

The Importance of Organic Farming in the Perspective of Indian Agriculture

Dr. Ashok Gupta, Dr. Preeti Garg, Dr. Neha Yajurvedi
Shobhit Institute of Engineering and Technology (Deemed to be University), Meerut
Email Id- dr.ashok@shobhituniversity.ac.in, preeti.garg@shobhituniversity.ac.in,
nehayajurvedi@shobhituniversity.ac.in

ABSTRACT: *The growing awareness of the significance of environment preservation, as well as the health hazards connected with agrochemicals, and the desire of consumers to eat nutritious and safe food are the primary drivers of worldwide interest in other agricultural forms. The average annual growth rate of 20-25% is growing tremendously both in mature and developing countries. Organic farming seems to be one of the fastest growing agricultural sectors. Nevertheless, a number of issues have to be addressed before a large-scale transition towards organic farming can place. This article explores the idea of organic agriculture with the Indian continent. In addition, the breadth and profitability of organic farming in the Indian market are shown. It also covers organic farming outcomes and organic farming pest control. Large areas of rich soil in India, mainly downpour as well as located in North-East, are likely to be used as potentially organic agriculture zones, where fertilizer and chemical uses are limited and output is low. Further study in organic farming will be available in the future to investigate more in this area to explore the full potential.*

KEYWORDS: Agriculture, Fertilizer, Organic Agriculture, Organic Farming, Organic Food.

1. INTRODUCTION

Agrochemical advances such as the use of synthetic fertilizers and pesticides, together with the introduction of nutrient-responsive, high-yielding crop varieties, have all contributed to an increase in agricultural output per hectare in the majority of instances. Although production has increased, the rate of expansion has slowed, and there is evidence of a decrease in effectiveness and productivity in certain areas. Furthermore, the present accomplishments of global agriculture, as well as the environmental movement, have often hidden significant externalities relating to environmental capital, human health, and agriculture itself. Even while agriculture's environmental and health problems have been known for a long time, it has only lately come to the attention of planners and scientists alike that the severity of the costs has aroused their interest. The external costs of agriculture in the United Kingdom are estimated to be between 1.1 and 3.9 billion pounds per year, depending on the region. The external costs of farming are borne by the taxpayers since they are not reflected in the prices of agricultural goods[1].

As a consequence of the increasing knowledge of the significance of environmental protection and customer preferences for food quality, consumer preferences for food quality have changed considerably as a result of the health risks posed by agrochemicals, especially in developing countries. Organic food that is nutritious and free of toxins is becoming more popular as a result of the growing needs of worldwide consumers for such products. By 2005, it was predicted that the worldwide market for organic food would reach 29 to 31 billion US dollars. Organic food sales are rapidly growing in both developed and developing countries, with an average annual growth rate of 20-25 percent in both developed and developing countries. Approximately 130 countries produce certified organic goods in large quantities for the industrial market.

1.1 Organic Farming:

It is one of a number of ecologically friendly processing methods that are now accessible. Agro-ecosystems that are both economically and ecologically sustainable are the goal of these initiatives, which are founded on rigorous food production standards. It is primarily concerned with using on-farm capital more efficiently than commercial agriculture in order to minimize the reliance on external inputs. As a consequence, harmful fertilizers and pesticides are avoided in agricultural production.

For the purpose of describing organic farming, the term "organic" refers to items that have been produced in accordance with specified regulations throughout the agricultural production, processing, transportation and operations planning processes, as well as items that have been certified by an appropriately formed certifying agency or organization. Therefore, rather than representing a product, the organic label represents an assurance about a technique. It should not be taken to imply that any particular food product is inherently healthier or safer. Organic certification essentially signifies that the products have been processed and handled in line with industry standards, and studies have shown that consumers see the organic certification as a sign of purity and proper treatment. It is important to note that organic certification does not exempt farmers and processors from particular compliance obligations such as chemical registrations and food safety standards, as well as from overarching food and nutrition labelling regulations[2].

Numerous organic farming theories and practices have been proposed. Organic agriculture ideas take into account ethical concerns such as equal labor standards and animal ethical considerations. In general, all of these concerns themselves with environmental principles as the basis for agricultural production and animal husbandry. The Codex Alimentarius Commission, a joint Food and Agriculture Organization (FAO)/World Health Organization (WHO) body, framed some rules for the cultivation, manufacturing, labelling, and selling of organically grown foods with the goal of facilitating trade and preventing false statements, in order to encourage organic farming and ensure equal standards in international trade in organic food. The Codex Alimentarius Commission is a joint Food and Agriculture Organization (FAO)/World Health Organization (WHO) body that framed some[3].

According to the Codex Alimentarius Commission, this method is defined as a complete food production management system that promotes and enhances agro ecosystem health, including biodiversity, ecological cycles, and soil biological function. It stresses the use of management methods above and beyond the provision of goods, recognizing that regional circumstances need the development of locally tailored solutions. Environmental, biological, and mechanical techniques are used to carry out certain functions inside the process, rather than manufactured materials.

1.2 Organic Agriculture in India:

- India is the nation with the greatest number of organic farmers, as well as the country with the ninth-largest organic producing area.
- Sikkim is the world's first completely organic state, and other states such as Tripura and Uttarakhand have shown interest in pursuing similar goals.
- Historically, North East India seems to have been more organic than the rest of the region, eating much less chemicals than the rest of the region.

- Additionally, territorial and island regions are being protected in order for their natural heritage to be preserved.
- Sesame, flax seeds, soybeans, medicinal plants, tea, rice, and pulses have been India's most important organic exports in recent years.

1.3 Profitable Opportunities:

Organic farming is getting more and more popular in Indian agriculture. The majority of the credit for this goes to current agricultural research. In addition to providing additional measures to improve output, it has eliminated the use of bypass techniques, which has benefited farmers. New methods for organic farming are being developed primarily for the purpose of improving soil quality. Beyond these factors, the revelation of many new illnesses that have been linked to the artificial production of fruits and vegetables has undoubtedly changed people's perceptions toward organic agricultural practices[4].

Another important factor in this enormous transformation is the rise in public awareness of health issues. Indeed, it has been referred to as the "race of the contemporary way of life." It is basically through person to person that organic food consumption spreads. People have, without a doubt, transformed exercise into a way of life. Because of the overwhelming reaction from consumers, this opens opportunities for a large number of new entrepreneurs in India. Because the method does not need the use of artificial materials for farming, the expenses of installation and maintenance are very cheap.

1.4 Business Opportunities in the Organic Farming Industry:

- There are many different categories of organic farming from which one may choose and become an expert in that particular area. Having a strong focus on what they are doing will allow them to gain business leadership.
- Once they have established contacts and a solid financial foundation that can tolerate occasional losses, they can turn their attention to producing organic fruits and vegetables, which account for approximately 75% of the industry's total production. Because fruits and vegetables are perishable, the term "loss" was employed to describe them. In this category, it's either success or failure all the time.
- Organic medications are being evaluated as a potential new food category with the potential to generate additional income. Organic food is not the only thing that has changed; organically produced medicines are still being utilized. Natural medicines are also being recommended by physicians in order to aid in the healing process. It is possible to work with academics or biotech specialists to create new medication formulations utilizing organic components if farming alone is not a goal for a person. In this instance, a person is responsible for transitioning the business from raw resources to completed goods.
- Formalized Organic farming is a relatively new concept that is growing in popularity, and the novelty of the practice may be used to increase earnings. From the perspective of the market, when a product's supply is restricted, the demand for that product increases. As a consequence, expenses will be greater than usual without having an impact on sales. According to polls, there are fewer choices for buying organic products, suggesting that there is a mismatch between supply and demand.

1.5 Organic Farming and Food Security:

Modeling studies have found no evidence to support the notion that a widespread transition to organic farming would result in a significant reduction in global food stocks or a significant rise in the conversion of pristine areas to agricultural use. Transformation studies found that household food consumption would never be damaged, that exports could vary depending on the crop, and that the agricultural structure would undoubtedly change as agriculture became more varied, among other findings. If organic farming were to become more generally practiced, increased investment in research and extension would result in crop production gains that were higher than present projections[5].

Organic farming methods may be used to meet the domestic food demand in Northern Europe, but the food would be more expensive. Experiments performed in the United States yielded results that were similar to those reported here. German researchers found that if per capita meat consumption were reduced from 39 to 21 percent, all of Germany's grain fields could be converted to organic farming without increasing imports or extending farmland. According to the findings of the research, such a conversion will be feasible, with as many as 40% of all German teenagers anticipating that they would consume little or no meat in the future. As the abandoning of meat eating in Europe increases, the cutoff point for this conversion may be achieved sooner than anticipated. Several studies have shown that a vegetarian diet is better than a non-vegetarian diet in terms of the calories used in the production of food, as well as in terms of the extra health advantages that vegetarianism provides[6].

Organic farmers produce a variety of crops and keep their livestock in order to maximize nitrogen, water usage, and habitat area. In the event of low food production or output loss as a consequence of microbial communities in all of them at the same time, this guarantees agricultural benefits for the farmer. This has the potential to have a significant impact on the food security and resilience of the local community. Organic farming methods have been found to outperform conventional farming systems in rain-fed settings when subjected to environmental stress, according to recent research. It is possible that market advantages from organic farming may potentially help to local food safety by boosting family income if the right conditions are in place. Because of the current level of knowledge and technology, organic farmers are unable to provide enough food for everyone on a global scale, particularly in developing countries with a large population need[7].

1.6 Organic Farming and its Yield:

Comparing contemporary conventional systems to comparable old techniques, yields are closely linked to the intensity of farming across the present conventional systems. This remains true not just when comparing places, but also when comparing crops within a given region and throughout historical periods as well. The following is an oversimplified explanation of the effect of organic farming transformation on yield:

- When applied to intensive agricultural systems, organic cultivation lowers production; the extent of the reduction is governed by how much external input is utilized after the transformation.
- It is usual that conversion to organic farming results in almost equal yields in regions associated with the "green movement" (irrigated lands).

- The use of organic farming has the ability to enhance production in rain agriculture while minimizing the impact of external factors.

Numerous studies have shown that crops grown using organic agriculture methods generate much higher yields than comparable conventional agricultural species when grown in drought conditions, usually out producing regular crops by 7 to 90 percent. Others have shown that organic manufacturing methods result in less long-term instability in the production process. Researchers found that average production increases of 5-10 percent were achieved across all irrigated crops, while between 50 and 100 percent were achieved in precipitation crops, according to a study of 208 programmes in developing tropical countries that adopted contemporary organic techniques.

Multiple yield-comparing studies have found no evidence of the organic transition impact, which is defined as a yield drop during the first 1-4 years of transitioning to organic farming followed by a production increase once soils have generated adequate biological function, occurring during the transition period. According to the results of organic cotton tests conducted in Nagpur over three years, the biological plots, which were not fertilized or treated with pesticides, produced the same quantity of cotton as the conventional plots. A similar three-year trial period was conducted in Punjab where it was discovered that organic farming produced higher or comparable results in terms of different crop production when compared to artificial farming [8].

1.7 The Role of Disease Supervision in Organic Farming:

When it comes to organic farming, pest control begins with sound choices, such as growing disease and pest-resistant plants or planting at periods when diseases and pests are less likely to infest the crop. Planting with care, taking into consideration both time and space, not only removes pests, but it also increases the number of natural parasites that help in the management of bugs, illnesses, and weeds, among other things. In addition to these methods, other popular pest and disease management strategies include: improving soil health to resist soil pathogens and promote plant growth; rotating crops; encouraging natural biological agents for disease, insect, and weed control; and constructing physical barriers for insect, bird, and other animal protection.

According to organic farmers, synthetic fertilizers and pesticides make crops more susceptible to pests by making them more fertile. A handful of these claims are backed up by empirical data. Organic crops have been shown to be more insect resistant as well as more resilient than conventional crops, and this is supported by research. According to studies, organic rice has thicker cell walls as well as lower levels of free amino acids than conventional rice, making it a more nutritious option. Multiple studies have shown a connection between high plant N levels and plant vulnerability to insect herbivory, which is related with high soluble N fertilizer inputs.

Farms that used organic methods had less severe soil-borne root infections than those that used conventional methods, but there was no significant difference in foliar disease throughout the area. The use of long and varied farming methods, crop combinations, and the regular administration of organic supplements are all believed to be associated with the effective control of root infections in organic networks. It has been found that increased soil microbial interaction enhances rhizosphere antagonism, and that the presence of beneficial root-colonizing microorganisms plays a role in root disease control[9], [10].

1.8 Pest Control:

- Keeping losses to a bare minimum.
- Keeping environmental contamination to a bare minimum.
- An Approach to Long-Term Sustainability.
- Maintain the quantity and quality of the produced goods.
- Prevents the negative consequences of the Green Revolution.
- Ensuring the safety of food supplies.
- Removes bio-hazards that are generated in the food chain as a result of the use of different chemicals.
- Pest control, including the control of insects that are resistant to chemical treatment.

2. DISCUSSION

As a consequence of the replacement of external variables with farm-derived resources in conservation farming, differential input prices are usually lower than they are in conventional farming. In almost every instance, fertilizer and spray expenditures are much lower than they would be in a conventional system. Purchasing compost as well as comparable organic manure has resulted in increased input costs in a few instances, which has been seen in the past. According to research, the widespread use of organic agriculture, along with decreasing input costs and favorable price premiums, may compensate for lower yields and make organic farms as lucrative as conventional farms when compared to the latter kind of farming. Profitability results from a variety of research indicate that organic pricing premiums were not required since the market has been unstable in recent years.

According to research conducted in Europe and Canada, organic farming has labor expenses that are 40-50 percent greater than those of conventional agricultural practices. Organic farming generates operational profits that are equal to or higher than conventional farming in areas where price premiums are favorable, or the difference between agricultural output and growing costs. Over a six-year period, the data on organic cotton cultivation revealed a reduction in production costs as well as an increase in net and gross profits. When compared to conventional cotton farming in India, the earnings are much higher.

A small amount of fertilizer is applied to the remaining 70 percent of agricultural land in India, which is primarily rain-fed, and only a third of the country's total arable land is fertilized in areas where irrigation is available. In addition, only a third of the country's total arable land is fertilized where irrigation is available. The usage of organic manure is also common among farmers in these areas as a source of nutrients that seem to be readily accessible on their own farms or in the surrounding community. Because of the severe restriction on the use of chemical components in the northeastern portion of India, there is a great deal of opportunity for organic farming in this region. According to estimates, organic farming may be practiced on 18 million acres of land in the northeastern United States. Because of the vast area under essentially default organic farming in India, the country has enormous potential to grow crops organically and to establish itself as a major supplier of organic commodities in the global organic market.

3. CONCLUSION

Since it requires less financial investment and relies more on readily accessible human and natural resources, organic farming is gaining popularity in developing countries, particularly in developing countries. According to many research, organic farming tends to provide a competitive advantage in areas with little rainfall, as well as low ecological and soil cropping intensities and low soil fertility. Labor generates a good return on investment, which is important in areas where paid labor is in short supply. Instead, organic agriculture methods have the potential to improve regional food security by reducing reliance on imported inputs such as irrigation and power as well as foreign inputs. This is particularly true in disadvantaged areas where organic farming is not as common. Organic farming has the biggest influence on the views of the general public. It makes use of indigenous and traditional farming abilities, as well as selected contemporary technology, in order to manage and optimize variety, integrate biological features and instruments into farming operations, and environmentally improve agricultural production while also reducing environmental impact. Organic farming forces farmers to acquire new skills and knowledge, as well as to innovate, as a result of their decision to become organic. Therefore, there is a greater level of enthusiasm for farming, which may result in more employment opportunities in the countryside and economic development. Therefore, organic farming contributes to farmer and rural population empowerment by putting more emphasis on the utilization of local capital and self-sufficiency, as well as on the application of organic agricultural techniques.

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