



December, 2024

Popular Article



Open Access

Corresponding Author

M. Ramesh Naik

e-mail: ramesh.naik@naarm.org.in

Citation: Madhurima et al., 2024. National Mission on Natural Farming – An Overview. Chronicle of Bioresource Management 8(4), 158-163.

Copyright: © 2024 Madhurima et al. This is an open access article that permits unrestricted use, distribution and reproduction in any medium after the author(s) and source are credited.

Data Availability Statement: Legal restrictions are imposed on the public sharing of raw data. However, authors have full right to transfer or share the data in raw form upon request subject to either meeting the conditions of the original consents and the original research study. Further, access of data needs to meet whether the user complies with the ethical and legal obligations as data controllers to allow for secondary use of the data outside of the original study.

Conflict of interests: The authors have declared that no conflict of interest exists.

National Mission on Natural Farming – An Overview

U. Madhurima¹, A. V. Ramanjaneyulu², M. Rajashekhar² and M. Ramesh Naik^{1*}

Abstract

Natural Farming (NF), a sustainable agricultural approach integrating traditional methods with ecological principles. It reduces dependency on chemical inputs and external markets, promoting soil health, biodiversity, and climate resilience. Key practices include the use of *Beejamrut*, *Jeevamrut*, mulching, whaphahasa and diversified cropping systems, alongside integrating livestock. NF aligns with agro-ecological principles, fostering soil fertility, water conservation, and ecosystem sustainability. Supported by the National Mission on Natural Farming (NMNF), this approach seeks to create clusters of farmers implementing NF practices to scale adoption nationally. The mission emphasizes capacity-building, research, and collaboration between scientific institutions and farmers to refine and promote location-specific practices. NF contributes to reducing greenhouse gas emissions, enhancing farmer incomes, and providing safe, chemical-free food. By addressing contemporary agricultural challenges, NF offers a transformative model for sustainable development and a resilient farming future.

1. Introduction

Natural Farming (NF) is a chemical-free agricultural practice that incorporates livestock, particularly indigenous cattle breeds, alongside natural farming techniques and multi-cropping systems rooted in traditional Indian knowledge. Developed in the 1980s by Shri Subhash Palekar, NF is based on the 'Zero-Budget' input cost concept, with several of its variants traceable to ancient Indian literature and Vedic agriculture (Bharucha et al., 2020; Sharma et al., 2022). This is also called as 'Subhash Palekar Natural Farming' (SPNF) and now-a-days, it is also considered as 'Palekar Agriculture'.

The primary goal of NF is to improve soil health, reduce input costs for farmers, and enhance climate resilience. By recognizing the complex interdependence between soil, microbiomes, plants, animals, climate and human agricultural needs, NF offers a holistic approach to farming. While the Green Revolution

Keywords:

Natural farming, modern technology, sustainability, ZBNF

Article History

Article ID: CBM6002

Received on 16th December 2024

Received in revised form on 20th December 2024

Accepted in final form on 26th December 2024

Author's Address

¹ICAR-National Academy of Agricultural Research Management, Hyderabad, Telangana (500 030), India

²Professor Jayashankar Telangana Agricultural University (PJTU), Hyderabad, Telangana (500 030), India

158



National Mission on Natural Farming – An Overview

transformed Indian agriculture by shifting it from subsistence farming to surplus production, there is now an urgent need to explore more sustainable practices that offer better climate resilience. NF aims to reduce production costs substantially, reinstating a style of agriculture reminiscent of the pre-Green Revolution era (Khadse et al., 2017). Moreover, NF helps reduce farmers dependence on external markets while promoting a healthy soil ecosystem (Ranjit et al., 2019). It emphasizes biodiversity, the enhancement of natural soil fertility, water retention and the encouragement of diverse cropping systems, all of which contribute to improving the overall health and resilience of the agricultural ecosystem.

Key components of NF include the integration of livestock (favoring local cattle breeds) and the use of on-farm inputs such as *Beejamrut*, *Jeevamrut*, *Ghanjeevamrut*, *Brahmastra*, *Neemastra*, *Dashparni*, *Gobanam* etc. Other practices include multi-cropping systems, pre-monsoon dry sowing, mulching, the use of traditional seed varieties and planting trees in farm buffer zones. It also incorporates location-specific traditional farming practices that improve soil structure, nutrient levels and organic carbon content. These methods enhance moisture retention and water-holding capacity, promote crop diversification, and create natural habitats to increase on-farm biodiversity. NF aligns with local agro-ecological principles and leverages traditional knowledge while adapting to specific environmental conditions. On-farm innovations, such as the use of multi-species green manure, farm-made compost and organic manures, complement these practices, making Natural Farming a holistic and sustainable approach to agriculture. NF is basically proposed based on four pillars *viz.*, *Beejamrut*, *Jeevamurt*, *Acchadana* and *Whaphahasa* (Figure 1) and benefit the soil and farmers in different ways (Table 1).

2. Why Natural Farming should be Promoted?

Natural Farming has to be upscaled to address the following problems

- Declining soil fertility and productivity over the years.
- Increase in soil, water and air pollution.
- Declining factor productivity.
- Increased greenhouse gas emissions and negative impact of climate change. The yield penalty in the initial years

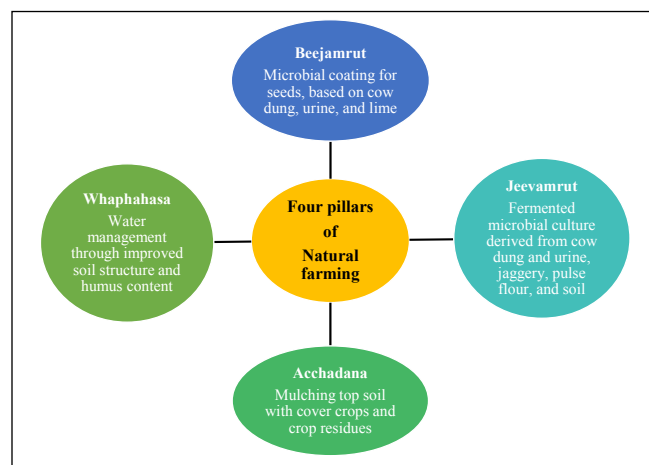


Figure 1: Four pillars of natural farming

Table 1: Expected benefits from four pillars of Natural Framing

Components	Expected benefits
Jeevamrut	Stimulate microbial activity to synthesize bioavailable plant nutrients, protect against pathogens, and enhance earthworm activity.
Beejamrut	Safeguards young roots from fungal, seed-borne, and soil-borne diseases.
Acchadana	Protects soil from direct sunlight, conserves topsoil, enhances humus production, improves water retention, supports soil fauna, and helps prevent weed growth.
Whaphahasa	Enhances water availability, improves water use efficiency, boosts earthworm activity, and increases drought resilience.

(Source: Ranjit et al., 2019)

may be overcome after 3-5 years of transition period.

- Continuous increase in fertilizer subsidy. Indian government has incurred an expenditure of ₹ 1.64 lakh crores on fertilizer subsidy during 2024–25. Adoption of NF may help in reducing burden on the government exchequer.
- Studies projected a 12.8% increase in the annual incidence of cancer cases by 2025, bringing the estimated total to approximately 1.57 million cases.
- Decrease in cattle population leading to increased milk adulterations. Possible increase in cattle population which in turn in milk production and reduced milk adulterations.
- Ever increasing pesticide residues in agri-foods.

National Mission on Natural Farming – An Overview

- Increase in food adulterations, unsafe and unhealthy food for human beings.

A systematic transition towards establishing natural farming as a widespread movement (Jan Bhagidari) necessitates a robust scientific foundation and sustained long-term investments in enhancing the capacities and knowledge of research and extension systems. This is essential to ensure comprehensive support for farmers and community-based organizations (CBOs) such as Self-Help Groups (SHGs), Village Organizations (VOs), Primary Agricultural Credit Societies (PACS), and Farmer Producer Organizations (FPOs). Effective collaboration with experienced farmers, local NF institutions (LNFIs), and CBOs will be pivotal in driving this transformation. To effectively institutionalize the transition process, it is imperative to implement location-specific solutions, establish knowledge-driven extension systems, realign research priorities toward agroecology-focused approaches, and promote collaborative on-farm research involving both scientists and farmers.

3. Scope of Natural Farming

Category	Scope
Rainfed areas	Enhances soil moisture retention and resilience to drought through mulching and organic inputs
Low fertilizer consumption areas	Restores soil fertility using organic inputs, reducing reliance on synthetic fertilizers
Low nutrient-requiring crops	Optimizes production of crops like millets and pulses with minimal external inputs
Crops with less pest/disease load	Promotes pest-resistant varieties and bio-pesticides for sustainable cultivation
Short-duration pulses	Supports nitrogen fixation and quick returns with eco-friendly practices
Vegetables and fruit crops	Ensures residue-free, high-quality produce suitable for organic markets
North east and hilly areas	Aligns with traditional practices, prevents soil erosion and supports biodiversity
Tribal/agency areas	Enhances food security with local resources and traditional farming knowledge
Andaman & Nicobar and Lakshadweep Islands	Preserves fragile ecosystems and improves farming resilience to climate change

4. National Mission on Natural Farming (NMNF)

NMNF is a dedicated centrally sponsored scheme under the Ministry of Agriculture & Farmers Welfare (MoA & FW), with a total outlay of ₹ 2,481 crores till 15th finance commission (2025-26). This includes a contribution of ₹ 1,584 crores from the Government of India and ₹ 897 crores from the states. The mission represents a strategic initiative to scientifically enhance and transition agricultural practices toward sustainability, climate resilience and the production of safe and chemical-free food (source: www.pib.gov.in).

4.1. Mission objectives

- **Promote nature-based sustainable farming systems:** Advances agricultural practices that leverage on-farm inputs to reduce reliance on externally procured inputs, enhance soil health, and lower input costs.
- **Foster integrated agriculture-animal husbandry models:** Encourage the integration of livestock, with a focus on indigenous cattle breeds (Gir, Sahiwal, Ongole, Nellore, Deoni, Kankrej, Tharpakar, Red Sindhi, Rathi etc.), into agricultural systems to enhance sustainability and productivity.
- **Strengthen agro-ecological research and extension:** Build capacity for on-farm ecological research and knowledge dissemination through institutions such as ICAR, KVKs, and Agricultural Universities.
- **Integrate farmer experience with scientific expertise:** Facilitate collaboration between experienced natural farming practitioners and scientific experts to develop, refine, and promote location-specific packages for natural farming practices.
- **Standardize and simplify certification processes:** Establish scientifically validated, farmer-friendly certification standards for chemical-free produce to ensure consistency and credibility.
- **Develop a national brand for chemical-free produce:** Create and promote a unified national brand to market naturally grown, chemical-free agricultural products effectively.

4.2. Roles and responsibilities of the mission

Over the next two years, targeted initiatives will focus on awareness generation, orientation, and capacity building for State Missions, District and Block-level officers, scientists from ICAR, KVKs, Agricultural Universities,

National Mission on Natural Farming – An Overview

NF experts, implementing agencies, farmers, community-based organizations, and Gram Panchayats. The NMNF aims to establish 15,000 clusters in selected Gram Panchayats, reaching one crore farmers and initiating Natural Farming on 7.5 lakh hectares. These clusters will serve as pilot sites for farmer training in NF practices, fostering experiential learning. Comprehensive baseline and periodic real-time data will be managed via an IT portal to monitor progress, evaluate NMNF impacts, and inform policy decisions effectively.

4.3. Implementation of mission at clusters

Priority Areas - The Mission will prioritize implementation in the following districts:

1. Namami Gange Regions: A total 5 km corridor along the river Ganga.
2. Riverbank districts: Areas adjacent to major river bodies as identified by respective states.
3. High fertilizer input districts: Regions with substantial fertilizer usage within states.
4. Low fertilizer input districts: Areas exhibiting minimal fertilizer utilization.
5. Districts with strong community support structures: Regions with active SRLM (Solid and Liquid Resource Management), PACS (Primary Agricultural Co-operative Societies), FPOs (Farmer Producer Organizations), and other community-based organizations, particularly those with practicing NF farmers and established traditional practices.

Districts will identify suitable Gram Panchayats (GPs) within designated blocks for the adoption of NMNF. In each selected GP, contiguous areas totaling 50 hectares, encompassing approximately 125 farmers (with an initial maximum of 1 acre per farmer), will be developed into NF clusters, based on the farmers' willingness to participate. If a contiguous area of 50 hectares cannot be found within a single GP, the cluster may be formed by combining adjacent GPs (up to 2-3 GPs). To maintain manageability, each district will select 35-50 clusters for implementation.

4.4. Mission at state level

The NMNF at the state level will operate under the overarching supervision of the State Level Sanctioning Committee, chaired by the Principal Secretary/Secretary of Agriculture. To ensure effective implementation, each state will establish a dedicated mission management cell at the headquarters. At the district level, the

implementation process will be overseen by a committee chaired by the District Collector, with the Project Director of ATMA, the Head of Krishi Vigyan Kendra, and District Agriculture, Horticulture, and Animal Husbandry Officers serving as members. The process of step-by-step implementation of NMNF by different states in India is given in Figure 2.

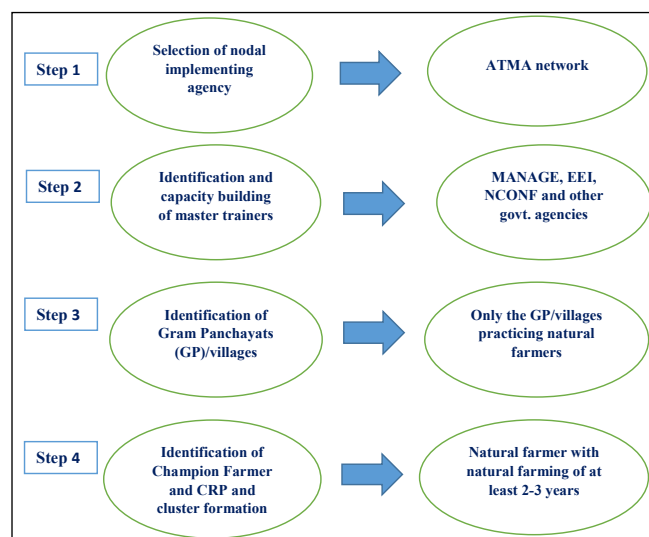


Figure 2: Step-by-step implementation of NMNF by different states in India

4.5. Mission at block level

In order to focus first on awareness creation followed by capacity building, training, handholding, knowledge transfer and create natural farming clusters, the scheme proposes to identify practicing natural farmer and organize farmers field school (FFS) in the first year involving both *kharif* and *rabi* crops, where participating farmers will be provided with hands on practical training on natural farming techniques and methodologies. In the subsequent year, willing farmers will be registered under natural farming clusters. The State governments will be at liberty to choose the beneficiary Gram Panchayats / villages at the block level. Selection of Champion farmer and community resource person to be done in consultation with Gram Panchayat after due verification of their competence and involvement in natural farming activities. Selection of farmers for registration in clusters should also be done in consultation with local Gram Panchayat.

4.6. Mission at farmer's reach

Over successive seasons, 125 identified farmers progressively adopt Natural Farming (NF) practices,

National Mission on Natural Farming – An Overview

starting with smaller areas and expanding as they gain confidence. Each farmer will train six others, extending NF adoption to ~750 farmers per cluster. This approach aims to involve 18.75 lakh farmers, who will further train six farmers each, scaling NF practices to 1 crore farmers. Farmers will receive incentives to implement NF methods, including *Beejamrut*, *Jeevamrut*, diversified cropping systems, PMDS (Pre-Monsoon Dry Sowing), and livestock upkeep. They will also be encouraged to prepare or source NF inputs and invest in necessary equipment. Demonstration farms linked to KVKs, Agricultural Universities, and LNFIs will facilitate training and widespread adoption.

4.7. Mission through government bodies and officials

Scientists, Field Management Teams (FMTs), and state government officials will receive orientation and training on Natural Farming (NF) at designated Centers of Natural Farming (CoNFs). These centers, identified by the Department of Agriculture & Farmers Welfare (DA&FW) in consultation with State Governments, will include Agricultural Universities, national-level NF institutions, and other credible organizations with experience in promoting NF, conducting training programs, and undertaking related research initiatives.

Each CoNF will be equipped with NF model demonstration farms to facilitate hands-on training, learning, and exposure visits. The mission will commence with initial training sessions conducted at these centers. CoNFs will organize two rounds of training for scientists from ICAR, KVKs, and Agricultural Universities, as well as for Central and State Government officials and all FMTs.

- i. 2 Scientists and 1 FMT from each of the 425 KVKs (total = 1275 trained personals).
- ii. 3 Scientists and 1 FMT from each of the 40 AUs (total = 160 trained personals).
- iii. 40 State government officials from each state (from 4 officials from state headquarters (Agriculture + SRLM + Horticulture + AH&D etc.), 1 from district (Nodal for NF), 2 from ATMA of each district, 1 from SRLM of each district - 1200 officials).
- iv. 1 FMT and 1 nodal person from each Local Natural Farming Institutions (total = 400 trained personals).

5. Union Budget 2024-25 and States Under Natural Farming

The Union Budget for 2024-25 has allocated ₹ 1.52

lakh crore to promote natural farming and enhance agricultural productivity. Hon'ble Finance Minister Nirmala Sitharaman has prioritized agriculture by proposing the initiation of Natural Farming (NF) with the participation of 1 crore farmers, supported by certification and branding. The implementation will involve collaboration with scientific institutions and willing Gram Panchayats. Additionally, 10,000 need-based Bhartiya Prakritik Kheti Bio-inputs Resource Centers (BRCs) will be established, creating a nationwide network for micro-fertilizer and pesticide production (Source: www.pib.gov.in).

Several states have adopted Natural Farming, including Andhra Pradesh, Chhattisgarh, Kerala, Gujarat, Himachal Pradesh, Jharkhand, Odisha, Madhya Pradesh, Rajasthan, Uttar Pradesh, and Tamil Nadu. To date, approximately 6.5 lakh hectares (Figure 3) have been covered under Natural Farming in India. Various state governments are actively promoting this sustainable farming practice through a range of schemes (source: <https://naturalfarming.dac.gov.in>).

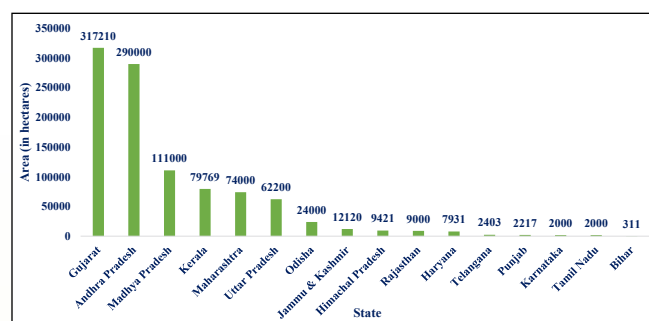


Figure 3: Area under Natural Farming in different states in India (2023-24); (Source: Anonymous, 2022)

6. Expected Outcome

Natural Farming can be viewed as a multifaceted approach encompassing three core elements: a scientific discipline, a set of agricultural practices, and a social movement. From a scientific perspective, it has been practiced by thousands of farmers in India for over a decade.

Widespread adoption of NF in the country is expected to help in enhancing production, enhancing sustainability, conserving water and improving soil health and ecosystems in the long run. Recognized as a cost-effective practice, it holds potential for boosting employment and fostering rural development. By addressing issues like food insecurity, farmer distress, pesticide residues,

National Mission on Natural Farming – An Overview

and environmental challenges such as climate change and natural disasters, it offers a comprehensive solution. Additionally, Natural Farming can generate employment opportunities, reducing rural youth migration, while promoting a science-based, nature-driven approach to farming.

7. Other Benefits from Natural Farming

- i. Improved yield:** Natural farming may lead to lower yields in the initial stages but comparable or higher harvests than conventional methods, in the long run.
- ii. Better health:** The absence of synthetic chemicals in Natural Farming helps in reducing farmers exposure to pesticides thereby eliminates the health risks, resulting in nutritionally denser food and improved health benefits.
- iii. Environmental conservation:** NF enhances soil biology, biodiversity, and water use efficiency while reducing carbon and nitrogen footprints.
- iv. Increased farmer's income:** NF boosts farm viability by lowering costs, reducing risks, maintaining yields, and generating additional income through intercropping.
- v. Employment generation:** NF fosters job creation, supporting rural development through establishment of bio resource input centers.

8. Conclusion

Natural Farming (NF) provides a sustainable alternative to chemical-intensive agriculture, improving soil health, water retention, and reducing reliance on fertilizers and pesticides. The National Mission on Natural Farming (NMNF) supports this transition by establishing 15,000 clusters over 7.5 lakh hectares and training one crore farmers through collaborations with agricultural institutions. With 6.5 lakh hectares already under NF,

the mission addresses environmental challenges, enhances rural livelihoods, and fosters sustainable, resilient farming systems for a more sustainable agricultural future.

9. References

- Anonymous, 2022. National Mission on Natural Farming, Operational Guidelines 2022. Integrated Nutrient Management Division, Department of Agriculture, & Farmers Welfare Ministry of Agriculture & Farmers Welfare Krishi Bhavan, New Delhi.
- Bharucha, Z.P., Mitjans, S.B., Pretty, J., 2020. Towards redesign at scale through zero budget natural farming in Andhra Pradesh, India. *International Journal of Agricultural Sustainability* 18 (1), 1–20. <https://naturalfarming.dac.gov.in>.
- Khadse, A., Rosset, P.M., Morales, H., Ferguson, B.G., 2017. Taking agroecology to scale: the zero budget natural farming peasant movement in Karnataka, India. *Journal of Peasant Studies* 45, 9–12.
- Ranjit, K., Sanjiv, K., Yashavanth, B.S., Meena, P.C., 2019. Natural farming practices in India: its adoption and impact on crop yield and farmers' income. *Indian Journal of Agricultural Economics* 74(3), 420–432.
- Sharma, S.K., Choudhary, R., Jat, G., Chhipa, B.G., Jain, D., Gupta, L., Yadav, S.K., Jain, R.K., Verma, A., Trivedi, A., Jain, P., 2022. Compendium- natural farming: perspectives and prospects in changing agriculture scenario. ICAR-Centre for Advanced Faculty Training on Organic Farming, Directorate of Research, Maharana Pratap University of Agriculture and Technology, Udaipur 313 001, Rajasthan, India. www.pib.gov.in.