**Organic farming: A way to sustainable agriculture**

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Agriculture, which encompasses both the domestication of animals and the cultivation of plants, is the most fundamental human activity. As a result, agricultural land is the most fundamental and diversified resource on the planet, providing food for everyone. The actual beginnings of agriculture are unknown, but as the human population increased, fishing and hunting gained importance as a way to replace the food that was lacking in the fields. This never-ending search for sustenance led to the development of agriculture. It was clear that if people wanted to live long, happy lives, food production was essential. It is clear that this debate expanded the importance of agriculture. Around the world, a sizable share of family income comes from agriculture.

The world's expanding population now is a serious obstacle to the environment's sustainable growth in all spheres. The pollution cycle also has an impact on the agriculture sector. The nutrient balance of the soil is disturbed, and soil fertility is decreased, by modern farming practises (such as the use of pesticides, synthetic fertilisers, etc. to maximise crop yields). Organic farming is a resource that is good for the environment, animal and plant based, and enhances nutrients required by crops. Because it promotes soil health, doesn't harm the environment, produces organic food, and uses less synthetic fertiliser, organic farming is an effective and promising agricultural strategy for environmental sustainability.

By making structural adjustments and managing agricultural systems strategically, organic farming methods may help both the environment and agriculture. Sustainable resource use, higher crop yields without relying too heavily on expensive external inputs, environmental and biodiversity protection, and other benefits are all benefits of organic farming for both developed countries (environmental protection, biodiversity enhancement, reduced energy use, and CO2 emissions) and developing nations like India. By minimising the amount of residues in the product, it lowers the risks to human and animal health. It aids in maintaining agricultural production at a level that is sustainable. Both the soil's health and the cost of agricultural output are improved.

Our environment is not harmed by organic farming. The emergence of the green and golden revolutions led to India's independence and rise as a major producer of many different crops. New fertilisers, insecticides, HYV seeds, and other output-oriented technologies were also launched. Sustainable development is characterised as economic growth that doesn't deplete natural resources. Fundamentally, sustainable development and organic farming are intimately intertwined. We can restore the ecological equilibrium with the aid of organic agriculture.

The institutions that decide on rules, coupled with the production systems, policies, and institutions, are insufficient. Sustainable agriculture must be created in order to maintain robust ecosystems and the sustainable use of land, water, and other natural resources while maintaining global food security. In addition to meeting the demands of both current and future generations for its goods and services, it should assure profitability, a healthy environment, social development, and economic progress. It will be necessary to make major gains in resource use efficiency, environmental protection, and system resilience if the world is to move to sustainable food and agriculture.

**India's Organic Agriculture**

For its ability to maintain soil health, avoid pollution of surface and ground water aquifers, and guarantee safe and wholesome food, civil society organisations in India joined the campaign. The "National 11 Programme on Organic Production" (NPOP), which established the National Standards for Organic Production (NSOP) and the process for accreditation and certification, was introduced by the Ministry of Commerce in 2000 to enhance export possibilities. There are now 30 authorised certification organisations in India that help farmers obtain certification.

**Technologies for Sustainable Agricultural Development in Smart Farming**

Farmer response Agriculture has undergone numerous revolutions, beginning with the domestication of animals and plants a few thousand years ago and continuing through the "green revolution" with systematic breeding and the widespread application of man-made fertilisers and pesticides a few decades later. Robotic farming equipment has made it easier to do tasks like mechanical weeding, fertiliser application, and fruit harvesting. In order to compute biomass development and verify the fertilisation state of crops, aerial vehicles with auto flying control and very effective snapshot cameras have been created, opening the door for farm management guidance. management of the herd of cattle is essential.

**Smart Farming**

Smart farming is the management of farms utilising contemporary IT tools to boost product quantity and quality while lowering the amount of labour needed for farming. IoT, which connects intelligent tools and sensors installed on farms to make farming processes data-driven and data-enabled, is the driving force behind smart farming. The term "IoT" (Internet of Things) refers to data that may be gathered from objects and sent over the internet. Installing IoT devices on a farm, where data collection and processing can be done in a repeating cycle, will speed up the agricultural process. It permits rapid responses to problems and changes in the weather.

**Strategies:**

1. The Pkvy programme, or Paramparagat Krishi Vikas Yojana

The PGS (Participatory Guarantee System) certification programme Paramparagat Krishi Vikas Yojana supports cluster-based organic farming.

The programme supports cluster creation, training, certification, and marketing.

• A farmer receives assistance of Rs. 50,000 per hectare for three years, of which 62% (or Rs. 31,000) is given as a financial incentive to use organic inputs.

**2. MOVCDNER, or the Mission Organic Value Chain Development for the North Eastern Region**

Through Farmer Producer Organisations (FPOs), the programme encourages third-party certified organic growing of specialty crops in the north-eastern area with an emphasis on exports.

• Farmers receive three years of support at the rate of Rs 25,000 per acre for organic inputs including biofertilizers and organic manure, among others.

**3. The NMOOP, or National Mission on Oilseeds and Oil Palm**

For various components of the Mission, including bio-fertilizers, the provision of Rhizobium culture, Phosphate Solubilizing Bacteria (PSB), Zinc Solubilizing Bacteria (ZSB), Azatobacter, Mycorrhiza, and vermicompost, financial assistance at a 50% subsidy to the tune of Rs. 300 per hectare is being provided.

**4. The National Food Security Mission's Export Control Mechanism**

Ministry of Commerce NPOP notification. It has been in use since 2002. Domestic: A framework, modelled after NPOP, is being developed and is anticipated to be made public under the Agricultural Produce Grading and Marking Act.

**Conclusion**

In order to produce food that is healthier and more nutrient-dense while preserving soil fertility, limiting the spread of pests, and respecting the environment, organic farming uses only natural processes and resources, with no use of chemicals (such as pesticides or fertilisers) or genetically modified organisms (GMOs). It is a system that, in place of employing agricultural inputs, implements particular practises in accordance with the features of the environment.

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