
Organic Farming: Evolution of Chemical free Agriculture

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INTRODUCTION

Agriculture is the most important part of our country. where different types of crops are cultivated and by doing agriculture with modern technology. Farmer uses different techniques and methods to make the crop more effective and grow well. But for more production, the farmer uses inorganic and synthetic materials. They are very harmful to crops as well as soil also. They can be lost soil fertility and nutritional value also.

Organic agriculture is an exclusive practice that promotes and enhances agro-ecosystem health, biodiversity, biological cycles, soil nutrition and diversity. This is accomplished by handling on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs. By increasing the amount of organic matter in the soil, organic farmers enhance the soil's ability to absorb water, reducing the impacts of drought and flooding. Improving soil organic matter also helps it to absorb and store carbon and other nutrients need to grow healthy crops, which, in turn, are better able to resist insects and diseases. Organic farming uses a variety of methods to improve soil fertility, including crop rotation, cover cropping, reduced tillage, and application of compost.

The organic farming system is not new in India, it's following from ancient time. It is the

part of a farming system which primarily aimed at propagating the land and Elevate crops in such a way, as to keep the soil alive and in good health by use of organic wastes like crop, animal and farm wastes, aquatic wastes and other biological materials along with beneficial microbes like *Azotobacteria* sp., PGPR, *Bacillus* sp., *Rhizobium* sp. mycorrhiza etc to release nutrients to crops for increased sustainable production in an eco-friendly pollution-free environment.

Biological research into soil and soil organisms has proven beneficial to organic farming. Varieties of bacteria and fungi break down chemicals, plant matter and animal waste into productive soil nutrients. In turn, they produce benefits of healthier yields and more productive soil for future crops. Fields with less or no manure display significantly lower yields, due to decreased soil microbe community. Increased manure improves biological activity, providing a healthier, more arable soil system and higher yields.

Organic biological fertilizer sources release their nutrients slowly over time, providing more opportunity for the nitrogen to be digested by soil organisms and taken up by crops before leaching below the root zone. Increased soil organic matter in the soil leads to tighter nutrient cycling and greater water holding capability in organically managed soils, with the result that nitrate leaching from

groundwater is about half that of conventionally farmed soils.

Crop rotation and green manure help to provide nitrogen through legumes, which fix nitrogen from the atmosphere through symbiosis with rhizobial bacteria. Intercropping, which is sometimes used for insect and disease control, can also increase soil nutrients, but the competition between the legume and the crop can be problematic and wider spacing between crop rows is required. These encourage soil fauna and flora, improving soil formation and structure and creating more stable systems. In turn, nutrient and energy cycling is increased and the retentive abilities of the soil for nutrients and water are enhanced, compensating for the non-use of mineral fertilizers.

Using biological forms of fertilizer such as compost, animal manures, and legume cover crops, builds soil organic matter, even when routine tillage is used for weed control. Building soil organic matter increases soil water retention and nurtures more active soil microbial communities that retain nitrogen in the soil longer and transform it into non-leachable gaseous forms. There is a small but telling body of research in the US that suggests that improved soil quality influences the ability of crops to withstand or repel insect attacks and plant disease.

Organic farming methods combine scientific knowledge of Agriculture and some modern technology with traditional farming practices based on naturally occurring biological processes. Today, It is developed by various organizations. They are defined by the use of fertilizers of organic origin such as compost manure, green manure, and bone meal and place emphasis on techniques such as crop rotation and companion planting. Biological pest control, mixed cropping and the fostering of insect predators are encouraged. Organic standards are designed to allow the

use of naturally occurring substances while prohibiting or strictly limiting synthetic substances. Organic farmers also use animal manure, certain processed fertilizers such as seed meal and various mineral powders such as rock phosphate and green sand, a naturally occurring form of potash that provides potassium.

Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organization for organic farming organizations established in 1972. Organic agriculture can be defined as “an integrated farming system that strives for sustainability, the enhancement of soil fertility and biological diversity while, with rare exceptions, prohibiting synthetic pesticides, antibiotics, synthetic fertilizers, genetically modified organisms, and growth hormones”.

Organic farming practices that avoid 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 farming advocates claim advantages in sustainability, openness, self sufficiency, autonomy/ independence, health, food security, and food safety.

Conclusion

Organic farming can be a valuable method for enhancing crop productivity for farmers. It will be good practices for the improvement of soil fertility without any chemical fertilizers. It can maintain soil microflora and soil nutrition values.

