

An Exploratory Analysis on the Sudden Rise of the Organic Food Industry: Is it a Means to Charge Higher Prices or an Important Alternative in Efficient Use of Scarce Resources?

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Abstract: *The research includes the socio - economic cost involved in adopting organic methods of farming. The shift is extremely important for the health and sustainable development of the nation. The cost of organic farming is extremely high, but the benefits are far - reaching. Research and development should move in a manner that makes organic farming more cost - effective.*

Keywords: Cost - effective, organic farming, research and development, socio - economic cost, sustainable development,

1. Research Question

This study will attempt to understand the sudden rise of the word 'Organic', in the use of most edible products. Is this used to increase the price of the product? How important is it for citizens to consume natural pesticide and insecticide - free products? Is the adverse effect of the consumption of fertilizer - laden products being felt recently? Does the use of organic products also impact the efficiency and utilization of scarce resources? These and other questions will be attempted to be answered in the course of the paper.

2. Introduction

The sudden rise of the word 'Organic', and the connotation that it brings to one's mind automatically leads to differentiating the product on how it is grown. The nutritional benefits, and purity that are associated with organic foods are far superior to that which is grown with the aid of excessive toxic chemicals like pesticides, herbicides, and insecticides.

In 1969, when India had just discovered the benefits of the 'Green Revolution', the aim was to increase productivity as well as production of basic cereals like rice and wheat such that, there would be abundant availability for its citizens without depending on importing basic food. The 'Green Revolution' entailed the use of HYV (High Yielding Variety) technology, which involved HYV seeds, pesticides, insecticides, and adequate use of water. They were adopted in northern India in the production of wheat and rice. This led to a phenomenal increase in the productivity of soil as well as the crop and reduced India's dependency on imported food grains, thus helping the economy achieve self - sufficiency in food grains.



Figure 1: Impact of the Green Revolution

Source: www.inc.in

This has been adequately depicted in the figure above. But, over the years, the overuse of fertilizers and pesticides as well as excessive use of water has depleted the soil nutrients in the areas where they have been deployed.

There have been several reasons for the above, namely.

- Policies followed by successive governments to achieve self - sufficiency in food grain.
- Reduce the number of people living below the poverty line.
- Policies followed concerning Minimum Support Price (MSP)
- Fertilizer subsidy
- Food subsidy
- Electricity subsidy
- Water subsidy

The imperative need to achieve self - sufficiency in food grains, and at the same time protect the farmers has led to various policy decisions by the government for the agrarian sector in India. Farmers have been by and large protected in terms of the type of taxes that have been imposed, but unfortunately, the benefits of these policies have been

garnered by the rich farmers.80% of the farmers in India own less than one hectare, resulting in poverty, malnutrition, and close to a subsistence level of living.

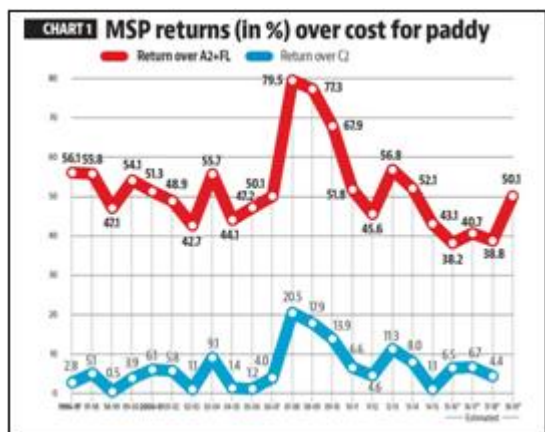
Like the above policy goal, poverty reduction is a major milestone that Independent India must achieve. This is a tall task considering that despite achieving a Gross Domestic Product (GDP) growth rate of about 7% or more since 2000, there has not been a commensurate decline in poverty numbers. The contribution of the agricultural sector to GDP has reduced to one - fourth compared to the last century, but the workforce dependency on the agricultural sector is still 44 - 46%. This essentially means that employment would have to be generated either in the non - rural agrarian sector and/or the labour - intensive manufacturing sector, to increase the incomes of the workforce which is dependent on the agrarian economy. This essentially means that jobs would have to be created to substantiate the income of these people by either developing the non - agricultural sector in the rural areas or else encouraging labour - intensive industries.

The government in its endeavour to ensure the income to the farmers, as well as achieving universal food security, initiated a system of Minimum Support Price (MSP), for a number of the crops grown.

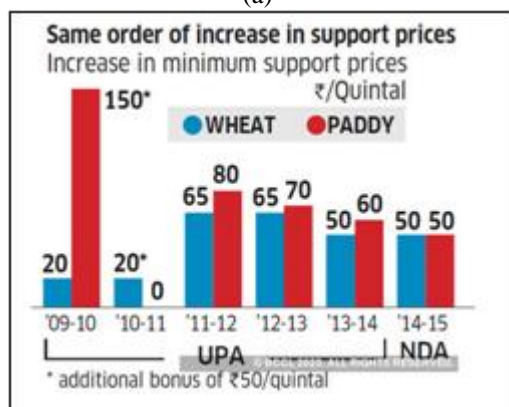
the soil. It is anticipated that the Fertilizer subsidy bill 2022 - 23 is expected to be over Rs 2.5 lakh crores way above the anticipated amount of Rs.1.05 Lakh Crores. This is way above what had been earmarked. The reason is that the imported price has increased sharply due to the Russian - Ukraine Conflict. This increased amount is not passed on to the farmer. The farmers in India are offered these fertilizers at a discounted price. Irrespective of whether the cost of importing it is going up or down, the farmers get it at a reduced stable price. If one studies the recipients of this huge subsidy, it is seen that most of this benefit is primarily to a few states, a few crops, and a few targeted producers. The majority of the studies indicate that the bulk of the fertilizer subsidies goes to the northern states and paddy and wheat. It is also indicated that as the farmers of these states have large farms, the beneficiaries are likely to be rich farmers. The concept of using a Fertilizer subsidy is size neutral. To reduce the import bill, the government has encouraged the domestic production of fertilizers. But, for this production, some inputs might have to be imported. With a large amount of the share going to rich states and rich farmers. To ensure equality, policy measures to directly transfer the subsidy element into the farmer's bank account would be a better alternative. This is possible through increased digitalization that India has witnessed in recent years. Farmers growing crops like paddy, wheat, sugarcane, and cotton are recipients of two - thirds of the fertilizer subsidy.

To reduce the increased allocation of this subsidy, the government has de - controlled Phosphate and Potash fertilizers allowing them to be sold at market price, in the hope that the subsidy would eventually reduce. The other major issue here is the overuse of the so - called 'Cheap' fertilizers (due to the subsidy element provided by the government) has led to overuse of the product resulting in harming the soil and progressively reducing the nutrients. This has led to the harmful influence of these chemicals being absorbed by the crops, leading to health hazards for all who consume them.

It is this which needs to be addressed by making the fertilizers more expensive such that they are judiciously used, and their harmful effects are subsequently reduced. This is one of the major reasons why the movement towards organic farming. It is the aim to reduce the detrimental effect on health which is now becoming a prime concern.



(a)



(b)

Figure 2: Impact of MSP Returns as well as Increase in MSP

Source: Google Images

Fertilizer Subsidy requires that the economy import Potassium, Sodium, and Phosphate as these are the main components that are required to increase the productivity of

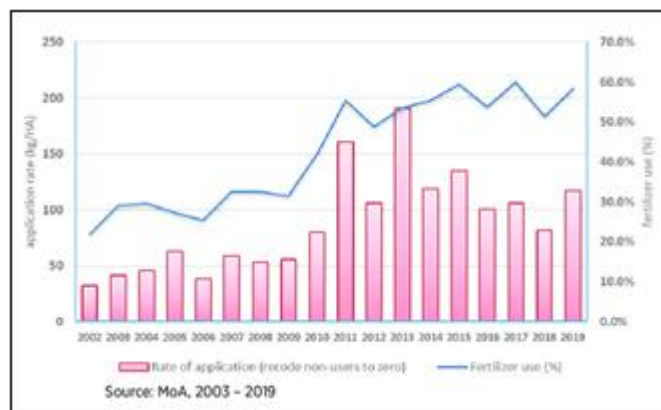


Figure 3

Source: www.researchgate. net

Food Subsidy is yet another instance of rampant use of scarce resources. These food subsidies are in two forms:

- 1) To the consumer in the form of cheaper prices than the market of basic food necessities like rice and wheat
- 2) To keep the farmers increasing their food production the government has constituted a system of Minimum Support Price (MSP). The assurance of such a price gives the farmer the correct incentive to continue production. The MSP in recent years is above the equilibrium levels that are indicated in the market.

The fact that MSP is higher than the market equilibrium price indicates inefficiency of resources and leading to a skewed usage of scarce resources.

The main grain bowl in India is Punjab, Haryana, and parts of western Uttar Pradesh. These states are the primary

producers of rice and wheat. To continue the production of these basic cereals, most state governments have adopted both electricity and water subsidies to ensure a continuous increase in production.

In recent years, this has acted as a drain on the state government exchequer and has resulted in overuse of the scarce resources, directly impacting the quality of the soil in these parts.

Attempts must be made to initiate a certain amount of user charge on these scarce resources such that they can be judiciously used. Given the adverse impact of climate change with continuously increasing temperatures, all economies of the world must make a concerted effort to minimize the overuse of their scarce resources.

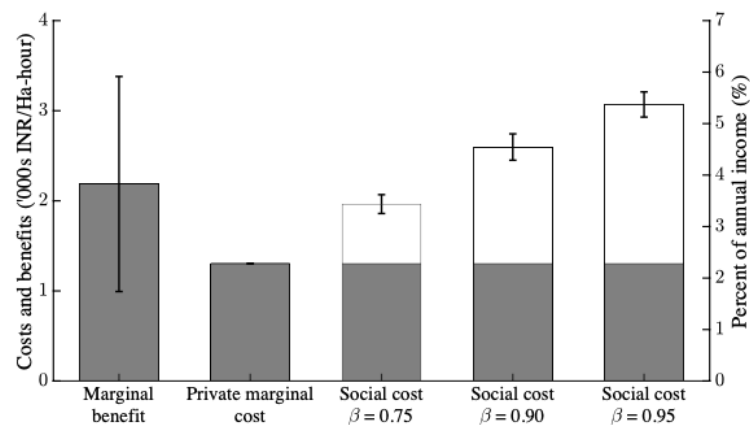


Figure 4: Marginal and Social benefit of the excess use of water in India

Source: www.voxdev.org

The above diagram indicates that besides just the marginal cost involved in the use of water, there is also an ever-increasing social cost involved.

3. Definition

This research aims to evaluate the word 'Organic', as in India, there has been a continuous overuse of scarce resources. This essentially stems from the overuse of fertilizers along with water and electricity. 'Organic' means that food production is being grown without the use of chemical fertilizers or pesticides or any other chemicals. Scientific definition indicates that they are chemical compounds that could be derived from living organisms, both plants, and animals. It means that the waste products of animals could be used as manure to maintain the chemical balance of nitrogen, sodium, and potassium in the soil. For this it is important to rotate crops that are rich in the above chemicals so that the soil is continuously replenished.

Certain crops absorb these essential nutrients and there are others which replenish them. It is essential that there is a judicious mix of these crops to ensure healthy plants. As the use of chemical fertilizers has been done away with in organic farming, crop rotation is the only answer to increasing the productivity of the soil.

As the cost is going to increase with the adoption of organic farming, it is important to evaluate whether there is a large enough market for the products being farmed at a higher price.

It is also possible that there is a mix of crop rotation and a reduction in the use of chemical fertilizer. The exact mix will depend upon the market for such products.

4. Reasons for Increasing Demand for Organic Food

The sudden increase in organic food products is primarily due to the better taste as well as the higher nutritional value of the product. The main positive is that it is free from chemicals and other pesticides. It also aids in preserving the environment, which has become a major issue to be grappled with, given the adverse impact of climate change. The current food production methods come at a huge environmental cause that adversely impacts biodiversity and climate change.

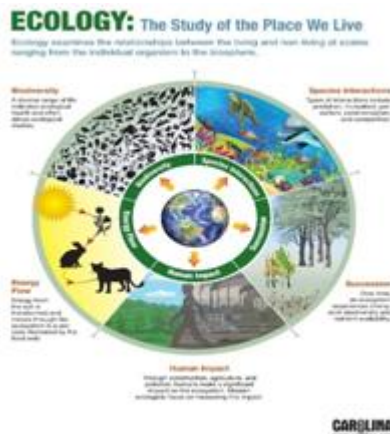
When all discussions on climate change point towards global goals for sustainable development, it is a natural consequence that the agriculture sector should start moving towards reducing greenhouse gases. The current food system is a prime contributor to greenhouse emissions. The

ecosystems and biodiversity are intertwined and important for human well - being and development. They are important for water, food, energy, carbon sequestration, and building material.

As climate change leads to a warmer environment, the species hardly have time to adapt to the changing environment. Due to the temperature change, emphasis is on the research of new crop species which would help in maintaining the productivity of the soil.

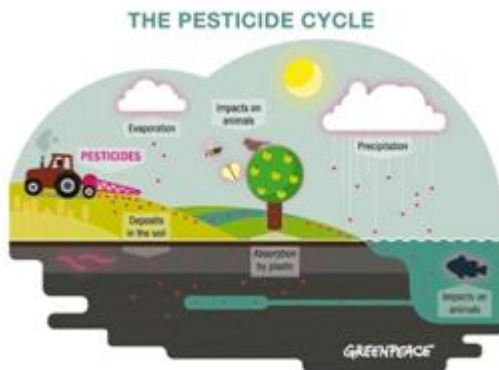
4.1 Environment

Climate change is in any case hugely impacting biodiversity. In the last fifty years, an attempt has been made to maintain the productivity of the soil, and in the bargain has converted the natural ecosystems. What has also decreased is the land available for pasture. This change in the use of land has resulted in a reduction in biodiversity. A classic example is that insects, birds, earthworms, and honeybees are on the decline due to the excessive use of chemicals. The above - stated micro - organisms and invertebrates are extremely important for the soil to be kept fertile for the pollination of plants, purifying water, and air, and fighting crops as well as pests and diseases.



(a)

Source: www.carolina.com



(b)

Source: www.greenpeace.org

Figure 5: Contrasting Impact of the Importance of Natural Eco - cycle and the Pesticide Cycle

4.2 Health

The biggest emitter of greenhouse gases is what we eat and how it is grown. The ongoing deforestation means that land is being used for pasture or crop production. Meat production is again one of the major drivers of the loss of biodiversity. Livestock production changes are responsible for 14.5% of anthropogenic greenhouse gas emissions.¹ In the race to feed the people of a country more easily, food has become full of chemicals that are very harmful to our health and may be the culprit of many of the diseases that one encounters today, e. g., Obesity, cancer, heart disease, high blood pressure, and diabetes to name a few. Studies have indicated the adverse effects of certain pesticides on children's cognitive development. It is not always easy to divide food products into organic and inorganic. Besides the way that food is produced, other factors that have to be taken into account are contaminants in food packaging, aspects of food processing, post - harvest storage for which the right type of moisture and temperature is important as well as the growth hormones that are used in the rearing of animals.

4.3 Climate Change

Climate change has harmed food production. Due to changes in temperature as well as the increasing drought and flood conditions, the race to continue to increase production levels has led to the overuse of synthetic fertilizers. This has created a harmful impact on people, animals, and crops. Increasing use of chemicals in the human body leads to greater vulnerability to diseases. Animals that are reared for production purposes must keep pace with the demand resulting in injecting of growth hormones in them. Crops have become hardier, and they have started becoming immune to certain chemicals which further leads to the usage of more potent and harmful fertilizers.

It is a vicious circle in which climate change plays in the form of greater carbon imprints, higher variations in temperatures, and subsequently impact on agriculture production.

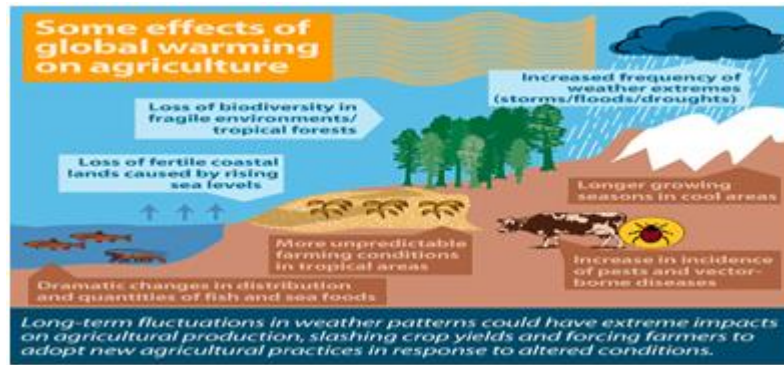


Figure 6: Effects of Global Warming On Agriculture

Source: www.agrivi.com

4.4 Profit Motive

Organic production is more expensive than inorganic production. As more and more people realize the harmful effect of inorganic production, the demand for organic food has increased resulting in a higher price for the products. Besides the increasing demand, the increased effort and manpower that are required for production without chemicals are also very high. Organic production involves the correct crop rotational techniques so that the nutrients of the soil are kept intact. The main factors that are involved in this production are:

- Protecting the environment.
- Minimize soil degradation.
- Decrease pollution.
- Optimize biological productivity.
- Promotion of sound state of health.

The fact that people have become more aware of the benefits of organic food has led to increases prices of food commodities. This along with a mismatch between demand and supply (demand being greater than supply) leading to further increase in prices. There seems to be a higher profit presently in the production of healthier food, but this may be a small price to pay if all the above - stated benefits are achieved.

5. Impact on the Efficiency of Scarce Resources

Organic farming is important for the sustainability of the environment. The reason that there has been an increasing shift towards organic farming is that consumers are concerned about the health impact of accidentally consuming harmful pesticides. The problem with organic farming is that though no pesticides are used to produce the same output, a larger amount of land would be required. As the population of the world is increasing, the demand for food automatically increases. Is there a production process whereby no pesticides are used but output per hectare remains the same as farming by using pesticides? This is what has to be researched which would help in saving the environment as well as increasing food production. Indian farmers who grow organic crops make their fertilizers by filling a field with legumes that they grow in rotation. Once the legumes have been fully grown, then the farmers manually plough them into the ground resulting in larger

quantities of nitrogen being pumped into the soil as opposed to using only manure or synthetic fertilizers. Reducing the consumption of meat would also help in the reduction of carbon imprints in the atmosphere. Thus, there has to be a simultaneous use of organic fertilizers as well as a change in consumption habits.

6. Conclusion

Organic food has become a necessity to exist. The use of chemical fertilizers and pesticides have resulted in harmful effects on the human body. They have been utilised to balance the demand and supply of food as the world population increases. But the result of this is harming the health of the citizens of the country. The cost involved in shifting to organic farming is huge. But for the safety of the citizens, this must be attempted and research in this area has to increase, so that food is produced at minimum cost organically.

References

- [1] Das, S., Chatterjee, A., & Pal, T. K. (2020). Organic farming in India: a vision towards a healthy nation. *Food Quality and Safety*, 4 (2), 69–76. <https://doi.org/10.1093/fqsafe/fyaa018>
- [2] Dhaka, M. (2022, September 15). Organic farming in India: A vision toward a healthy nation. *Times of India Blog*. <https://timesofindia.indiatimes.com/blogs/voices/organic-farming-in-india-a-vision-toward-a-healthy-nation/>
- [3] Elayaraja. (n. d.). Organic farming in India: Benefits and Challenges. *European Journal of Molecular & Clinical Medicine*.
- [4] Mansata, B. (2008). Organic Revolution!: The Agricultural Transformation of Cuba Since 1990.
- [5] Mansata, B. (2010). *The Vision of Natural Farming*.
- [6] NARAYANAN. (n. d.). ORGANIC FARMING IN INDIA: RELEVANCE, PROBLEMS AND CONSTRAINTS. *Notional Bank for Agriculture and Rural Development*.
- [7] Poore J., Nemecek P. Reducing food's environmental impact through producers and consumers. *Science*.2018; 360: 987 - 992. doi: 10.1126/science.aaq0216. [PubMed] [crossref] [google BIBLIOGRAPHY]
- [8] Recent Trends in Organic Farming in India: A Study. (n. d.). IJCRT.