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Organic Farming: A Review

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Review Article

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ABSTRACT

In the ancient time, agriculture was practiced without the use of artificial chemicals. The use of artificial chemicals such as fertilizers and pesticides came into picture during the mid-19th century. This kind of agricultural practice was causing harm to the environment. With the rapid change in farming practices, organic farming came into existence in the 20th century. It made use of environment friendly practices by avoiding the use of artificial chemicals and making use of organic matter to raise crops. Organic food is beneficial to human health and the practice of organic farming keeps the environment clean.

INTRODUCTION

Organic farming is an alternative to regular farming. It makes use of compost, manure, green manure, bone meal rather than using fertilizers and pesticides ^[1]. This system makes use of organic wastes and crops are raised in such a manner that it keeps the soil healthy and alive. Microbes are used as bio-fertilizers to increase production without polluting the environment ^[2-5]. Organic farming promotes eco-friendly agricultural practices without making use of synthetic inputs and majorly relies upon the use of organic wastes to raise crops.

KEY FEATURES OF ORGANIC FARMING

- It makes use of natural microbes as bio-fertilizers to provide crop nutrients ^[6,7].
- It makes use of organic wastes to preserve the soil quality.
- Nitrogen content is maintained using legumes for the process of nitrogen fixation ^[8-10].
- Rather than using pesticides to control weed and pests, it makes use of techniques like crop rotation, natural predators, and organic manures.
- It aims to protect the environment and conserve wildlife.

METHODS OF ORGANIC FARMING

Soil management

Soil is the foundation of terrestrial life. Specific soil management practices are needed to protect and conserve the soil resources ^[11-15]. Natural microorganisms such as mycorrhiza form a symbiotic relationship with plant roots and take nutrients from the soil which the plant roots are not able to access to. The act of growing different type of crops in a particular area season after season is known as crop rotation. If same crop is grown every season in a particular area, it will deprive the soil of one particular nutrient but if we will grow different crops every season, it will help in maintaining the nutrient balance of soil ^[16-18]. Thus, crop rotation helps in maintaining soil quality. Leguminous plants are also used to increase soil fertility as the fix atmospheric nitrogen with the help of rhizobia bacteria. Addition

of manure also enhances soil quality as it contains nutrients such as nitrogen [19-22].

Weed management

Weeds are the undesirable plants that compete with the crop plants. Organic farming promotes weed management in a number of ways [23-25]. Weed growth is blocked using plastic films and the process is known as mulching. Mowing and cutting removes the top growth of weeds. Grazing is another method which helps in reducing weed growth. Organic crop rotation also promotes weed suppression [26,27].

Crop diversity

In ancient times, the practice of growing only one type of crop was followed. But now-a-days, polyculture is coming in trend i.e. the practice of growing multiple crops within the same place [28-32]. It improves the quality of soil by supporting beneficial soil microorganisms.

Other organisms control

Following methods can be adopted:

- Encourage beneficial predatory insects that feed on pests and helps in controlling them [33-35].
- Make use of organic pesticides and herbicides causing less pollution to the environment [36,37].
- Field sanitization to keep it pest free [38].
- Growing crops in different location also helps in controlling pests as it disturbs the reproduction cycle of pests [39-42].

ADVANTAGES

- Unlike conventional farming practices, organic farming does not use expensive chemicals and fertilizers. Thus, it reduces the production costs for farmers [43,44].
- 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 [45-50].
- 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 [51-53].
- 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 [54-58].

DISADVANTAGES

- Organic food is more expensive than the food grown with conventional farming practices. Therefore, the consumer has to pay more for organic food [59-61].
- 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 [62-64].
- 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 [65-69].

CONCLUSION

Organic farming is a great alternative to conventional farming practices [70]. It follows eco-friendly agricultural practices without making use of harmful chemicals [71-73]. It helps in maintaining human health as well as protects our environment from harmful chemicals used to raise crops in a field [74-78]. Going organic is a great way of preventing chemicals and protecting our health and environment but there are a lot of challenges in this field. Due to the high price of organic food, people are not yet accepting the use of organic food [79,80]. The other challenge in the field of organic farming is to meet the world's demand for food as the growth of organic crops is slow [81].

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