

Natural Farming: A Sustainable Path to Eco-Friendly Agriculture

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Introduction

Natural agriculture is low-input agricultural system that completely eliminates synthetic chemical fertilizers. Farmers are encouraged to use low-cost, locally found inputs such as natural mixtures of cow dung, cow urine, jaggery, mulch, legume meal, crop covers, and symbiotic intercrops to encourage soil microbial activities. The focus is improving soil conditions by enhancing organic matter and biological activity, diversifying crops, increasing biomass recycling, and enriching on-farm biological interactions. Natural farming enables wide range of agro ecological practices such as crop rotation, mulching, composting, green manuring, intercropping with trees, and integration of animal husbandry and takes a holistic approach to agriculture systems.

The states that promote natural farming the most are Andhra Pradesh, Himachal Pradesh and Gujarat. Other states like Uttar Pradesh, Madhya Pradesh, Odisha, Chhattisgarh, Himachal Pradesh, Jharkhand and Tamil Nadu are also practicing this type of agriculture. The central government has launched a programme for 2020-21 to promote natural farming, Bharatiya Prakritik Krishi Paddhati, a sub-programme under Paramparagat Krishi Vikas Yojana. Nearly 6.1 lakh ha have been promoted in the above-mentioned states with a total amount of 49.8 million Euros. In our country, there are many opportunities to get into natural farming because of the diverse agricultural climate and rich traditional knowledge of the farmers.

Concept of Natural Farming

Natural farming was revived in the 1970s by Japanese scientist Fukuoka, who described it as a do-nothing technique in his book *The One-Straw Revolution: An Introduction to Natural*

Farming. The principle behind natural farming is that the natural environment should be able to sustain itself with minimal human involvement. In the 1990s, Padma Shri laureate Mr. Subhash Palekar was the first person in India to implement the ZBNF (Zero Budget Natural Farming) technique. He pioneered the idea of natural farming in Karnataka and later persuaded more than 50 lakh farmers in other Indian states to adopt ZBNF. While outright banning heavy irrigation techniques like flooding and deep plowing tillage, this approach encourages soil aeration, minimum irrigation, intercropping, bunds, and topsoil mulching with crop residue.

Scope of Natural Farming

Natural farming holds great potential for the future of agriculture and its role in a thriving ecosystem because of its emphasis on sustainable and ecologically friendly practices. Natural farming offers many benefits in a variety of areas, and its application goes well beyond the fields.

- 1. The environmental extent Soil health:** By increasing the amount of organic matter in the soil, encouraging microbial activity, and strengthening the soil's structure, natural farming methods increase soil health.
- 2. Ecological diversity:** Natural farming maintains a varied agroecosystem by avoiding monocultures and pesticides and promoting a wide variety of plants and animals.
- 3. Water conservation:** By reducing water evaporation significantly, techniques like mulching and no-till farming encourage effective water usage.
- 4. Economic reach Cost-effectiveness:** Since natural farming frequently uses very few outside inputs, the cost of producing machinery, fertilizers, pesticides, and other chemicals is decreased.
- 5. The extent of health Nutrient-rich produce:** Richer nutrient profiles are frequently found in crops cultivated in soil that is naturally nourished.
- 6. Sustainable Development Goals:** Natural farming supports a number of Sustainable Development Goal set forth by the UN, such as life on land, climate action, responsible consumption and production, excellent condition and well-being, and clean water and cleanliness.

Pillars of Zero-Budget Natural Farming

Palekar describes the Zero Budget Natural Farming has four pillars: Jivamrita, Bijamrita, Acchadana, and Whapasa.



S.No.	Methods	Preparation	Benefits
1	Jeevamrutha/Jivamrita	Farmers apply it to the crops with every irrigation cycle. It is made up of 2 kilograms of dicot flour, 5 to 10 liters of urine, 20 kilograms of jaggery, and 20 kilograms of cow dung.	Apart from providing nutrients, it also acts as a catalytic agent, enhancing earthworm activity and promoting the activity of soil microbes. Jeevamrutha also helps to prevent plant illnesses caused by bacteria and fungi. The system becomes self-sufficient after the first three years of the transition, therefore Jeevamrutha is no longer required.
2	Bijamrita	It contains water (20 liters), cow dung (5kg), urine (5 liters), lime (50 grams), and a small amount of dirt.	Using this seed treatment, new roots can be protected from diseases and fungus that spread through seeds and soil.

3	Acchadana Mulching	It could be done using soil mulch, straw mulch, or live mulch.	It decreases dehydration, retain soil moisture.
4	Whapasa- moisture	The irrigation should be reduced and limited to alternating furrows at midday.	Palekar refutes the idea that plant roots need a lot of water; instead, they need water vapor, which is why Whapasa describes the condition in which the soil contains both air and water molecules.

Benefits of zero-budget natural farming

- ZBNF has no production costs because farmers don't have to buy any inputs.
- ZBNF uses the 10% of water that crops mature with traditional methods do.
- Single cow produces almost 10/12 kg of manure each month, which is sufficient to cover 30 acres.
- In cash crops and food crops, the higher production under ZBNF was seen, which is 11% and 40% more in ZBNF as compared to non-ZBNF plots.
- The inputs cost is almost missing or very cheap because pesticides and fertilizers are not utilized.
- ZBNF farms are resilient to drought and flooding.

How zero zero-budget natural farming protects soil from degradation?

Due to intensive farming with chemical fertilizers, modern agriculture is causing a lack of certain minerals in the soil, especially micronutrients, and a decline in the sum of organic matter in soil. Natural farming encourages soil microorganisms that aid in.

1. Fixation of nitrogen in atmosphere
2. Release of nutrients
3. Nutrient availability increases
4. Pesticides breakdown
5. Infections management
6. Improving soil structure



The microbes presence in soil, decompose organic matter and produce nutrients essential for plant growth and development, is a sign of healthy soil. Plants provide photosynthetic sugars to mycorrhizal fungus, which help the plant absorb nutrients, water, and minerals. Mycorrhizal fungi are abundant and work similarly to sponges in good soil. It increases soil carbon, increases the stability of soil aggregates, increases the efficiency of nitrogen, phosphorus, and sulfur, and improves water use efficiency.

Critics of the zero-budget natural farming include:

- Palekar's ZBNF principles have not yet been scientifically validated
- Many small and marginal farmers lack Desi cows.
- Organic and ZBNF farming are not very different
- It takes time to switch from chemical farming to ZBNF
- There is no standard for ZBNF food produce for certification
- There is no suitable platform to market ZBNF produce

Conclusion

A food-secure future hinge on on guaranteeing nutritional security, increasing productivity while using smaller quantity resources, and strengthening smallholder farmers' resilience. As a result, the new zero-budget natural farming system has helped farmers escape the debt trap and has given them the confidence they need to turn farming into a profitable business. For the new farming system to be mobilized and put into practice, government and other organizations' cooperation is crucial.