



Organic Farming Need and Benefits for Sustainable Crop Production

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Abstract :

Food safety and quality are two important issues that consistently receive attention from the general public. Due to growing environmental awareness and a number of food dangers, consumer confidence in food quality has drastically decreased over the past few decades due to intense conventional farming, the food chain may get contaminated. Customers are looking for safer and better food that is produced by more eco-friendly and genuine local systems. It is thought that organically cultivated food and food products will satisfy these requirements.(Rembialska, 2007). The paper focus on the review Organic farming for sustainable crop production.

Keywords- Pesticides resistance, fertility of soil, pesticides, environmental health and Organic farming

INTRODUCTION :

The term "organic farming" was coined by Lord Northbound in 1940. The organic movement had its start at the turn of the nineteenth century. In 1840 Just us Von Liebig developed a theory of mineral plant nutrition.

More than 72.3 million hectares of land are now being farmed organically, indicating that the practice is progressively gaining favor around the world in 2019 Karunakaran, 2021.

With more than 2.3 million hectares of organic production, India is one of the top countries in the world. in 2019 [Karunakaran, N 2021.], India ranks at 4th place in terms of certified area globally as per the report published by Research Institute of Organic Agriculture (FiBL) and the International Federation of Organic Agriculture Movements (IFOAM) Statistics 2022.

The farming of organic products is a unique practice which balances the environmental sustainability According to Mendon et al, (2020). Contends that countries, developing as well as developed are emphasising environment sustainability of agricultural production, methods and practices .,Varkey, (2020). Organic farming is not a new idea; it has a long history and legacy in our Indian farming system. , the green revolution had taken the place of traditional methods, which triggered a sharp increase in the usage of pesticides and chemical fertilizers. The increased usage of chemical inputs has had negative effects on the environment and human health. Pesticides resistance in pests and negative impacts on helpful natural predators and parasites are other results of the widespread use of pesticides. Many farmers switched to organic farming. India a nation with a strong agrarian foundation and tradition, nevertheless has a big opportunity to promote organic farming by giving organic farmers efficient training and marketing service.

The concept of sustainable agriculture integrates three main goals-environmental health, economic profitability, and social and economic equity. The concept of sustainability rests on the principle that we must meet the needs of the present without compromising the ability of future generations to meet their own need. The conservation of natural resources is critical for the agricultural sector which ensures long-term sustainability. The rigorous reliance on chemical fertilizers and pesticides always questions the concept of sustainability in its all aspect. It harms environment and the food chain. The use of chemicals contaminating soil and water sources, there by it enters in to the food chain. when cattle consume foliage that contains these chemicals become highly concentrated in the flesh and milk of dairy cows. Ultimately, it creates serious health problems to people to people who consume dairy products. Organic agriculture avoids all kinds of practices which damages agro ecosystem. It provides healthy food while establishing an ecological balance to prevent soil fertility or pest problems. In order to alleviate all environmental and social problems arising from chemical based farming, the promotion og organic farming is indispensable. The continuous application of chemical fertilizers reduces the fertility of soil which causes continuous decline in farm produce. It leads to the increasing cost of production and declining productivity which makes the farming economically unsustainable

Presently, India ranks 9th in terms of world's organic agricultural land, producing a variety of different products in different zones and 1st in terms of total number of producers (IFOAM, 2019).

Organic farming is the cultivation without the application of chemical fertilizers and synthetic pesticides or genetically modified organisms ,growth hormones, and antibiotics. Organic farming is based in ecological cycles, and procedures therefore diminish the use of exterior contributions. Organic livestock farming is based on environmental friendly production, maintaining animals in good health, realizing animal benefit values thereby generating yields of high class.

Environmental Benefits -

The use of organic farming prevents the environment from being damaged by synthetic inputs, particularly, fertilizers, and hormones. (Kotschi and Muller - samann 2004). Pesticides and fertilizers discharge harmful substances into the land and water (Theriault 2006). Some pesticides have the potential to harm the environment or become poisonous and hazardous to human health when used directly on people . since the harmful effects of pesticides are frequently more severe in children than in adults, children are at a higher risk of different exposure than adults . Food that is organic is produced without the use of synthetic fertilizers , pesticides (insecticides, herbicides, and /or fungicides), plant growth regulators like hormones, antibiotics for livestock, genetically modified organisms , and sewage sludge .(John 2011).

Organic farming not only yields high-quality, nutritious foods but also enhances the soil's fertility and quality. (Issacs 2012).

Positive impact was seen on birds , insects, weeds , wildlife , and soil flora and fauna , (Deshmukh 2010). In terms of both diversity and abundance, all non- crop species show preference for organic agricultural methods. Organic farms typically have 30% more species present. Particularly impacted are butterflies, birds, beetle, spiders, earthworms, mammals, soil bacteria, and vegetation.(Gabriel et al.2006). There are more birds and different species in organic farms.(Deshmukh 2010). As the need for sustainability

risers, organic agriculture is an ecologically demanding production strategy that is becoming more widespread. (Eyhorn et al., 2019; Willer et al., 2019).

ECONOMIC BENEFITS AND PROFITABILITY

Organic crops use 97% less pesticides and yield 95-100% higher along with 50% lesser energy (Mader et al.2002).In comparison to conventional farms , organic farms are consistently determined to be more profitable.(Lotter 2003).

"Organic farming is a pioneer to establish energy reducing practices by using organic principles. Organic principles, which emphasize farm-level self-sufficiency, incorporation of externalities and environmental.

Present status of organic farming

Presently, India ranks 9th in terms of the world's organic agricultural land and 1st in terms of the total number of producers (IFOAM. 2019). India is the home for 30 % of the total organic producers in the world, accounting 2.59%.i.e. 1.5 million hectares of the total (57.8 million hectares) organic cultivation area (World of organic Agricultural 2018 report). But also , most of our organic farmers are struggling due to poor policy measure, inadequate knowledge, increasing input cost and lack of market knowledge (ASSOCHAM report, 2018).

Indian culture places a high importance on protecting the environment and all forms of life. As consumers look for organic food because they believe they are safer and healthier, the popularity of organic food is rising drastically. Although it is a new source of export revenue, the long-term benefit will be the restoration of environmental health, which will have an impact on all facets of peoples' lives.

Organic farming, a thorough production management strategy, promotes and enhances the health of agro ecosystems, including bio diversity, biological cycles, and soil biological activity.

Organic farming has its own strategy for reducing pest and disease infestations in crop production and livestock keeping by forgoing the use of various synthetic pesticides or genetic engine. It is essential to boost agricultural production and stabilize it in a viable and practical manner due to the ever-increasing population and the ever-declining quantity of life resources like food and water.

Organic farming systems have attracted increasing attention over the last one decade because they are perceived to offer some solutions to the problems currently besetting the agricultural sector. Organic farming has the potential to provide benefits in terms of environmental protection, conservation of non-renewable resources and improved food quality. Chayulu, and Dwivedi, (2016). for sustainable agriculture and reimburse conversion cost and maintain the sustainability of soil. Yadava, (2019).

Despite having 30% of the world's organic producers, India only accounts for 2.59 percent (1.5 million hectares) of the 57.8 million hectares of total organic agriculture space, according to the world of organic agriculture 2018 study. Pandey and Sengupta(2018)

(A majority of the farming community is resource poor and purchasing fertilizers and chemicals in adequate quantities is beyond their capacity, thus encouraging organic farming. Moreover, organic farming is favorable for small and scattered agriculture land holders. Singh, (2019).

The benefits of 'Green Revolution' credited to Dr. MS Swaminathan have now reached a plateau and with diminishing returns it has become necessary to devise alternate techniques. Additionally, an issue known as "pollution" has resulted from the excessive use of fertilizers and synthetic growth regulators. Given that fossil fuels are non-renewable and on the verge of extinction, organic, environmentally friendly methods of farming and agriculture have become more and more important.

India produced around 2.75 million MT (2019-20) of certified organic products which includes all varieties of food products namely Oil Seeds, Sugar cane, Cereals & Millets, Cotton, Pulses, Aromatic & Medicinal Plants, Tea, Coffee, Fruits, Spices, Dry fruits, Vegetables, Processed foods, etc. The production is not limited to the edible sector but also produces organic cotton fiber, functional food products, etc. Among different states Madhya Pradesh is the largest producer followed by Maharashtra, Karnataka, Uttar Pradesh and Rajasthan. In terms of commodities Oil seeds are the single largest category followed by sugar crops, Cereals and Millets, Tea & Coffee, Fiber crops, Fodder, Pulses, Medicinal/Herbal and Aromatic plants and Spices & Condiments. The total volume of export during 2019-20 was 6.389 lakh MT. The organic food export realization was around INR 4,686 crore (689 million USD). Organic products are exported to USA, European Union, Canada, Switzerland, Australia, Japan, Israel, UAE, New Zealand, Vietnam, etc. In terms of export value realization processed foods including soya meal (45.87%) lead among the products followed by Oilseeds (13.25%), Plantation crop products such as Tea and Coffee (9.61%), Cereals and millets (8.19%), Spices and condiments (5.20%), Dry fruits (4.98%), Sugar (3.91%), Medicinal plants (3.84%) and others.

Challenges in Organic Farming

Shortage of Biomass

Many experts and well informed farmers are not sure whether all the nutrients with the required quantities can be made available by the organic materials.

Conclusion :

In the majority of cases, 30-50% less energy is consumed by organic farming as compared to the traditional farming. By increasing yields and incomes, enhancing food availability through diversification and mixed farming, lowering the likelihood of crop failure in the event of extreme climate events and enhancing food security, organic farming supports food security, particularly for small farmers using traditional or low-input systems. Food cultures are also promoted organic agriculture, which revives traditional varieties and reintegrates traditional foods into farming communities' diets.

Organic farming practices have drawn more attention during the past ten years as a result of preparations that they offer some solutions to the problems now affecting the agriculture sector. According to Charyulu et al. (2017), Organic farming has the ability to improve food quality, protect the environment, and save non-renewable resources. (Charyulu et al., 2017).

Moreover organic products carry a premium price in the market which makes organic farming more profitable. An effective agricultural sector strategy can contribute to a broader development of agricultural productivity, food security, generation of rural employment and poverty reduction while

promoting the conservation of the natural resources base. This new strategy should be adopted with sound infrastructure, governance, the private public participation and effective implementation seeking to contribute to poverty reduction, enhance regional integration, accelerate human development, and improve productivity in agriculture. It is thus clear that agriculture needs to undergo a drastic revamp to become more sustainable. This is important to take care of the environment and to improve the productivity of the agro ecosystem. The organic farming stress on use of local resources which contributes to the empowerment of farmers and rural community.

The phenomenon of 'Organic agriculture' is the only solution to nurture the land and to regenerate the soil by going back to our traditional method of farming i.e., free from chemicals, pesticides and fertilizers. Organic farming is an option agricultural system which quickly changes farming rehearsals. It depends on composts of natural starting points, for example, fertilizer excrement, green excrement, and bone feast and so forth substantially more than deciding not to utilize pesticides, fertilizers.

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