International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 05 Issue: 06 | June - 2021 ISSN: 2582-3930

ORGANIC FARMING

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Abstract - Organic farming is a method, which includes the cultivation of plants and rearing of animals in natural approaches. This technique entails the usage of organic materials, averting artificial substances to maintain soil fertility and ecological stability thereby minimizing pollutants and wastage. In other words, organic farming is a farming technique that entails growing and nurturing plants with out the use of synthetic primarily based fertilizers and insecticides. also, no genetically changed organisms are permitted..

1.INTRODUCTION

Organic farming is an agricultural method which originated early within the twentieth century in reaction to unexpectedly converting farming practices. In agricultural scenario, crop yield is declining in spite of maximization of chemical inputs. Cycle of chemical farming is now uncovered in the crop un- sustainability, higher input requirement, bad soil fine in addition to recurrent pest and ailment infestation. The extra and indiscriminate use of fertilizers and insecticides has brought about the entry of harmful compounds into food chain, death of natural enemies and deterioration of surrounding ecology. extended use of pesticide has ensued in serious health insinuation to guy and his environment. for this reason, enhancement and upkeep of machine yeild and useful resource great is important for sustainable agriculture. organic farming can remedy a lot of those troubles as this system helps to maintain soil productiveness and conclusively manipulate pest by increasing herbal approaches and cycles in concord with surroundings. furthermore, inside the pretext of climate change efficient interference has end up quite predictable under the unpredictable weather conditions vis-a-vis hike in biotic ability. on this heritage, an Indian organic farming exercise known as Inhana Rational Farming technology has confirmed some promising consequences which have brought bring forth the significance of natural farming in these days's agricultural state of affairs. nowadays, it's miles clear to the agricultural community that organic farming is the high-quality option for no longer most effective protective and sustaining soil-plant ecological courting however to reduce the unfavorable effect of weather change. however right technological development is the foremost hassle closer to reaching the real goals of organic farming

2. Definition and Objectives of Organic Farming

Although the organic motion became began over a decade in the past it has failed to advantage the expected momentum due to several ambiguities. natural farming is mainly forseen because the stoppage of synthetic inputs and their replacement with the aid of natural alternatives this is use of natural manures and natural techniques of plant safety as opposed to using artificial fertilizers pesticides. However this isn't always proper. however, organic farming is a much deeper concept that simply non-chemicalization. In real sense it refers to a comprehensive technique toward improvement of both health of underlying productivity of the soil and plant main to the enhancement of the surrounding ecology; that is a pre-considered necessary basis for sustainable agriculture. in keeping with IFO, "organic agriculture is a manufacturing device that consolation the fitness of soils, ecosystems and people". It relies upon on biodiversity and cycles tailored to nearby situations, in preference to the use of inputs with adverse effects. The fundamental objectivity of natural farming is living on development of a self-sustainable farming device in concord with nature which promises ecologically and economically sustainable pure meals with enhancement of surrounding biodiversity and its whole components

3. Organic Farming in India

India holds a completely unique role amongst 178 nations training organic agriculture: it has 60,000 organic manufacturers, seven-hundred processors, 600 exporters and 30,000 hectares beneath cultivation. but, with merely 0.41 in keeping with cent of total agricultural land under organic cultivation, the industry has an extended journey in advance . India produced around 1.35 million MT of certified organic merchandise which incorporates all sorts of food products particularly Sugarcane, Seeds, Cereals and Millets, Cotton, Pulse, clinical vegetation, coffee, culmination, Spices, vegetables, espresso and many others. The production is not confined to the consumable region however also produces natural cotton, food products and so on etc.

Table 1: Export of Organic Agricultural Commodity from India (2014-15 to 2016-17)

Organic Agricultural Commodity		Basmati Rice	Non-Basmati Rice	Other cereals	Fruits & Vegetables	Pulses	Processed Items	Fruits / Vegetable Seeds
2014-15	Qty (MT)	3702284	8225564	6425297	3212091	222104	721622	12498
	Rs. (Cr.)	27598.71	20336.00	10233.02	12434.95	1218.10	12195.93	124.98
2015-16	Qty (MT)	4044833	6374172	1522707	2982038	255602	728224	10684
	Rs. (Cr.)	22714.37	15085.38	2561.24	12719.60	1655.44	12738.80	106.84
2016-17	Qty (MT)	3999722	6813397	1000640	5155810	137177	1320527	11680
	Rs. (Cr.)	21605.13	17121.08	1868.49	16138.49	1281.63	13121.44	116.80

Source: APEDA

4. Global situation of organic Farming

According to the latest survey on licensed organic agriculture global, there were 50.9 million hectares of organic agricultural land in 2015, with the maximum organic agricultural land in Australia (22 m hectares) observed via Argentina (3 m hectares) and the United States (2 m hectares). there was growth in organic agricultural land excluding Latin the USA. a prime boom of organic agricultural land was mentioned in lots of African countries, such as Kenya, Zimbabwe, and Côte d'Ivoire).

Some Key Points

- 50 million hectares of agricultural land are under organic (Share of total agricultural land increased from 0.21 % in 1999 to 1.11 % in 2015).
- Oceania has highest 40 % share of total organic area, out of which 97 % are grassland.
- Increase of organic producers from 0.21 million in 1999 to 2.45 million in 2014 - 2015 with highest number of producers in India (about 24.6 percent).
- Apart from agricultural land, 39.46 m represent wild collection with 3rd highest area in India (3.7 mha).
- Cereals comprise highest area under organic cultivation (3.9 mha) followed by fodder (2.5 mha), oilseeds (1.25 mha), fruits (1.0 mha), coffee (0.91 mha), olives (0.67 mha), textile crop (0.46 mha), nuts (0.40 mha), pulses (0.45 mha) and vegetables (0.36 m ha).
- Source: Willer and Lernoud, 2017

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5. Organic Farming: Discussing Issues among Agricultural Fraternity

1. Organic Farming Provide for the World?

The function of organic agriculture in food reliability is a debatable subject matter thinking about the lack of crop productivity and growing price of production. Theoretically organic farming is the exceptional way to gain ecologically and economically sustainable crop production and numerous medicals observe also assist the records with inspiring outcomes in contrast to traditional farming. however, technological improvements to practically showcase massive scale economically sustainable organic production without time loss continues to be at huge.

2. Does Organic Means Free of Pesticide Remnants?

Research performed via various certified companies indicates that either no or very low degrees (under detectable limits) of pesticides and other contaminants in organic meals product. Remnant discovered in organic product mostly final results due to glide from conventional farms. according to an USDA survey, approximately 21 % of the organic samples had detectable residues (Savage, 2016). however, organic food merchandise are genuinely more secure in phrases of poisonous residue, although there are few incidents of malpractice and violation, which need to be checked.

3. Do organic products taste Superior?

According to study, flavoring components, oils and other flavor giving additives were discovered to be higher in organic products. As according to report, high productivity achieved nowadays in some fruit and vegetable plants with immoderate use of chemical fertilizers and different inputs under conventional farming have possibly come at the cost of crop dietary and organoleptic quality.

4. Does Organic Products Expand the Danger of Food Poisoning?

There is scientific debate on these issues. Organic farming depends on higher use of manures. Hence, it is supposed that they pose increased risk of contamination . However, most of the research conclude that there is no risk of any food poisoning or bacterial infection through organic products. They are as safe as any other results produced by any other structure.

5. Does Organic Products have More Nutrition?

There is a scientific discussion regarding the nutrition quality of organic food in comparison to conventionally grown food. Exhaustive review made by Heaton (2001) indicated that in 43% cases, organic food was having higher nutrients, in 44% cases equal and in 12% cases lower nutrients compared to conventionally grown foods. In India, Bera et al. (2015) and Seal et al (2018) found correspondingly higher polyphenol and vitamin C content in the organically grown tea and potato

respectively. Although, there may be controversy, but course show their superiority over conventional products.

6. Is it Feasible to Fix the nutrient demands of crops entirely from organic sources?
The basic demand in organic cultivation is to increase input use effectiveness at each step of the farm operations. This is achieved partly through reducing losses and adoption of new technologies for enrichment of nutrient content in manure as well as increasing nutrient usage and utilizing efficiency of plant with scientific plant management practice. According to a conventional evaluation , if we can transform major portion of the waste produced in India to manure; the manure produced would be about 450 million tonnes per year (Ramaswami). Tapping these resources and converting it to organic manure with technological advances, and step wise planning for resource regeneration will help to step forward towards self-dependency in organic nutrient management.

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8. Are there any notable environmental advantage of organic cultivation?
The environmental costs of conventional cultivation are considerable, and the evidence for significant environmental amelioration via conversion to organic agriculture is over-whelming. A review of over 400 published reports exhibit that out of 14 environmental impact, organic farming systems performed significantly better in 11 and performed worse in none. But the biggest effect is minimizing use of pesticide and metal residues in food chain which threaten the human health aspects.

9. Is organic Farming economically achievable?
In theory, replacing of extrinsic inputs by farm-derived resources should usher to limiting in variable input costs under organic management. However, in nearly all the cases outsourcing of \ organic inputs, in-effective pest control and large production loss increase the cost of production. Also larger requirement of man power under organic practice adds up the cultivation cost. Technological advances that can empower adequate and timely on-farm resource creation and sustain crop productivity, can only cut down the production cost.

6. Restriction faced by the Indian organic farmers

In spite of many attempts from the government and other agencies, subsidies and other schemes, area under organic Cultivation is still less than 1.1% of total cultivated area in India. The farmers practicing organic farming struggle to survive and sell their end products.

1. Absence of supportive policy
he most important constraint felt in the progress of organic farming is the inability of the government to make a strong decisions to promote organic agriculture.

2. Loss of crop yield
Farmers adopting traditional organic farming face huge losses i.e. upto 72%, in the initial years. Also the time needed to attain crop sustainability under present organic cultivation system is still unknown and thereby resulting in high cultivation cost and economic unviability. Following a research, the organic productivity were lower in 84% areas. The organic productivity gap is primary for row crops, fruit crops and vegetables.

3. Non achievement of desired quality
Most of the organic product fail to achieve the expected intrinsic and extrinsic qualities as expected under organic cultivation, and thereby lose the consumer base.

4. Failure of organic pest management
Following the conventional cidal approach of pest management utilizing weaker organic pesticides cannot resolve the pest/disease issues in organic agriculture. And this forms the main reason of failing organic crops.
5. Lack of biomass and livestock
Traditional farming practices, increased automation and decreasing per capita land holding

has led to shortage of resource for compost production that forms a main reason for large scale organic conversion.
6. Lack of cold storage, transportation & organized organic trading system
Hybrid seeds are designed to respond to fertilizers and chemicals. Presently Genetic and fertilizer sensitive seed and planting materials rules the market with negligence on indigenous varieties, which are more suited for organic farming.
There is a high vacuum in the obtainability of quality organic seeds and forms a major restriction for the farmers willing to accept organic farming
7. Lack of storage, transport &organized organic marketing system
The challenge faced by insufficient agricultural infrastructure and cold storage facilities translate to loss of produce due to spoilage. Additionally, poor roads especially in the North States, results in poor and delayed connectivity to farmer markets..

8. Vested interests of chemical and pesticide lobby
The seed, fertilizer and pesticide industry as also the importers of these inputs to the country have a stake in the conventional farming and their opposition to organic farming is one of the biggest obstacle towards dissipation of organic farming.

9. Absence of awareness and Instructions for organic farming

There is not enough research and development backup as well as training related to Organic agriculture in India. Most of the farmers in India have only faint ideas about organic farming and its advantages as against the traditional farming methods.

10. Unability to meet the export demand
According to a research, Indian organic exports faces different restrictions viz. expecting high price in relation to quality, inconsistent quality and residues, time consuming and complicated paper work etc. as outcome of the export demand is ignored.

11. Complications and high price of organic certification system
Complexity in regard to organic certification, high price as well as time frame forms one of the main restrictions for small land holders.

12. Shortage and high price for quality analysis
There is shortage of economic equipment for quality evaluation of organic inputs and organic produce. As a result there is lack of quality mapping of most of the organic production especially in domestic region, which uncover the scope for spurious products in the nook organic market and thus resulting decreasing in the consumer interest towards organic products.
In short, there's been shortage of comprehensive organic cultivation practice which can ensure ecologically and economically sustainable organic crop yields without any time lag. It is true that there is rarety of proper infrastructure and government support towards organic marketing. But at the same time higher marketability cannot be attained only in the name of organic. To make this a reality, we need to bring forth a comprehensive organic package of practice that is Safe, Effective, Complete, Convenient and Economical for delivering truly sustainable and large scale organic agriculture.

7. Future of Organic Farming in India

India is self-possessed for faster growth with the growing local market. Success of organic movement in India depends upon the growing of its own local markets. With the sizable acreage under naturally organic/default organic cultivation, India has tremendous potential to grow crops organically and emerge as a major provider of organic products in the world's organic market.

With this growing demand more and more technological innovation like IRF Technology and their execution in farmers field will ensure economically viable organic agriculture and help in its adoption by the common farmers even without any subsidy scheme or guaranteed premium price. Considering the increasing awareness about the safety and quality of foods, long term sustainability of the system and accumulating evidences of being equally productive, the organic farming has emerged as an alternative system of farming which can not only address the grade and sustainability concerns, but also ensure a debt free, profitable livelihood option.

8. CONCLUSIONS

Case studies of IRF organic practice also testify the corresponding GHG mitigation and adaptation ability as reflected in the high carbon sequestration, soil useful resource regeneration, high electricity use effectiveness as well as improvement of plant resilience; but the spotlight remains its cost powerful and time certain consequences. Ecologically and economically sustainable natural farming is the pre-considered necessary for enabling broader adoptability, secured livelihoods and make certain affordability on the customer's end. India has a enough records of organic farming and the increased domestic marketplace of natural food can provide the vital force to the organic movement. awareness program at both the customer and farmers' level is essential for bringing about massive scale organic conversion. but most importantly revolutionary organic farming technologies can popularize the practice even among the resource poor farmers by make certain making sure ecologically and economically sustainable organic crop production in a time certain manner.

ACKNOWLEDGEMENT

We would like express our deep and sincere gratitude to Professor Sushma Khatri for her valuable guidance and support and to my friends for their valuable suggestions.

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