



Organic Farming-Great Alternative

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Abstract

Organic farming works in harmony with nature rather than against it. Organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection. Organic agriculture has grown out of the conscious efforts by inspired people to create the best possible relationship between the earth and men.

Keywords: Organic Farming; Conventional; Sustainable Agriculture; Fertility

Abbreviations: USDA: United States Department of Agriculture; SARE: Sustainable Agriculture Research and Education; NASR: National Academy of Sciences report; FAO: Food and Agriculture Organization.

Introduction

Organic agriculture is developing rapidly and today at least 170 countries produce organic food commercially [1]. The USDA defines organic agriculture as “a production system that is managed to respond to site-specific conditions by integrating cultural, biological and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity” [2]. The aim of the organic farming is to promote agricultural practices that produce chemical free food without making use of synthetic inputs to maintain the fertility of the soil for long time.

Organic Farming

As per the definition of the USDA study team on organic farming “organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum

extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection” [3]. In another definition FAO suggested that “Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs” [3].

Organic Production Systems and Practices

According to the USDA Sustainable Agriculture Research and Education (SARE) reports, “Organic farming entails: Use of cover crops, green manures, animal manures and crop rotations to fertilize the soil, maximize biological activity and maintain long-term soil health; Use of biological control, crop rotations and other techniques to manage weeds, insects and diseases; An emphasis on biodiversity of the agricultural system and the surrounding environment; Using rotational grazing and mixed forage pastures for livestock operations and alternative health care for animal wellbeing; Reduction of external and off-farm inputs and elimination

of synthetic pesticides and fertilizers and other materials, such as hormones and antibiotics; and A focus on renewable resources, soil and water conservation, and management practices that restore, maintain and enhance ecological balance” [4,5].

There are several compelling principles that characterize certified organic farming. They include biodiversity, integration, sustainability, natural plant nutrition, natural pest management, and integrity. Most organic operations will reflect all of these to a greater or lesser degree. Since each farm is a distinct entity, there is a large degree of variation” [6]. “Organic production is not simply the avoidance of conventional chemical inputs, nor is it the substitution of natural inputs for synthetic ones. Organic farmers apply techniques first used thousands of years ago, such as crop rotations and the use of composted animal manures and green manure crops, in ways that are economically sustainable in today’s world. In organic production, overall system health is emphasized, and the interaction of management practices is the primary concern. Organic producers implement a wide range of strategies to develop and maintain biological diversity and replenish soil fertility” [7].

Methods of Organic Farming

Organic farming involves various techniques which are ecofriendly and by practicing it the fertility of soil is conserved for long time [8]. There various methods in organic farming some of them are Crop rotation, use of green manures, biological pest control and composting, these also provide employment to agriculture labors.

Employment to Agriculture Labors

In present day machinery are replacing man power and making them unemployed but with organic farming it provides employment because many techniques are used, from preparation of manure to crop harvesting [9].

Crop Rotation

It is a technique of growing different crops in same area according to the seasons and it is practiced to avoid agriculture pests, and to maintain soil fertility [10].

Green Manures

Green manures are the plant leaves and waste material of plant which cover the soil and stuffed in to soil and become as nutrient to the soil and increase the soil fertility [11].

Vermicomposting

It is a process of composting using different worms like white worms, earth worms and red wigglers for preparation

of compost with mix of kitchen waste and other vegetable waste [12]. This is rich in nutrients and used as fertilizers in the agriculture fields.

Biological Pest Control

Living organisms are used to protect plants from pests without synthetic chemicals [13].

Sustainability of Organic Agriculture

According to the Food and Agriculture Organization of the United Nations FAOSTAT Online Database [14], about 38% of Earth’s land cover is occupied by agriculture. Although agriculture provides growing supplies of food and other products, it is a major contributor to greenhouse gases, biodiversity loss, agrochemical pollution and soil degradation [15-17]. Most of these environmental consequences come from arable land, which comprises around 12% of the land cover. The challenge of feeding a growing population expected to reach 9 to 10 billion people by 2050 while protecting the environment is daunting. Adopting truly sustainable farming systems on a wide scale is our best opportunity for meeting this grand challenge and ensuring future food and ecosystem security. Concerns about the unsustainability of conventional agriculture have promoted interest in other farming systems, such as organic, integrated and conservation agriculture [18-20].

According to a US National Academy of Sciences report [20] any farm, be it organic or conventional, can only be deemed sustainable if it produces adequate amounts of high-quality food, enhances the natural-resource base and environment, is financially viable, and contributes to the wellbeing of farmers and their communities. With the rise of organic farming in the past two decades, hundreds of research studies comparing different aspects of organic and conventional farming systems have been published.

In the following sections, the Organic Farming A Review Article by Prachi Tyagi identified key organic farming advantages and disadvantages:

Advantages

- I. Unlike conventional farming practices, organic farming does not use expensive chemicals and fertilizers. Thus, it reduces the production costs for farmers.
- II. In comparison to conventional methods of farming, organic farming makes use of less fossil fuel by avoiding the use of synthetic fertilizers and helps to slow down global warming.
- III. The use of chemicals in farming practices causes harm to the environment as the chemicals go deep into the soil

and water and contaminate them. But organic farming avoids the use of chemicals and protects the environment from pollution.

- IV. Fruits and vegetables grown using the practice of organic farming are more nutritious and tasty as they are given the required time to grow and no chemicals are used in their growth.

Disadvantages

- I. Organic food is more expensive than the food grown with conventional farming practices. Therefore, the consumer has to pay more for organic food.
- II. Farmer has to work harder if he follows the path of organic farming as this farming practice requires more interaction of farmer with his crop.
- III. The practice of organic farming gives the crop enough time to grow without the use of artificial growth injectors. But this practice won't be able to meet the world's demand for food as the organic food takes more time to grow when compared with the conventional practices of growing crops.

Future Prospects

In present, most of the world consumes food that contains harmful chemicals which are causing various diseases unknowingly or neglected knowingly; this can be reduced by organic farming. The agricultural lands are becoming useless to do agriculture if this continues. The coming generations will face a serious problem of food production and unable to produce quality food. It requires proper practice of organic farming skills with patience [22]. Organic farming is an alternative system of farming which can address the quality and sustainability concerns.

Conclusion

Organic farming is the system of farming that promotes environmentally, socially and economically sound products of food and fibers. As the awareness about the harmful effect of chemicals on health, soil, environment etc., is increasing; that's why inorganic farming is shifting its way towards organic farming [1]. Organic farming is a great alternative to conventional farming practices that have great potential. Due to the challenges of high price of organic food, some people may not accept the use of organic food. To address all challenges mobilizing effective policies, scientific and socioeconomic advances, farmer ingenuity and public engagement at global, regional and national levels must be done. Organic farming holds a great potential path towards sustainable development when challenges are well understood.

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