



## Natural Farming: Anchoring a Sustainable Way of Farming

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In the Indian context, natural farming promotes the total elimination of synthetic chemical agro-inputs and is a low-input, locally adapted farming system that is resistant to climate change. Rather, it motivates farmers to employ inexpensive, locally obtained inputs to boost the microbial activities of the soil, like mulch, crop covers, symbiotic intercropping and natural mixtures prepared from cow dung, cow urine, jaggery and pulse flour. It places a strong emphasis on improving soil conditions through increased biological activity and organic matter, crop variety, greater biomass recycling and improved biological interactions on the farm. Composting, mulching, green manuring, crop rotations, intercropping, tree intercropping, and livestock integration are just a few of the many agro-ecological techniques that can be used in natural farming and adopts a holistic approach to farming systems.

A set of principles, guides the natural farming as: (i) the farm should be based on poly-cropping where trees are integrated with various arable and perennial crops; (ii) No synthetic agro-inputs (fertilizers, pesticides, or herbicides) should be applied; (iii) soil should remain covered at all times and for the entire year using cover crops or mulch; (iv) local seeds, which are less costly and more resilient than hybrids, should be used; (v) bio-stimulants, should be used as a catalyst agent to enhance microbial activities of the soil and botanical extracts for pest management; (vi) minimal tillage; and (vii) integration of livestock with crops for biological and economic synergies.

The states practicing natural farming are Andhra Pradesh, Himachal Pradesh, Gujarat, Uttar Pradesh, Madhya Pradesh, Odisha, Chhattisgarh, Himachal Pradesh, Jharkhand and Tamil Nadu. Andhra Pradesh, Himachal Pradesh and Gujarat are the top states encouraging natural farming among them. Central government launched a natural farming promotion scheme, Bharatiya Prakritik Krishi Paddhati (BPKP) a sub scheme under PKVY during 2020-21. Nearly 6.1 lakh ha been covered in the above said states with total fund earmarked to 49.8 crore. There are plenty of opportunities for starting natural farming in our nation because of the varied agro-climates and the richness of farmers' traditional knowledge (Kumar *et al.*, 2019).

### Natural Farming- The Need of the Hour

According to NITI Aayog research, natural farming is urgently needed because the cost of producing food grains has spiked drastically due to rising input costs for agriculture such as chemical fertilizers, insecticides, fungicides and herbicides. Furthermore, it is the most effective approach to improve the nutritional value of crops and sustain regional food systems while restoring damaged lands, enhancing soil health, conserving water and lowering the usage of chemical inputs.

## Features of Natural Farming

- According to natural farming principle, plants get 98% of their supply of nutrients from the air, water, and sunlight. And the remaining 2% can be fulfilled by good quality soil with plenty of friendly microorganisms that are found in forests and natural systems.
- The soil is always supposed to be covered with organic mulch for a maximum period of the year, which creates humus and encourages the growth of friendly microorganisms.
- Farm made bio-cultures namely Beejamrit as seed treatment, Jeevamrit as foliar application and Ghanjeevamrit as soil application instead of any chemical fertilizer to improve the soil microflora. These bio-cultures are derived from very little cow dung and cow urine of desi cow breed which is the purest as far as the microbial content of cow dung and urine is considered.
- It holds the promise of enhancing farmers' income while delivering many other benefits such as restoration of soil fertility and environmental health and mitigating and/or reducing greenhouse gas emissions.
- In natural farming, neither chemical nor organic fertilizers are added to the soil. The decomposition of organic matter is encouraged by microbes and earthworms right on the soil surface itself, which gradually adds nutrition to the soil over the period.
- Natural farming is just the way it would be in natural ecosystems as there is limited tilling of soil, no fertilizers and no weeding done. Weeds are considered essential and used as a living or dead mulch layer.
- Natural, farm-made bio pesticides like Neem Astra are used to control pests and diseases.
- Multi-cropping is encouraged over a single crop method.

## Importance of Natural Farming

Numerous studies have shown that natural farming is more productive, sustainable, water-efficient and better for the ecology of farms and the soil. It is regarded as a profitable agricultural method with the potential to boost employment and rural development. (Devarinti, 2016; Tiwari & Raj, 2020)

Global warming, climate change, food insecurity, farmer anguish and health problems resulting from pesticide and fertilizer residue in food and water and natural disasters are all addressed by natural farming. It might also result in job creation, which would discourage young people from going to other locations.

In addition, natural farming is essential for maintaining and restoring ecological balance by prioritizing biodiversity and healthy ecosystems, sustainable agriculture, health implications, resilience in changing climate, cultural and traditional preservation.

## Scenario of Natural Farming in India

Natural farming is gaining popularity in India. As of 2022-23, it is estimated that nearly 9.40 lakh ha area covered under natural farming in 17 states of India and more than 28 lakh farmers had participated. Details of State-wise area and farmers pursuing natural farming:

S. No.	Name of the State	Area in ha	No. of practicing farmers
1	Andhra Pradesh	290000	630000
2	Bihar	132	137
3	Gujarat	186000	432000
4	Haryana	7931	2992
5	Himachal Pradesh	50000	159000
6	Jammu And Kashmir	12120	3850
7	Jharkhand	50	40
8	Karnataka	2000	4400

S. No.	Name of the State	Area in ha	No. of practicing farmers
9	Kerala	82000	326000
10	Madhya Pradesh	111000	59071
11	Maharashtra	74000	82000
12	Odisha	24000	27009
13	Punjab	2217	1853
14	Rajasthan	9000	171000
15	Tamil Nadu	2000	2360
16	Telangana	2403	2002
17	Uttar Pradesh	97460	105000
<b>Total</b>		<b>952313</b>	<b>2008714</b>

Source: <https://naturalfarming.dac.gov.in/NaturalFarming/ImplementationProcess>

The Andhra Pradesh Community based Natural Farming (APCNF) and Zero-Budget Natural Farming (ZBNF) models are two of the most popular natural farming models in India. According to the Niti Aayog research, India can increase the amount of land used for chemical-free farming to 15% right now and reach 30% by 2030. According to the report, this practice would not hurt national food security as the resultant loss in output and exports would be compensated by the reduction in fertilizer subsidies.

Natural farming in the nation is promoted by the National Institute of Agricultural Extension Management (MANAGE), Hyderabad. The organization conducts numerous capacity-building programs for officials from various Central and State level institutes, Departments of agriculture, SAUs, private sector organizations, and organizes various awareness campaigns for farmers nationwide to create a large pool of experts in natural farming.

### Benefits of Natural Farming

**Yield Improvement:** Natural Farming aims to increase yields by maximizing production factors like labor, soil and equipment and by avoiding the usage of non-natural inputs like fertilizers, herbicides and pesticides.

**Rejuvenate Soil Health:** In natural farming practices, a variety of natural inoculants promote rapid soil microbial development and aeration. Jeevamrit promotes microbial activity and enhances organic matter in soil. Beejamrit also helps to protect seeds young roots from fungus and seedlings from soil borne diseases. Mulching improves humus formation through enhanced decomposition activity in the soil.

**Environment Conservation:** Most of the world's emissions of methane and nitrous oxide are driven by agricultural operations. One of the main causes of greenhouse gas emissions worldwide is the application of fertilizers in conventional farming. Natural farming protects the environment from hazardous and poisonous gases by operating within an agro-ecological framework and avoiding the usage of chemical, pesticides and fertilizers.

**Resiliency Enhancement:** The effects of climate change are felt globally in the form of heat waves, flooding, and droughts. Natural farming produces crops that are more resilient to these circumstances. This is mostly because of the more diverse plants and improved soil. According to a CEEW paper titled "Zero Budget Natural Farming for the Sustainable Development Goals Andhra Pradesh, India" in 2017, paddy crops in Vishakhapatnam, India, resisted wind and waterlogging caused by cyclonic winds. The crops cultivated through natural farming also weathered the Pethai and Titli cyclones of 2018 in much better condition than conventionally cultivated crops.

**Reduce Water Consumption:** Approximately 70% of the world's freshwater resources that are readily available are utilized for farming. In India, 60% of the total irrigated area is



watered by groundwater. Natural farming is well-known for using minimal water and has been demonstrated to increase the soil's ability to hold water.

**Livestock sustainability:** Cow dung and urine are used extensively to create the natural fertilizers (Jeevamrit and Beejamrit), herbicides, and pesticides required in natural farming. Most farmers who take up natural farming rely on manure and urine from indigenous cows rather than crossbred cows, bullocks and buffaloes. The growing trend can potentially revive the livestock sector in India.

**Hike of farmer's income:** Purchasing chemical farm supplies or irrigation is less expensive in natural farming. Farmers mix readily available local ingredients to create crucial plant fertilizers and insecticides. Natural farming reduces irrigation expenses. Natural farming techniques like whapasa and mulching contribute to the soil's humus content, which enhances soil aeration and moisture retention, promoting stress-free crop growth. In the end, all these results in higher profits.

**Farmer's health Improvement:** The use of fertilizers and pesticides in conventional farming can be hazardous to the farmer as well as crops. Chronic neurotoxicity, respiratory ailments and even cancer are among the non-communicable diseases that farmers who are exposed to high quantities of chemicals are more likely to suffer from it. Natural farming uses natural inputs instead of chemical ones, which has no negative effects on the community's or the farmer's health.

## Conclusion

The agricultural revolution known as "natural farming" will raise farmers' earnings while simultaneously increasing crop yields at the lowest possible cost. Only thirty years of the harvest will be fit for human consumption given the rate at which soil deterioration is occurring worldwide. Also, natural farming practices could help the Indian government realize its long-term goal of doubling farmers income through sustainable agriculture and to prevent future food crisis. Additionally, it is also believed that the moment is appropriate to initiate the switch from chemical to natural farming by raising widespread awareness among the farming community through driving initiatives.

## References

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