchange, it was always looking for payments in rupee terms. This led to the import of wheat under PL480 (Public Law 480) from the USA. in 1954. The quality of grain was so bad that most of the times it was unfit for human consumption.

Facing these issues led to the greater encouragement of alternative measures to increase food production in India. In 1969 India ushered in the Green Revolution. This primarily related to wheat and rice and the areas where these were grown. It was started by Norman Borlaugh in the 1960's. He developed the HYV (High Yielding Variety) Of wheat which required less water, fertilisers and of course the use of hybrid seed. It led to a phenomenal growth in the production of wheat, rice and millet and resulted in India moving out of the misery of lack of food for its people.

Enough grain was being produced resulting in the government collecting a buffer stock in case required. This led to reduction in poverty and misery, and at the same time precious foreign exchange was saved for developmental needs. The HYVs had 20% more grain than its earlier system and were more responsive to nitrogen fertilisers. The yield doubled due to the incorporation of several traits and specific genes for short statured crops under HYV technology. The reduced cropping period meant that 2-3 crops could be grown in a year. The period till 1985 saw the doubling of yield per hectare, total productivity, and total food production in developing countries like India.

DEFINITION ORGANIC PRODUCTS



Source: Google Image

Fig 2: Organic Farming

Organic products and organic food and drinks are those set of commodities that are produced by methods complying with the standards of organic farming. Organic food is grown without the use of synthetic chemicals, such as human made pesticides and fertilisers, and they do not contain genetically modified organisms (GMO). This includes fresh produce, meats, and dairy products as well as processed foods such as drinks and frozen meals. The fertilisers used in the process of growing of crops are compost manure, green manure, and bone meal and places emphasis on techniques of farming such as crop rotation and companion planting. Companion planting (close planting of different plants that enhance each other, either in the process of growth and/or safeguard each other from pests), they are also known as nurse crops. These plants gain advantage in yield and protection, also known as intercropping.

This method of farming works at the grass root level. It preserves the natural reproductive nature, as well as enhances the regenerative capacity of the soil. It involves soil management, good plant nutrition, and produces food, which is rich in vitality, and is resistant to diseases. The plants that are grown in a manner that is good for health of the consumer. It is the purest form of food as it is grown without the use of chemical fertilisers or pesticides, and it is sold without adding any preservatives or any synthetic food enhancers. Irradiation (process of

food sterilization with the use of X-ray and gamma rays) and the use of genetically modified organisms (GMOs) or products produced from or by GMOs are generally prohibited. Organic agriculture relies on crop rotation, animal manures, crop residues, green manures and the biological control of pests and diseases to maintain a healthy soil composition as well as increasing productivity.

The principles and practices of Organic Farming are embedded in the concepts of health, ecology, fairness, and care. Organic production methods are those where at least 95% of the ingredients of agricultural origin are organic.



Source: Google image

Figure 3: Organic Products

Countries have established their own norms and definition for the term 'organic'. A greater emphasis on the humus fraction of soil, is important for organic farming. This is related to livestock and human health. This further has led to the composting of human waste, leading to a balance of livestock and crop production. The two are complementary to each other. Their twin existence leads to a farming system that provides an integrated system of farm management. It effectively uses the linkage effect between various methods of farming as well as animal husbandry.

ECONOMIC FRIENDLY

Economic friendly means anything that is kind to the planet earth, that are friends of the earth. They protect the soil, air, water, besides conserving resources like water and energy. Protection, conserving, and enhancement are the main mantras of an eco-friendly environment. The term economic is used in this definition, as economics is a science that attempts to solve the problem of scarcity, The question of choice arises because there are unlimited wants but limited resources. The whole process of production is based on this principle. This has also been adopted in the agricultural sector, it is only in recent years that the emphasis has been more on saving the environment rather than just towards making a profit. The literal definition of economic friendly is the production of those products that do not harm the environment. The importance of saving the environment and being friendly to it has become paramount especially after the adverse impact of climate change. This adverse impact is being felt across the board, in all countries irrespective of the stage of development. Besides the impact on climate, there has been a deterioration on the health of mankind. One of the reasons acknowledged is the adverse impact of chemical fertilisers being abundantly used in the growing of crops.

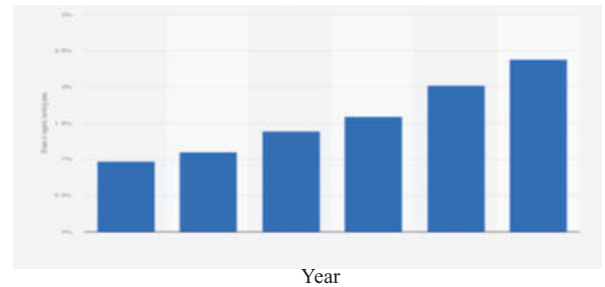
Economic friendly encompasses the profit aspect of the production process as well as those processes which do not harm the environment.

IMPACT OF ORGANIC PRODUCTION

The impact of organic production is immense with respect to climate change. This becomes a very important aspect as the severe effects are very noticeable all over the world. This is becoming a real phenomenon all over the world, whether in a developed or a developing country. All are facing severe natural calamities, in the form of unprecedented increased temperatures in areas which had earlier experienced cold climatic conditions, severe drought conditions, as well as ravaging floods.

Agriculture is one of the areas, that the world could move towards in adopting methods that are environmentally friendly. But the process should be profitable for both the large as well as the small farmer. India's agricultural sector consists primarily of small farmers who own

less than one hectare of land.



Source: Statista.com

Figure 4: Increase In Organic Farming Inn India From 2016 To 2021

There has been a slight increase in organic farming in India but it still remains less than 2% of the net farming in India.

HEALTH OF THE SOIL

Results have indicated that farmers who adopt organic farming practices have improved physical, chemical, as well as biological properties of the soil. It has also helped a great deal in the carbon sequestration (this is a process which naturally removes carbon dioxide from the atmosphere).



Source: Google image

Figure 4: Crops Grown Under Environmentally Friendly Conditions

Soils that are rich in organic matter, have the capacity to hold more air, water and in the process produce higher yields than soils that are low in organic matter. In India in particular, besides the above benefits, organic farming would help in maintaining environment integrity and promote the health of the consumers. The soil's fertility increases due to soil microbes and invertebrate activities (e.g., activities related to earthworms), crop rotation, cover crops that maintain soil organic matter, combination of legume and grass crops. Raising animals and or access to animal wastes help in managing the organic balance of the soil.

IMPACT ON CLIMATE

Studies have indicated that the chemicals used as fertilisers are an important factor in affecting climatic conditions. As conventional agriculture uses nitrogen fertilisers releasing nitrous oxide, which is an extremely potent greenhouse gas, that has a greater warming potential per unit than carbon. This leads to higher temperatures, adding to global warming, along with all the other effects of pollution of both air and soil, melting of glaciers etc.

ECONOMIC VIABILITY OF ORGANIC AGRICULTURE PRODUCTION

Economic viability emphasizes on the cost benefit analysis of a project. In agriculture economic viability is the ability of the farmer to cover the cost of production, besides covering variable costs, it should earn enough to cover the fixed costs too, as well as to provide an additional rate of return on investment. This depends on several economic factors like prices, quality of input and output, sales revenue cost, cost of production, productivity, investment, farm size and competitiveness. Before the farmer embarks on the path of organic farming, a cost benefit analysis must be undertaken, this would lay emphasis on the size of the farm as well as the crop that is being grown, whether the crop has a Minimum Support Price (MSP) announced by

the government, as well as the market prospects of the product. These are some of the important factors that would have an important bearing on the type of farming that is finally adopted.

Despite nearly 75 years of Independence, close to 50% of the workforce is dependent on the agricultural sector. To move to organic forms of production would require an analysis on the current techniques in production vis-a-vis organic techniques. There could be certain crops that could continue with the older techniques and for certain others, it would be profitable to make a conscious shift towards organic production.

Besides being a mainstay with respect to providing food for the citizens, the sector has several linkages with respect to the industrial sector e.g., Cotton, jute, textile, sugar, tea, coffee etc. The agricultural sector is dependent on the manufacturing sector for various machinery that is gainfully used in the primary sector.

The issues involved in organic farming is the high cost involved as well as the number of crops that can be effectively grown on a small plot of farmland. Most of the farmers in India are operating on less than one hectare of farmland. The government has been subsidizing the fertilisers that are required by the farmer. Although the international price of Sodium, phosphate and Nitrogen have been increasing, the farmers in India are not affected by global price increase. This makes it attractive for the farmer to continue this form of production as they earn large profits given the fact that the crops that they grow are sold under MSP, these are important factors in determining the profit earned from the growth of the crop.

It is much easier to grow crops under the traditional chemical fertiliser route, as more output is achieved from smaller tracts of land in the shortest possible time. Organic farming involves a lot of time and patience, and the same number of crops may not be possible as compared to the chemical fertiliser method, leading to increasing costs under organic farming. Resulting in organic products being sold at a higher price.

COST BENEFIT ANALYSIS FOR THE AGRICULTURE SECTOR

If the agricultural sector is taken as a whole, then besides the staple crops it would include:

- Staple crops like wheat and rice
- Fruits and Vegetables
- Exotic flowers
- Animal husbandry

As far as staple crops like wheat and rice are concerned, for a country like India where many people are living in poverty, the traditional way of cropping using chemical fertiliser is the optimal solution. Due to the growth of Gross Domestic Product, as well as increasing incomes of many people, organic products even in the staple food of rice and wheat have seen an increasing demand. This indicates that there are some parts of the population who are willing to pay a higher price for commodities that do not have the harmful effects of chemical fertilisers.

Fruits and vegetables are another category where both types of variety exist namely products grown with the help of chemical fertiliser and those without. It is in this category where an increase in the latter category has shown a phenomenal upward trend. People are willing to pay more to consume produce without the harmful effects. As incomes, and the upper middle-income group rise the demand for these expensive products increase.

Exotic flowers are a new entrant in this field. The export potential of this product is immense. The government has instituted many schemes to develop and encourage this area. India has regions and states which are climatically suited to the growth of such products. The government must step in with schemes and subsidies that would aid in their growth, and provide employment, resulting in growth of incomes of this sector. This will further reduce migration of unskilled labourers to informal urban sectors.

Table 1: Organic Agriculture Statistics In 2021.

Cultivated Area	Production	Organic Exports
2657889.3 ha	3468991.98 MT	707849.52 lakhs (INR) 1040.95 Million USD

Source: APEDA

Animal husbandry is another area where the promotion of the ecosystem is encouraged with respect to animal's health, animal housing and breeding. Synthetic additives such as drugs, feed additives and genetically engineered breeding inputs are strictly avoided. The central and the state Governments have introduced strict guidelines regarding these norms.

The natural manure that is available from animals is a very good alternate to chemical fertilisers. The presence of animal's safeguards the atmosphere from toxic emissions.

The cost benefit analysis should not only include the material and money costs, but an amount should also be put on the social costs too. Once this is achieved, then and only then would a true picture emerge.

CONCLUSION

Organic farming is without doubt environment friendly. Given the adverse impact of climate change, which no longer is a myth but an apparent reality, the need to move to these practices has become imperative. The only impediment is the cost factor, and the large supplies of food grains which are required for a country like India.

Social costs should be considered and accordingly schemes, and subsidies should be introduced both by the center and the state government. The ones already in practice are Mission for Integrated Development of Horticulture (MIDH), National Food Security Mission (NFSM), National Mission for Sustainable Agriculture (NMSA) etc. This indicates the seriousness of the government in encouraging organic practices. Organic farming is a healthy way of living for the citizens of India, and its encouragement is definitely a step in the right direction.

REFERENCES:

1. Dutta.S, Mukerjee.A, et all, Organic Farming in India: Status Issues and Way Forward. Academic Foundation, Darya Ganj, New Delhi. 2017
2. Elayraja.M; Vijai. C, Organic Farming in India: Benefits and Challenges, December 2020, www.researchgate.net/publication
3. International Res Jour Managt Socio Human, Financial Analysis of Organic Farming in India, isara solutions, 2020.
4. Jangid.R, Mahendra and Manoj. Economic Aspect of Organic Farming in India. Biotech Articles, 2018
5. Kiran Kumara T M, Singh D R, Praveen K V, Economic Benefits from Adoption of Organic Farming in India, www.researchgate.net. January 2015
6. Kumar.A, Indian Agriculture: Agrarian Crisis, Organic Farming, Conventional Farming and Precision Farming. IndiaMart, 2020
7. Nandwani. D, ed, Organic Farming for Sustainable Agriculture. Springer.com 2020.
8. Sharma.S, Organic Farming: The future of Indian Agriculture. International Journal of Agriculture and Plant Science, www.agriculturejournal.in, ISSN:2664-7656. Volume3, Issue 2, 2021.
9. Shelkande.M, "Organic Farming in India" <https://www.academia.edu/42486244>.
10. Thottathil.S, India's Organic Farming Revolution. What it Means for our Global Food System. www.ebay.com 2014