

Organic Farming: An Innovative Process with a Touch of Nature

Priyam Sharma and Priyanka Taid

Ex-students of Assam Agricultural University

Jorhat-13, Assam, India

E-mail: sharmapriyam625@gmail.com

priyankataid11@gmail.com

Abstract—Organic farming, a method of crop and livestock production that involves much more than choosing not to use pesticides, fertilizers, genetically modified organisms, antibiotics and growth hormones rather than using green and animal manures, crop rotations to fertilize the soil, maximize biological activity and maintain long-term soil health and an eco-friendly pollution free environment. Organic farming system in India is not new and is being followed from ancient time. According to The World of Organic Agriculture 2018 report India is a home of production of 30 percent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares. Among all the states Madhya Pradesh has covered largest area under organic certification followed by Rajasthan, Maharashtra and Uttar Pradesh. During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76000 ha) under organic certification. Organic farms tend to have healthier soil, however, since organic farmers don't use synthetic pesticides, they often depend on tilling (stirring up fields, using methods like plowing) as a means of controlling weeds, hence it reduces the production cost by about 25-30% which thus makes organic farming cost-effective, easily degradable and rapid decomposition by sunlight, it also preserves soil by reducing soil erosion up to a large extent. In contrary, farming practices are more-expensive in organic farming. One of the most difficult things to determine for an organic farmer is how much organic fertilizer to use based on each nutrient requirement. As the yield productivity is less in organic farming the cost of food is very high.

Keyword: Organic, crop, livestock, manure, decomposition, productivity.

1. INTRODUCTION

The population in the world is increasing day by day. Therefore, it is necessary to hold steady agricultural production and also to increase it further in sustainable manner. 'Green Revolution' is realized to be high input use that has reached a plateau and is now sustained with diminishing return of falling dividends. In this manner, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be

more relevant in the present era, when these agro-chemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. Organic farming as a sustainable production management system provides long-term benefits to people and the environment [1].

Though the organic movement was initiated over a decade ago it has failed to gain the expected momentum due to several ambiguities. Organic farming is mostly envisaged as the stoppage of synthetic inputs and their replacement by organic alternatives i.e. use of organic manures and natural methods of plant protection instead of using synthetic fertilizers/pesticides. But this is not true [2].

In the traditional organic-based food production system, the entire agriculture was practiced using organic techniques, where the pesticides, fertilizers, etc., were obtained from plant and animal products. For instance, cows were raised not only for milk, but also as bullocks for farming and excrement used as fertilizers [1].

2. ORGANIC FARMING IN INDIA:

Organic farming system in India is not new; it has been practiced for thousands of years. India holds a unique position among 172 countries practicing organic agriculture, it has 6,50,000 organic producers, 699 processors, 669 exporters and 7,20,000 hectares under cultivation. But, with merely 0.4 per cent of total agricultural land under organic cultivation, the industry has a long journey ahead [3]. India produced around 1.35 million MT (2015-16) of certified organic products which includes all varieties of food products namely Sugarcane, Oil Seeds, Cereals & Millets, Cotton, Pulses, Medicinal Plants, Tea, Fruits, Spices, Vegetables, Coffee etc. The production is not limited to the edible sector but also produces organic cotton, pulses, functional food products etc [4].

3. AIMS OF ORGANIC FARMING

The main aims of organic farming are conserving environment and natural resources, re-establishing ecological balance,

encouraging sustainable agriculture, improving soil fertility, conserving flora and fauna, increasing genetic diversity, and putting an end to chemical pollution and toxic residues. The main goal of organic agriculture is not raising the quantity, but improving the quality of food products. Now, by practicing organic agriculture, it is possible to produce agricultural goods without polluting soil, water resources, and air while protecting environment, plant, animal, and human health's. In addition to banning the use of every kind of synthetic and chemical pesticides and fertilizers, organic agriculture encourages practicing organic and green fertilization, crop rotation, soil conservation, improving plants resistance to pests and diseases, benefiting from parasites and predators [5].

4. NEED OF ORGANIC FARMING

4.1 Organic Food Industry is Growing Fast and Guarantees High Profitability: As the current market trends according to natural marketing institute reveals that organically produced products are becoming widely accepted throughout the world, having increased three fold organic products with increased establishment of natural food stores selling varieties of organic products. The farmers markets also offer commercialization of regionally and locally produced organic products. Accordingly, the retail sales of organic products are expected to continue rising in the coming years at a rate more than 20% yearly [6].

4.2 Environmental Sustainability and Food Security: Attaining a friendly and green environment has always been a great concern worldwide and research discloses that organic farming can partly offer a solution. Long term studies about organic agricultural practice reveal it can provide an impressive mechanism for promoting ecological harmony, biodiversity, and biological cycles which are vital for environmental sustainability [6].

4.3 Improvement of Human Health: Organic produce offer the safest products for human consumption than any other available food products. They contain lower levels of chemicals and do not contain modified ingredients compared to the conventional agricultural produce [6].

5. KEY FEATURE OF ORGANIC FARMING

5.1. Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention.

5.2. Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil microorganisms.

5.3. Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures.

5.4. Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring,

resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention.

5.5. The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioral needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing.

5.6. Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats [7].

6. PROGRESS OF ORGANIC FARMING IN INDIA:

India has comparative advantage over many other countries because of the vast cultivated area, which has remained free of contamination from chemicals. Also, it is spread over distinctly varying agro-climatic conditions. For example, large areas in north-east region, northern hills and rain fed regions with low or nil use of agro-chemicals can be instantly converted to organic farming. In order to promote organic farming, the government has launched a new programme, called *National Project on Organic Farming*. The programme is being implemented in the areas where use of agro-chemicals is very low, those which fall in agro-export zones, and in urban hinterland area [8].

7. ADVANTAGES OF ORGANIC FARMING

7.1. Nutrition: The nutritional value of food is largely a function of its vitamin and mineral content. In this regard, organically grown food is dramatically superior in mineral content to that grown by modern conventional methods.

7.2 Poison-free: A major benefit to consumers of organic food is that it is free of contamination with health harming chemicals such as pesticides, fungicides and herbicides.

7.3 Food Keeps Longer: Organically grown plants are nourished naturally, rendering the structural and metabolic integrity of their cellular structure superior to those conventionally grown. As a result, organically grown foods can be stored longer and do not show the latter's susceptibility to rapid mold and rotting.

7.4. Weed Competitiveness: Weeds are nature's band-aids, placed by the wisdom of creation to heal and restore damaged soils. When farmers husband the life of the soil, as they do in organic agriculture, the improved conditions dissuade many weeds and favor their crops. The crops, being healthier, are also better able to compete with those weeds that are present.

7.5. Lower Input Costs: By definition, organic farming does not incur the use of expensive agrichemicals – they are not permitted! The greater resistance of their crops to pests and the diseases save farmers significantly in expensive insecticides, fungicides and other pesticides. Fertilizers are either created *in-situ* by green manuring and leguminous crop rotation or on-farm via composting and worm farming. Biodynamic farmers use a low cost microbial solution sprayed onto their crops.

7.6. Drought Resistance: Organically grown plants are more droughts tolerant. Because chemical fertilizer is soluble, plants are forced to imbibe it every time they are thirsty for water. They can and do enjoy good growth as long as water is readily available. As soon as water becomes limited, however, the soluble nutrient salts in the cells of chemically fed plants are unable to osmotically draw sufficient water to maintain safe dilution. They soon reach toxic concentrations, and the plant stops growing, hays off and dies earlier than it otherwise would have.

7.7. Added Value: There is a discerning market of consumers who recognize the greater food value of organic produce and are willing to pay premium prices for it [9].

8. DISADVANTAGES OF ORGANIC FARMING

8.1. There are no subsidies offered for most organic farmers. Unfortunately, most of the subsidies that are authorized only apply to farmers that are growing commodity products. Without access to subsidies, organic farmers take on many more risks that could wipe them out, such as weather changes or a crop failure.

8.2. It requires more work to produce goods that are ready for sale. Organic farming may still allow for certain “organic” fungicides or pesticides, which can reduce the work burden for some

8.3. Organic farmers must have specific knowledge about localized growing systems. The quality of a crop that can be produced through organic farming is heavily reliant on the skills, knowledge, and wisdom of the individual farmer. In organic farming, the farmer must monitor crop growth patterns during every critical stage of growth. If a farmer is unable to recognize a problem that may be present, then the value of the crop may be reduced. In extreme circumstances, crop loss may even occur for some farmers.

8.4. It usually costs more to be competitive with organic farming. Certain soil amendments, such as rock dust, are more expensive for many farmers when compared to the traditional chemicals that may be used in commodity farming.

8.5. Synthetic chemicals can still be used in organic farming. There are, however, some exceptions to the rule. Organic farmers who can provide that natural pesticides have not worked to control pests are permitted to use synthetic products under specific circumstances. These farmers must show that cultural management practices and other organic practices have failed repetitively.

That means some organic foods being sold are exposed to the same chemicals and processes that commodity and conventional crops have – but with the higher organic prices. For some, that means there is no difference between the different products that are available in local markets.

8.6. Organic crops generally spoil faster. Conventional foods are treated with waxes or preservatives to maintain their

freshness during the shipping process. Organic foods cannot receive the same treatments. For many products, that means organic versions will spoil faster than conventional versions. If product arrivals are delayed or mishandled for some reason, then an entire shipment or crop may never make it to the market for consumption. [10].

9. CONCLUSION

It is often believed that organic agriculture is easier to undertake under certain conditions, especially where the situation is good for agriculture in general, such as on fertile soils. However, organic agriculture can be found in many different bio-physical settings. More frequently, farmers switch to organic agriculture in order to secure market premiums. In this second case, the increased income can help in improving the local food security situation, but variations in price over time should be anticipated. At present the size of the organic market is small (typically less than one percent in most countries), and therefore a small change in organic production will mean a large percentage change in quantity available, influencing price. Increased organic production in the future may have a depressing influence on prices; however, increased consumption may offset any downward pressure on prices.

Some governments have begun to recognize the possibility that it may be cheaper to support organic agriculture than to rectify problems associated with certain resource-destruction production practices. For this reason, several governments have introduced subsidies for organic agriculture. These subsidies come in many forms (education, research, extension and marketing).

However, the most important factor that will enable organic agriculture to usefully contribute to food security is the attitude of decision-makers. Organic agriculture must be discussed with an open mind, with the advantages and disadvantages being clearly considered. FAO can play a key role in promoting a more objective debate on the potential role of organic agriculture, and identifying the circumstances where organic agriculture can be applied most beneficially [11].

10. ACKNOWLEDGEMENTS

The article could be possible from all the related information found from internet.

REFERENCES

- [1] Raj, A. S., (2009). “Final report on Organic Farming: An Introduction”
https://shodhganga.inflibnet.ac.in/bitstream/10603/90691/7/07_chapter1.pdf
- [2] Bhattacharyya, P., Chakraborty, G., (2005). “Current Status of Organic Farming in India and Other Countries.” *Indian Journal of Fertilisers* 1(9), 111-123.
- [3]. Bordolo, B., (2016). “The future Lies in Organic Farming.” *The Hindu Business Line*
<http://www.thehindubusinessline.com>

-
- [4]. Barik, K. A., (2017). 3rd International Conference on Bioresource and Stress Management Organic Farming in India: Present Status, Challenges and Technological Break through
- [5] Anonymous, (2011). "Final Report on Organic Farming"
<http://orser.com.tr/Sayfa.aspx?pid=35&cid=0&Lang=EN>
- [6]. Anonymous, (2019). "Report on Organic Farming" Conserve Energy future
<https://www.conserve-energy-future.com/organic-farming-need-and-features.php>
- [7]. Jaiswal, D., (2017). "Report on Organic Farming: Meaning, Aims and Characteristics | Agriculture"
<http://www.yourarticlelibrary.com/farming/organic-farming-meaning-aims-and-characteristics-agriculture/77310>
- [8]. Mondol, P., (2016). "Report on Short Essay on Organic Farming in India"
<http://www.yourarticlelibrary.com/essay/short-essay-on-organic-farming-in-india/40235>
- [9]. Meg, H., (2017). "Report on Advantages and Disadvantages Organic Farming"
http://small-farm-permaculture-and-sustainable-living.com/advantages_and_disadvantages_organic_farming/
- [10]. Gaille, B., (2018). "Disadvantages and Advantages of Organic Farming"
<https://brandongaille.com/15-disadvantages-and-advantages-of-organic-farming/>
- [11]. FAO. (1998). "Report on Evaluating the Potential Contribution of Organic Agriculture to Sustainability Goals"
<http://www.fao.org/3/ac116e/ac116e06.htm>