





Indo German Global Academy for Agroecology Research and Learning (IGGAARL), APCNF, RySS, Govt. of Andhra Pradesh, India

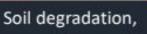
"Natural Farming in Andhra Pradesh, India: Importance, Models, and Impact"



By Dr Karamala Pushpa, GTPP (Geographic Thematic Point Person), IGGAARL,APCNF, RySS, Guntur, AP, India

Farmer Distress

Food system – multiple crises





Continuous loss of soil organic matter

Water stress and water emergency

Heatwaves – global warming

Decreased bio diversity Water and air pollution

Environment crisis

--- suicide

High Costs of Cultivation (Seeds, Fertilizers, Pesticides)

Spells, Droughts

More frequent cyclones, floods, unseasonal rains

Market Uncertainty Heavy metal contamination in food

Lack of micro nutrients, trace minerals

Chemical

Residues

Acute water shortages, Drying of Borewells

Problems of Small,

marginal farmers and

Tenants.

Rural-Urban migration

Prolonged Dry

Food Scarcity

Consumer Food Plate

Climate emergency

Farming in harmony with nature – for people and for the planet – a solution for the multiple emergencies





What is **Natural farming**? It is **mimicking nature**. A holistic land management practice that leverages the **power of photosynthesis** in plants to close the carbon cycle, and build soil health, crop resilience and nutrient density.

Natural Farming Introduction



Andhra Pradesh's Journey in Sustainable Agriculture

RYTHU SADHIKARA SAMSTHA (RYSS)

Farmer Empowerment Organisation

Established: October 4, 2014

Mission: Farmer empowerment and development

EVOLUTION & IMPACT



A.P. COMMUNITY MANAGED NATURAL FARMING

Programme Overview

Emphasizes farmers' ownership and primacy

Focuses on farmers' own practices and community-based approach

Women-centric farmer empowerment to improve sustainable agriculture practices, socio-economic status, and livelihood opportunities

NATURAL FARMING PRACTICES

Key Principles:

- Less Investment: Reduces farming costs through sustainable methods
- Locally Available Bioinputs: Uses indigenous resources and organic materials
- Soil Health Enhancement: Improves soil microorganisms and soil fertility
- Sustainable Agriculture: Promotes long-term environmental and economic benefits



IGGAARL Academy

Farmer to Farmer Scientist Transformation Program

COURSE OVERVIEW

Duration: 4-Year Course **Structure:** 8 Semesters

Learning Method: Participatory Learning & Field Research **Practice:** Live demonstrations in multiple farmer fields

GOAL

Transform villages into Climate Resilient Villages through natural farming knowledge and science-based agricultural practices

MAIN AIMS OF THE ACADEMY













4 Years Course

8 Semesters 365

DGC



m IGGAARL Academy - Strategic Framework



4 Thematic Pillars | Multiple Hubs across Andhra Pradesh

4 THEMATIC PILLARS

Research & Development

Learning & Education

Training & Capacity Building

₩ Up-Scaling

HUB OPERATIONS

- Location: Multiple hubs across Andhra Pradesh
- Coordination: All thematic pillars work collaboratively across different hubs

KEY ATTRIBUTES (PART 1)

- 1. Farmer-Centric Research: Farmer-driven and farmer-centric research methodologies
- 2. Agroecology Standards: Standards, testing protocols and centres for agroecology
- 3. Knowledge Services: Agroecology learning, knowledge research and consultancy
- 4. Research Labs: On-farm and off-farm labs for primary research

RESEARCH FOCUS AREAS

- √ Carbon sequestration
- √ Socio-economic domains of agroecology and anthropology
- √ Development and agroecology
- √ Agroecology and pest management

KEY ATTRIBUTES (PART 2)

- 5. Research Areas: Biogeochemical cycles, value chains, market linkages, and agroecology economics
- 6. Digital Repository: Digital repository of data and information
- 7. Publications: Peer-reviewed publications in journals by scientists and practitioners
- 8. Global Platforms: Global knowledge platforms through the Centre

CLIMATE RESILIENT VILLAGES

- Vision: Creating Climate Resilient Villages
- . Capacity Building: Thousands of farmer scientists
- . Mentorship: 1 mentor for every 5 farmer scientists
- · Location: In each RBK (Rythu Bharosa Kendram)



FS & Mentors Farm Research

Pioneering Natural Farming Transformation



Farm Research & Comparative Analysis

Field Scientists and Mentors conduct comprehensive research on their own farms, analyzing traditional versus natural farming methods to identify best practices and document transformation outcomes.

Evidence-Based Approach



Natural Farming Transformation

Leading by example, FS and Mentors transform their own farms into living laboratories, demonstrating practical implementation of natural farming principles and inspiring community-wide adoption.

On-Ground Implementation



Daily Field Observations

Systematic monitoring of crop health, soil conditions, pest dynamics, and environmental factors through regular field visits, ensuring timely interventions and

continuous learning.

Real-Time Monitoring

Key Research & Innovation Areas



Research & Innovations

Developing new techniques, testing bioinputs, and creating context-specific solutions for local farming challenges



Natural Farming Models

Establishing demonstration farms showcasing diverse cropping systems and sustainable practices



Soil Health Enhancement

Improving soil microbiome, organic matter content, and overall soil fertility through natural methods



Green Cover Initiatives

Promoting cover crops, mulching, and biodiversity to maintain continuous green cover throughout the year



Climate Resilience Villages

Building community resilience against climate change through water conservation and sustainable practices



Data Documentation

Recording observations, yields, costs, and outcomes to build a knowledge repository for scaling

Farmer Scientist and Mentors field and training activities



















Soil & Crop Management | Foundation Principles



Soil & Crop Foundation





365 Days Living Root

Soil covered with crops throughout the year to maintain continuous living root system and soil protection





Diverse Crops & Trees

Grow 15-20 different crops and trees to promote biodiversity and ecosystem health





Increase Organic Residues

Maximize organic residues on soil to enhance soil fertility, carbon content, and microbial activity



Soil Health & Management





Biostimulants

Use biostimulants as necessary catalysts to enhance plant growth and strengthen soil microorganisms





Minimal Soil Disturbance

Minimize soil disturbance through reduced tillage to preserve soil structure and beneficial microbes



Key Benefits

- √ Improved soil health
- √ Enhanced water retention
- √ Increased biodiversity
- √ Climate resilience









365 Days Living Root

Diverse Crops and Trees

Increase Organic Residues





Resource Management | Sustainable Practices

Farm Integration & Resources





Integrate Animals

Integrate livestock and animals into farming system for nutrient cycling, manure production, and sustainable nutrient management





Indigenous Seeds

Use indigenous and locally adapted seeds suited to local climate, soil conditions, and cultural practices



Botanical Pest Management

Manage pests through botanical extracts and natural biological control methods without synthetic chemicals

Chemical-Free Farming

O NO SYNTHETIC INPUTS

- X Synthetic Fertilizers
- X Chemical Pesticides
- X Synthetic Herbicides

Sustainability Goals

- √ Chemical-free ecosystem
- √ Healthier soil microbiome
- √ Safe food production
- √ Reduced environmental impact
- √ Economic savings
- √ Climate resilience









Biostimulants

Minimal Disturbance of the Soil

Integrate Animals









Indigenous Seeds

Botanical Pest Management

No Synthetic Inputs



1. Pre-monsoon dry sowing

- Sowing before Monsoon
- April onwards
- Effectively utilize the moisture available in the atmosphere

2. Rabi Dry sowing

- Sowing during dry-periods throughout the year
- Dry situations regardless of regular monsoon
- Helps to maintain year-round ground cover in all districts





Pre-Monsoon Dry Sowing (PMDS)



Sustainable Natural Farming - Overview & Benefits

Overview

What is PMDS?

Seeds sown in dry soil before monsoon rains

Timing

March & April

Harvest after 45 days

& Crops

10-30 diverse crop types in polyculture system

Key Principle

Emphasizes soil health and crop diversity

Soil Benefits

✓ Soil Health

- · Living root systems
- · Microbial diversity
- Improved structure
- · Earthworm population

Soil Protection

- √ Complete coverage
- √ Reduces evaporation
- √ Maintains temperature

Benefits

Diversity Gains

- Risk distribution
- Pest resistance
- Resource use

& Farmer Benefits

- √ Lower costs
- √ Better resilience
- √ Water efficiency
- √ Sustainability

Ecological

Aligns with agroecological principles for resilient, sustainable farms







A GRADE Model



Sustainable Integrated Farming System

Overview: A holistic farming approach that maintains ecological balance and productivity through strategic crop planning and year-round green cover management.

Key Components:



Main Crop

Primary economic crop of the farm



Associated & Biodiversity Crops

Supplementary crops for diversification



Intercropping

Multiple crops in proper geometric arrangement



365-Day Green Cover

Continuous soil protection through strategic planning



Border Crops

Protection from environmental disturbances



Trap Crops

Integrated Pest Management strategy



Bio-inputs

Locally available organic inputs like Jeevamrutham

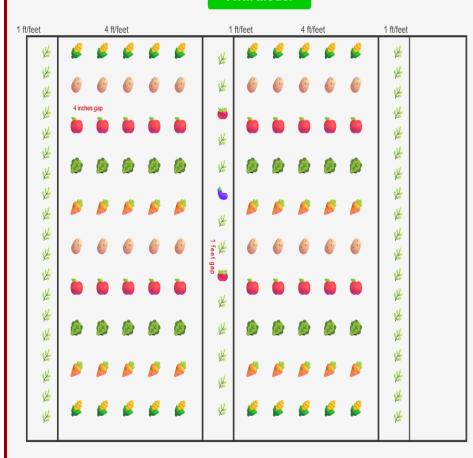
A-grade model - groundnut crop







ATM Model









- Contin
 - Continuous Income
 - Harvest possible every 15-30 days, ensuring regular cash flow throughout the year.
- High Land-Use Efficiency
- Multi-layer cropping system maximizes production per unit area.
- Improves Soil Health
 Diverse root structures and continuous cover enhance soil microbiome.
- Low Input Cost

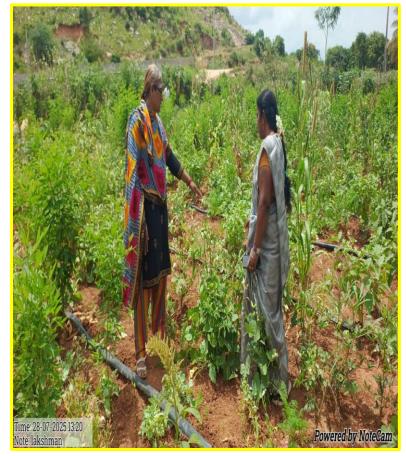
 Minimal fertilizers and efficient water use reduce operational expenses.
- Biodiversity Enhancement
- Balances pest-predator relationship naturally, reducing pesticide needs.
- 6 Ideal for Smallholders
 Can be managed effectively in 20 cents of land (~0.2 acre).
- The say Maintenance

 1 foot gap between beds allows easy access for weeding, watering, and harvesting.

ATM (Any Time Money Model)







Key Observations in Natural Farming

Indicators of Healthy Soil



Soil Porosity & Looseness

Proper air and water flow through loose, porous soil enables strong root growth and plant development



Rich Smell & Dark Color

Earthy aroma and dark color indicate abundant organic matter and thriving soil microorganisms



Microbiological Activity

Diverse microbial life enhances fertility, nutrient cycling, and soil structure for healthier plants



Earthworm Abundance

High earthworm population signals excellent soil health through natural aeration, nutrient breakdown, and improved water retention





Crop Health, Development & Sustainability

Crop Health Development



S

Seed Quality Improvement

Better soil health produces stronger seeds, leading to vigorous growth and higher yields



Pest & Disease Resistance

Beneficial organisms naturally control pests, reducing chemical dependency



General Crop Resilience

Biologically active soils create crops resistant to drought and extreme weather



Increased Crop Yields

Yields & Sustainability

Enhanced soil health and seed quality deliver significant, sustainable yield increases



Sustainable Practices

Crop rotation and cover cropping maintain soil fertility for long-term productivity



Long-term Viability

Healthy ecosystems provide food for future generations with minimal environmental impact

Natural Farming: Growing healthier crops while protecting our planet

Healthy soil = Healthy plants = Sustainable farming



Climate Resilience & Agricultural Transformation

Climate Resilience

Adaptation Strategies

Promotes biodiversity and soil health to build resilience against climate variability



Uses organic inputs instead of chemicals, lowering greenhouse gas emissions

M Soil Erosion Mitigation

Well-structured soils resist erosion, maintaining productivity despite climate change

The Path Forward

Holistic Approach

Integrates soil health, crop management, and ecology for complete sustainability

Future of Agriculture

Research-backed principles can transform farming for global food security

Call to Action

Wider adoption needed now to secure a sustainable agricultural future

Natural Farming: Healing the Earth, Feeding the Future



Climate Resilience Studies



Sunday Express 03/11/2024

Chittoor farmer's paddy crop highlights natural **FARMING BENEFITS**

D SURENDRA KUMAR @ Chittoor

atural farming under the Andhra Pradesh Community Managed Natural Farming (APC-NF) initiative of Rythu Sadhikara Samstha is proving effective in boosting climate resilience and improving soil health. In Chittoor's Mangunta village, farmer-scientist S Jhansi's paddy field has exemplified the benefits of natural farming, demonstrating improved water infiltration and minimal waterlogging during recent heavy rains.

Intense rainfall from October 5 to 20 provided the scope for a clear comparison between natural and chemical farming. The 'Kujupatali' variety crop in Jhansi's paddy field, showed resilience, with looser, more porous soil structure preventing water accumulation and crop damage. In contrast, nearby chemical farming fields experienced compacted soil and severe waterlogging, posing crop loss risk.

Dr K Pushpa, Thematic Point Person for Research and Learning at APCNE highlighted that natural farming enhances soil health by boosting organic matter and microbial activity, improving structure, water retention, and infiltration, District Point Person B Divya supports Jhansi in her natural farming

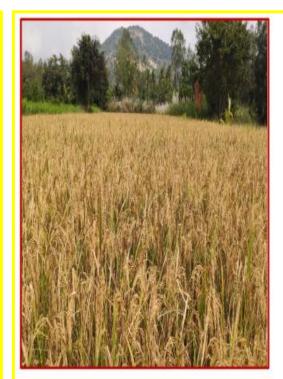
Jhansi, supported by her husband, Samireddy Seshadri



Reddy, grows paddy on one acre and sugarcane on two acres. The two crops withstood heavy rains without any damage. She said no pests or diseases affected her crops, attributing it to crop protection to organic inputs like Ghana and Drava Jeevamrutham.

A member of the Indo-German Global Academy for Agroecology Research and Learning (IGGAARL), Jhansi shared that the Farmer Scientist Course deepened her understanding of natural farming science. She emphasised that these practices are essential for regions facing heavy rainfall, as enhanced soil structure helps in water management and soil conservation, potentially reducing crop loss in extreme weather.

Jhansi's paddy crop not only demonstrates the advantages of natural farming but also advocates for broader adoption of sustainable agriculture in Andhra Pradesh.



NF Paddy field



Chemical Paddy field



Environmental Benefits of Natural Farming





Improves Soil Health

Enhances soil organic matter and microbial activity. Builds humus and natural fertility through compost, Jeevamrutham, and cover crops.



2. Reduces Pollution

No use of synthetic fertilizers or pesticides. Prevents contamination of water bodies and groundwater.



Conserves Water

Promotes mulching and soil moisture retention. Reduces irrigation requirement by improving water-holding capacity of soil.



4. Enhances Biodiversity

Encourages beneficial insects, pollinators, and native species. Mixed crooping and trap crops create ecological balance.



Reduces Carbon Footprint

Minimizes dependence on fossil-fuel-based inputs, increases carbon sequestration in soil through continuous green cover.



6. Promotes Climate Resilience

Strengthens natural ecosystems against droughts and floods, Maintains productive and stable agro-ecosystems under

"Natural farming heals the soil, nurtures biodiversity, and safeguards our planet for future generations.



Socio-Economic Impact of Natural Farming on Farming





Low Investment & High Returns

Reduces dependency on costly chemical inputs, Encourages the use of locally available resources like cow dung, urine, and biomass.





Income from Multiple Crops

Promotes intercropping and 365-day green cover Ensures steady income throughout the year.



Water Management & Cost Efficiency

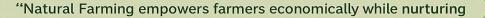
Efficient use of rainwater and soil moisture conservation

Minimizes irrigation expenses through mulching and soil health improvement



Strengthens Rural Livelihoods

Creates employment through bio-input preparation, seed production, and value addition



5. Enhances Farmers' Self-Reliance

Reduces dependency on external markets and credit systems, Encourages knowledge sharing and community collaboration.

6. Improves Nutrition and Food Security

Diversified cropping ensures access to nutrient-rich food for families Builds resilience to market and climate fluctuations

7. Promotes Community Well-being

Strengthens farmer networks and cooperatives Fosters harmony between people, soil and environment

Natural farming - Soil Health is Our Wealth



Addressing Contemporary Challenges

| Theme | Sey Benefits |
|-----------------------------------|--|
| Food Security | Enhances nutrient-rich, diverse, and resilient food systems through crop diversification and ecosystem balance. |
| Environmental Restoration | Rebuilds natural ecosystems, reduces greenhouse gases, and promotes climate-resilient landscapes. |
| Biodiversity Enhancement | Encourages multiple crops, pollinators, and beneficial organisms—strengthening ecosystem stability and pest control. |
| Soil Health & Conservation | Enriches soil organic matter and structure, promoting long-term fertility and erosion control. |
| Soil Microbiology & Soil Food Web | Activates beneficial microbes, earthworms, and fungi that cycle nutrients naturally and maintain soil vitality. |
| Seed Microbiome | Protects and nourishes seeds with beneficial microbes—improving germination, pest resistance, and nutrient uptake. |
| Water Conservation | Improves water infiltration and retention, reducing irrigation needs and protecting groundwater. |
| Human & Animal Health | Produces safe, mineral-rich, and health-promoting food—free from agrochemicals. |
| Sustainable Livelihoods | Reduces input costs, supports local knowledge systems, and creates income through diversified enterprises. |



Hon'ble CM of Andhra Pradesh Shri Nara Chandrababu Naidu Visited NF fields on 7th January 25





Kuppam farmer's organic revolution for sustainable agriculture

of land serve as his laboratory, where he natural farming and worked wonders. The farmer is demonstrating to the world what the self-reliance of a farmer truly means.

Hailing from the remote Sigalapalli village in Kuppam mandal of the Chittoor district. Krishnamurthy has spent over eight years cultivating not only crops but also hope and health for his community. "My journey as a farmer in the real sense began in 2016 when I took over cultivation from my father. Following in his footsteps. I used organic fertilisers and pesticide-free methods. A turn- My family-my parents, wife, ing point in my journey was at- and three children-are my tending the Zero Budget Natu- support system. I am now purral Farming programme suing a four-year course in natorganised by Subash Palekar. ural farming from The Indo-From then onwards, my life has German Global Academy for

er. His commitment to sustainable practices has transformed OR 38-year-old young his one-acre farm into a model farmer G Krishna- of success, earning him recogmurthy, his four acres nition from local leaders and global experts alike.

Chief Minister N Chandrabhas experimented with abu Naidu, during a recent visit, lauded Krishnamurthy for his noble efforts, emphasising that his farming practices are not just about earning an income but are also driven by a deep sense of social responsibility. Naidu appreciated Krishnamurthy's dedication to improving the health

> community through sustainable agriculture. "After graduation, I worked for some time in Bengaluru. but the pull of my native land brought me back to my village.

and well-being of his

pleted two years and with two more years to go," he says, explaining his passion for natural farming

Krishnamurthy's approach to farming integrates livestock, biodiversity and innovative models designed by the Andhra Pradesh Community Managed of ₹15,000 to ₹20,000 per month. Natural Farming (APCNF) initiative. His A-Grade model combines crops like moringa, banana, papaya, curry leaves,

castor, and 20 other biodiversity crops. Meanwhile, the Any Time Money (ATM) model, set on 20 cents of shaded land, grows 16 varieties of vegetables, in-

cluding carrots, radishes, and beans. Additionally, he cultivates indigenous grains such as kumkuma shaali, black rice, and brown rice, further enriching his farm's biodiversity.

These sustainable practices have also been financially rewarding. With an initial investment of ₹48,000, the A-Grade model now generates an annual been devoted to natural farm- Agroecology Research & Learn- income of ₹2,99,600, providing lishing a one-acre fruit orchard. ing," says this pioneering farm- ing (IGGAARL), having com- approximately ₹21,000 per further diversifying his farm.



₹45,000 annually through desipoultry farming and an additional ₹5,000 monthly from a Non-Pesticide Management (NPM) shop he established with ₹25,000. Altogether, his ventures bring in \$30,000 to \$40,000 per month, showcasing the profitability of natural Krishnamurthy's efforts extend beyond financial success.

His family consumes only the produce grown on his farm. keeping them disease-free. Beyond his farm, he actively mentors fellow farmers, preparing and supplying bio-stimulants and botanical extracts to promote natural farming in the village. His plans include estab-





Dr Elena, Professor from Mexico Visited Natural farming fields







Sri Lanka Team visit to Natural Farming fields





Delegates from 15 Countries visited Natural Farming Fields

AP's agroecology model earns global applause







PRADEEP VENNELAKANTI KUPPAM (CHITTOOR DISTRICT)

REPRESENTATIVES from 0 countries lauded Andhra Pradesh's innovative natural farming practices during visit to the Kuppam constituon Friday. A delega tion of 51 experts, including searchers and farmer lead-ers, explored various natural farming fields and witnessed the state's pioneering efforts to address climate change, food security, and health

As part of their global study on advancements in agroecology, the delegation highlighted the state's impleeased natural farming prin-

by the Andhra Pradesh Com-Farming (APCNF) initiative are unique and offer practical solutions to modern agricultural challenges, the reprentatives observed.

The delegation praised the state's approach, noting that agroecology framework could serve as a blueprint faced by small-scale farmers Participants from cour

tries like Panama. Brazil Gambia, South Korea, Indonesia and the Netherlands ples developed by APCNF are essential for sustainable farming globally. "This initiative is an exceptional example of addressing critical chal-The knowledge exchange and practices observed here are a

51 experts from 20 countries lauded efforts to address climate. food and health challenges

They explore natural farming fields in Kuppam constituency and interact with local farmers

arkable resource for the world," said one of the del

The day-long visit begar ior APCNF officials at the MPDO office in Kuppam.

which encompasses nine core principles of natural farming. Delegates were then divided into three groups to visit villages including Seegalapalli, Ankireddypalli, Singasam-udram and Jeedimakulapalli.

In these villages, farmers showcased methods like ment), 'Ghanajeevamrutham (solid microbial culture) 'Dravajeevamrutham' (liquid microbial culture), and seed ball preparation. Delegates also compared the ecological benefits of natural farming to conventional chemical farming practices.

a delegate remarked The visitors interacted with by several officials, includocal farmers such as G Krishing APSRTC vice-chairman na Murthy, KM Venkatara-P S Muniratnam, APCNF mana and GV Satyanarayana, regional project coordinator who demonstrated advanced Chandrasekhar, natural farming models. The district agricultural officer Dr Muralikrishna and senior expressed APCNF officials.

impact of such initiatives on global agriculture.

the exchange of knowledge and strategies from Andhra

Pradesh could enhance in-

ternational cooperation and

"This visit underscores the significance of Andhra Pradesh's efforts in setting an

example for sustainable agriculture. These principles are

critical for addressing envi-ronmental and food security

ractices worldwide.

omote natural farming

emphasised that



Global team explores AP's natural farming practices



PNS VIJAYAWADA

A global delegation of 51 agroecology experts, farmers, and researchers from 20 countries visited the Kuppam constituency in Andhra Pradesh on Friday to explore the state's innovative natural farming practices. This visit was part of a Global Agroecology Learning Exchange organised by the Andhra Pradesh Community Managed Natural Farming (APCNF) programme, under the guidance of the Rythu Sadhikara Samstha (RySS).

In response to questions from the delegation, the Regional Project Coordinator (RPC) explained that while the certification process for the external market is underway, most farmers are currently selling their products locally and earning a premium price for their natural farming produce. The District Agriculture Officer, J Murali Krishna, addressed the delegates and highlighted the support of around 8,000 human resources across the state for Natural Farming practitioners. He emphasised the success of models such as A-Grade, ATM, and Drought-Proof, as well as the improved health outcomes for families engaged in natural farming.

Morgan Ody, a representative from the French agricultural union that supports smallscale farmers, praised the natural farming principles, calling them both beautiful and a significant opportunity for the world. She stressed the importance of understanding and seizing this opportunity and also commended T Vijay Kumar, the retired executive vice chairman of RySS, for his visionary leadership. The delegation consisted of 51 members from 20 countries, including advocates for agroecological reforms and practitioners, researchers, farmer leaders, and agricultural experts. The group included professionals from Panama, Brazil, Gambia, South Korea, Indonesia, and the Netherlands, who actively participated in this knowledge-sharing initiative.



IWWI Team visit







Different States of India visited Natural Farming fields





Tamil Nadu

Rajasthan

Scientists from MS Swaminathan Research Foundation visited Natural farming fields



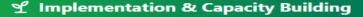




Partnership Proposal

Affiliation with IGGAARL & University Collaboration

Academic & Research Excellence



University Affiliation

Establish formal partnership with IGGAARL to leverage academic expertise and institutional resources for natural farming advancement

Д Academic Research Development

Conduct rigorous scientific studies on natural farming practices, document results, and publish findings in peerreviewed journals

Collaborative Research Activities

Joint research projects, field trials, data collection, and knowledge exchange programs between academia and farming communities

Climate Resilient Villages

Transform villages through natural farming adoption, building resilience against climate change and enhancing rural livelihoods

Training & Internships

Provide comprehensive training programs and internship opportunities for students, farmers, and extension workers in natural farming techniques

Funding & Implementation Support

Secure grants and funding for large-scale natural farming implementation, infrastructure development, and farmer support programs

Visit our website: https://apcnf.in/

Together, we can transform agriculture through research, innovation, and sustainable practices for a resilient future



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With Gratitude





