Krishi Netra
ISSN : 3048-5207

Advancing Sustainable Agriculture In India: The Role Of Natural Farming And Government Initiatives

B. Shrishailam*U. K Bhattacharyya, A. Kirankumar Singh, Tilling Tayo, Vikas, Amit Kumar, Deep Narayan Mishra.
Scientists, ICAR – Krishi Vigyan Kendra, Longding, ICAR – Research Complex for NEH Region, Arunachal Pradesh Centre, Basar.
Corresponding e-mail- sribathini15@gmail.com.

Manuscript No: KN-V3-03/003

ABSTRACT

Natural farming has emerged as a transformative approach to sustainable agriculture in India, offering an alternative to conventional farming practices that rely heavily on synthetic inputs. By eliminating the use of chemical fertilizers and pesticides, natural farming enhances soil health, conserves biodiversity, and mitigates climate change. This approach aligns with agroecological principles, emphasizing minimal soil disturbance, diverse cropping systems, and the use of farm-based organic inputs such as compost, cow dung, and botanical extracts. The present status of natural farming in India reflects both significant progress and existing challenges. Government initiatives such as the Bharatiya Prakritik Krishi Paddhati Programme (BPKP) and Paramparagat Krishi Vikas Yojana (PKVY) have promoted natural farming adoption in states like Andhra Pradesh, Himachal Pradesh, and Gujarat. The Zero Budget Natural Farming (ZBNF) model in Andhra Pradesh has demonstrated cost-effective and ecologically sustainable agricultural practices, leading to improved farmer incomes and soil fertility. However, the large-scale transition to natural farming faces hurdles such as farmer awareness gaps, yield fluctuations during the transition phase, market constraints, and certification issues. Despite these challenges, natural farming holds great potential for ensuring food security, economic viability, and environmental resilience. Strengthening research and extension services, improving market linkages, developing standardized certification mechanisms, and providing financial incentives can significantly enhance adoption. The integration of natural farming with agroecological and climate adaptation strategies can further bolster its effectiveness in addressing the impacts of climate change and land degradation. Policymakers, research institutions, and extension agencies must collaborate to create a conducive environment for natural farming expansion. By fostering farmer participation, investing in infrastructure, and integrating digital tools for knowledge dissemination and market access, natural farming can become a cornerstone of sustainable agriculture in India.

Keywords: Natural farming, sustainability, food security, soil health, biodiversity, climate resilience, agroecology, market linkages, certification, policy interventions.

Introduction

Natural farming is gaining momentum as an eco-friendly and sustainable agricultural practice in India. It focuses on minimal external inputs, relying on ecological processes and traditional knowledge. Given its potential to enhance soil health, reduce chemical dependence, and improve farmer incomes, the Government of India has introduced various schemes and initiatives to support natural and organic farming. These schemes provide financial assistance, training, infrastructure, and market development support to promote sustainable agricultural practices. By reducing reliance on synthetic fertilizers and pesticides, natural farming aligns with global sustainable development goals and India's commitment to climate-resilient agriculture. India's diverse agro-climatic conditions make it essential to adopt sustainable farming methods that maintain soil health, conserve water, and enhance biodiversity. Natural farming methods, such as zero-budget natural farming (ZBNF), permaculture, and agroecological practices, have gained significant attention. The growing consumer preference for chemical-free and organic produce has further bolstered government efforts to develop policies that encourage natural farming. This document explores key government schemes that play a crucial role in fostering natural farming in India.

Krishi Netra
ISSN : 3048-5207

Comparative Analysis with Conventional and Organic Farming

Factor	Conventional Farming	Organic Farming	Natural Farming
Chemical Inputs	High	Limited	None
Soil Health	Depleting	Moderate Improvement	Significant Improvement
Cost of Cultivation	High	High	Low
Water Consumption	High	Moderate	Low
Yield Stability	High but declining	Variable	Stable with adaptation

Natural Farming Key Principles:

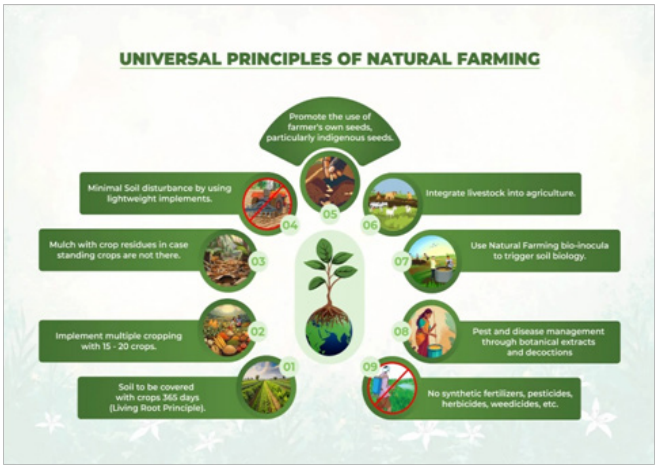
1. Soil Health Restoration: Improving soil fertility by enhancing organic matter decomposition and fostering beneficial microbial activity.

2. Minimal Soil Disturbance: Reducing deep tillage and other practices that disrupt the natural soil structure and ecosystem.

3. Biodiversity Enhancement: Encouraging crop diversity and integrating agroforestry to support ecological balance.

4. Low External Inputs: Relying on locally available resources such as cow dung, urine, and plant-based extracts for natural fertilization and pest control.

5. Harnessing Natural Cycles: Utilizing ecological processes for nutrient recycling, pest regulation, and overall farm sustainability.



The Andhra Pradesh Community-Managed Natural Farming (APCNF): This initiative has emerged as a notable success in India's transition towards sustainable agriculture. Below are additional insights and details about its impact, challenges, and lessons learned.

Expansion and Adoption

The APCNF program began with a pilot project in 2015, targeting around 1,000 farmers in select districts. However, due to its success, it rapidly expanded to involve over 6 million farmers by 2020. The program has reached 8 million hectares, which is approximately 30% of the state's total agricultural land. The primary focus is on smallholder farmers, who make up the majority of the state's agricultural workforce.

Key Strategies for Success

Krishi Netra
ISSN : 3048-5207

1. **Farmer Training and Capacity Building:** APCNF emphasizes the continuous training of farmers through workshops, demonstrations, and field visits, with a special focus on the principles of natural farming, such as biodiversity management and soil health improvement.
2. **Peer-to-Peer Learning:** The program fosters a system of peer-to-peer learning, where trained farmers take on leadership roles in their communities, acting as resource persons and mentors for others. This grassroots approach helps overcome knowledge gaps and encourages wider adoption.
3. **Local Resource Utilization:** The use of locally available inputs like compost, cow urine, and indigenous seeds has minimized costs for farmers. These materials not only improve soil health but also reduce dependence on costly external chemical inputs.
4. **Farmer Producer Organizations (FPOs):** The formation of FPOs has facilitated collective marketing, procurement of inputs, and improved bargaining power for farmers. These organizations have also helped in building a direct link between farmers and markets, ensuring better prices for their produce.

Challenges Faced

1. **Transitioning from Chemical Farming:** For many farmers accustomed to conventional methods, the shift to natural farming has been challenging. Initial scepticism, lack of knowledge, and the fear of lower yields in the early stages were significant barriers. However, continued support and practical demonstrations helped overcome these concerns.
2. **Financial Support and Incentives:** While financial backing from the state government and partnerships with international organizations played a crucial role, sustaining long-term funding and institutional support remains a challenge. Some farmers initially struggled with cash flow issues due to the time it takes to realize the benefits of natural farming.
3. **Market Linkages:** Though the program promotes organic and sustainable farming practices, securing fair market prices for organic products remains an ongoing challenge. Efforts to build stronger market connections for these products are key to ensuring sustained success.
4. **Weather Variability and Climate Risks:** Despite its success, the program's impact in mitigating climate change through better water-use efficiency and carbon sequestration must be evaluated in the context of unpredictable weather patterns and extreme climatic events that affect farmers' productivity.

Environmental Impact:

- Reduction in Chemical Inputs: By shifting away from synthetic fertilizers and pesticides, the program has significantly reduced the environmental footprint of agriculture in the state. This has led to better soil health, increased microbial activity, and improved water retention.
- Biodiversity Restoration: Through agroecological practices like intercropping, crop rotation, and the use of natural pest control methods, the program has helped restore biodiversity in farming ecosystems.

Economic Impact:

- Cost Savings: Farmers have reported up to a 50% reduction in input costs due to the decreased use of expensive chemicals. This, coupled with improved yields over time, has significantly improved the profitability of farms.
- Increased Income: Farmers practicing natural farming have seen improved financial outcomes due to reduced expenditure on chemicals, increased resilience to price fluctuations, and better access to niche markets for organic produce.

Social Impact:

- Empowering Women: The program has empowered women, particularly through Self-Help Groups (SHGs), who have been crucial in promoting natural farming methods in rural communities. Women have also been key in processing and marketing organic produce, helping to uplift the economic status of rural households.

Krishi Netra
ISSN : 3048-5207

- Improved Rural Livelihoods: The APCNF initiative has been instrumental in generating employment, enhancing food security, and reducing rural-urban migration.

Climate Resilience:

- Carbon Sequestration: By focusing on soil health and using organic farming practices, the program has contributed to carbon sequestration, making agriculture in the state more resilient to climate change.
- Water Conservation: Through techniques like mulching, rainwater harvesting, and water-efficient irrigation methods, the program has improved water-use efficiency, especially in regions facing water scarcity.

Lessons Learned from APCNF

- Community Participation is Key: The success of APCNF lies in its farmer-led, community-driven model, where farmers are not just beneficiaries but also active participants in decision-making and the transition process.
- Long-Term Support and Trust-Building: Building trust through continuous support, training, and visible successes is crucial for overcoming scepticism and ensuring widespread adoption.
- Institutional Collaboration: Strong collaborations between state governments, international organizations, and civil society organizations have been vital in scaling up the program.
- Sustainability of Inputs: Fostering sustainable access to natural inputs and ensuring that they are locally available is critical to maintaining the program's success over the long term.

APCNF's success demonstrates the transformative potential of natural farming at scale, providing a roadmap for other states in India and globally to adopt sustainable, community-led agricultural practices.

Key Government Schemes Promoting Natural Farming

1. Paramparagat Krishi Vikas Yojana (PKVY)

The Paramparagat Krishi Vikas Yojana (PKVY) was launched to promote organic farming through a cluster-based approach. The scheme aims to encourage farmers to adopt organic farming methods and reduce dependence on chemical fertilizers and pesticides.

- Provides financial assistance for organic certification, training, and capacity building of farmers.
- Supports the production of bio-fertilizers and organic inputs to sustain organic farming.
- Encourages the formation of organic farming clusters, covering 50 or more farmers with a minimum area of 50 acres.
- Empowers farmers to sell their organic produce through local and national markets under certified organic labels.

2. Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)

The Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) is a flagship scheme designed to develop a certified organic production system in the north-eastern states, including Arunachal Pradesh.

- Provides support for organic farming adoption and certification.
- Focuses on value addition, processing, packaging, and branding of organic products.
- Enhances market linkages and supply chain infrastructure for organic products.
- Encourages formation of farmer producer organizations (FPOs) to strengthen collective marketing and bargaining power.
- Promotes organic tourism and direct farm-to-market initiatives to benefit organic farmers in the region.

Krishi Netra
ISSN : 3048-5207

3. Soil Health Management Scheme

Healthy soil is the foundation of sustainable agriculture, and the Soil Health Management Scheme plays a pivotal role in promoting soil-friendly farming practices, including natural farming.

- Supports soil testing laboratories to provide farmers with soil health cards for better nutrient management.
- Encourages the use of bio-fertilizers, compost, and organic manure to maintain soil fertility.
- Conducts awareness programs and farmer training to promote sustainable soil management practices.
- Aims to reduce dependency on chemical inputs and restore soil biodiversity through natural methods.

4. National Mission on Sustainable Agriculture (NMSA)

The National Mission on Sustainable Agriculture (NMSA) focuses on promoting climate-resilient and sustainable agricultural practices to combat climate change and ensure food security.

- Encourages organic and agroforestry-based farming to enhance soil health and carbon sequestration.
- Promotes integrated farming systems, water-use efficiency, and conservation agriculture.
- Provides financial and technical support to farmers adopting natural farming methods.
- Supports the development of climate-smart villages and farmer capacity-building initiatives.

5. Rashtriya Krishi Vikas Yojana (RKVY)

The Rashtriya Krishi Vikas Yojana (RKVY) provides flexible funding to states, allowing them to implement region-specific innovative projects, including natural and organic farming initiatives.

- Funds research and development programs in organic farming.
- Supports on-farm trials and demonstrations of natural farming techniques.
- Provides grants for infrastructure development such as compost units, organic input production centers, and natural farming resource centers.
- Encourages farmer entrepreneurship and organic start-ups through financial incentives.

6. Bharatiya Prakritik Krishi Paddhati (BPKP)

Bharatiya Prakritik Krishi Paddhati (BPKP) is an initiative under the NMSA that promotes natural farming methods across India.

- Supports natural farming through training and awareness programs.
- Provides assistance for bio-input production, such as Jeevamrut and Beejamrut.
- Encourages zero-budget natural farming (ZBNF) to reduce input costs and enhance sustainability.
- Strengthens institutional mechanisms for natural farming extension services.

7. Organic Farming under National Horticulture Mission (NHM)

The National Horticulture Mission (NHM) also promotes organic farming in horticultural crops.

- Provides financial assistance for organic input production and certification.
- Supports post-harvest management and marketing of organic horticultural products.
- Encourages adoption of organic production practices in fruit and vegetable farming.

8. North East Organic Farming Initiatives

To further support the unique agro-climatic conditions of the north-eastern states, including Arunachal Pradesh, the government has launched special initiatives to boost organic and natural farming.

- Focuses on organic farming promotion through state-specific programs.
- Supports farmer training, awareness campaigns, and exposure visits to successful organic farming models.
- Encourages value chain development, branding, and market access for organic products from the

Krishi Netra
ISSN : 3048-5207

region.

• Aims to make the Northeast a hub for organic and natural farming, leveraging its biodiversity and traditional agricultural knowledge.

CONCLUSION

Government initiatives for natural farming in India are playing a significant role in promoting sustainable agricultural practices. These schemes not only reduce the dependence on chemical inputs but also help in restoring soil health, increasing farmers' income, and ensuring environmental sustainability. The focused efforts, particularly in regions like the Northeast, highlight the commitment to making India a leader in natural and organic farming. However, continuous policy support, farmer awareness, and infrastructure development are needed to further strengthen the natural farming movement in the country.

REFERENCES

1. *Ministry of Agriculture & Farmers' Welfare, Government of India. (https://agricoop.nic.in/)*

2. *National Centre of Organic Farming (NCOF). (https://ncof.dacnet.nic.in/)*

3. *Rashtriya Krishi Vikas Yojana (RKVY). (https://rkvy.nic.in/)*

4. *National Mission on Sustainable Agriculture (NMSA). (https://nmsa.gov.in/)*

5. *Soil Health Card Scheme. (https://soilhealth.dac.gov.in/)*

6. *Reports and Guidelines from the Indian Council of Agricultural Research (ICAR).*