

MANAGE Agricultural Extension "Evening4Learning (E4L)" Webinar Series

Topic: "Re-inventing Extension for Natural Farming: Lessons from Andhra Pradesh"

Schedule:
28-11-2022, 19:00-20:30 PM

MANAGE - Center for Agricultural Extension Innovations, Reforms and Agripreneurship (MANAGE- CAEIRA)
National Institute of Agricultural Extension Management (MANAGE)
Rajendranagar, Hyderabad- 500 030, INDIA



About the Program

The MANAGE Agricultural Extension "Evening4Learning" Webinar Series is aimed at enhancing knowledge and professional engagement in the field of agricultural extension. The twelve-day series is structured with each day focusing on a distinct topic under a common theme, allowing participants to gain comprehensive insights into key areas of extension. The program is intended for a diverse audience, including postgraduate and doctoral students, agricultural faculty, and industry professionals. It covers broad themes ranging from entrepreneurship and sustainability to emerging technologies in agriculture.





Speaker

Ms. Swati Renduchintala
Program Manager
Community-Managed Natural Farming

Swati Renduchintala

About the Speaker

Ms. Swati Renduchintala, Program Manager, Community-Managed Natural Farming, is associated with the Andhra Pradesh Community-Managed Natural Farming (APCNF) initiative under Rythu Sadhikara Samstha (RySS), Government of Andhra Pradesh. Her work focuses on promoting natural farming and agroecology through community participation, women's self-help groups, champion farmers and farmer-to-farmer knowledge sharing. She emphasizes inclusive, participatory extension approaches that integrate scientific knowledge with traditional wisdom to advance sustainable agriculture.

Introduction

Agricultural extension plays a critical role in facilitating the adoption of sustainable agricultural practices, strengthening farmers' capacities and promoting resilient farming systems. Traditionally, extension services have focused on disseminating improved agricultural technologies, providing technical guidance and promoting the adoption of recommended crop production practices to enhance productivity. However, the changing agricultural landscape has brought new challenges, including soil degradation, biodiversity loss, climate variability, rising input costs, excessive dependence on external inputs and concerns regarding food quality and nutritional security. These challenges highlight the need to reorient conventional extension approaches towards more inclusive, participatory and ecologically sustainable systems.

In this context, natural farming and agroecology have emerged as important approaches for promoting sustainable agriculture by integrating ecological principles, scientific knowledge, traditional wisdom and community participation. These approaches emphasize soil health, crop diversity, efficient use of locally available resources, biological activity, livestock integration and the conservation of local seeds.

Rather than relying exclusively on external agricultural inputs, they encourage farmers to understand and utilize ecological processes to improve the sustainability and resilience of farming systems. The nine regenerative principles followed under the Andhra Pradesh Community-Managed Natural Farming (APCNF) approach, for instance, include cover crops, crop diversity, no or low tillage, animal integration, biostimulants, organic matter addition, local seeds and non-chemical pest management, with the avoidance of agrochemicals as a central commitment.

The transition towards natural farming and agroecology requires a corresponding transformation in agricultural extension systems. Conventional extension approaches, which often emphasize input-oriented recommendations and technology transfer, may not adequately address the diverse needs of small and marginal farmers, women, tenant farmers and other marginalized communities. A more inclusive extension system must ensure equitable access to knowledge, encourage diversified farming practices and recognize the role of farmers as active participants in generating, adapting and sharing knowledge. This requires moving beyond one-way information dissemination towards participatory learning, field-based demonstrations, farmer-to-farmer knowledge exchange and continuous technical support.

Community institutions are particularly important in facilitating this transformation. Women's self-help groups, farmer organizations, community resource persons and champion farmers can serve as key intermediaries in promoting natural farming practices and strengthening local capacities. Farmers who have practical experience in natural farming can demonstrate the benefits and challenges of different practices, build trust among fellow farmers and facilitate context-specific learning. Similarly, the use of information and communication technologies, including short videos, digital learning materials and social media, can complement field-level extension activities and expand access to relevant agricultural knowledge.

Furthermore, the adoption of natural farming is a gradual process that requires sustained engagement, behavioural change and adaptation to local agroclimatic conditions and farming practices. Short-duration training programmes alone may not be sufficient to support this transition. Extension personnel must therefore facilitate continuous learning, encourage farmer-led experimentation, integrate research findings with local knowledge and provide long-term handholding. Strengthening collaboration among government departments, research institutions, civil society organizations and community-based institutions is also essential for creating an enabling environment for the wider adoption of agroecological practices.

Thus, transforming agricultural extension for natural farming and agroecology involves a shift from input-centred technology transfer towards community-led, knowledge-based, participatory and ecologically oriented extension systems. Such a transformation can contribute to improving soil health, conserving biodiversity, strengthening farmers' capacities and promoting resilient and sustainable agricultural livelihoods.

Universal Principles of Natural Farming: Nine Regenerative Principles

The Andhra Pradesh Community-Managed Natural Farming (APCNF) approach emphasizes nine regenerative principles designed to improve soil health, enhance biodiversity, conserve natural resources and promote sustainable agricultural production. These principles focus on ecological processes, locally available resources and the reduction of dependence on external chemical inputs.

1**. Cover Crops:** Maintaining living roots and avoiding fallow periods helps improve soil health and supports faster carbon sequestration.
2. **Crop Diversity:** Polycropping and diversified cropping systems promote synergies among crops, minimize risks from biotic and abiotic stresses, ensure food and fodder availability, and enhance soil biodiversity.
3. **No/Low Tillage:** Minimizing soil disturbance helps improve soil aggregation and reduce carbon losses from the soil.
4. **Animal Integration:** Integrating livestock into farming systems supports fodder availability and enables the productive use of animal by-products.
5. **Biostimulants**: Using effective, affordable and locally available biostimulants helps support soil biological activity and ecological processes.
6. **Organic Matter Addition:** Adding organic matter to the soil surface and maintaining crop biomass through polycropping improves soil health, provides better habitats for soil organisms and supports biological activity.
7. **Local Seeds:** Using locally adapted seeds promotes seed sovereignty and helps maintain crop varieties suited to local conditions.
8. **Pest Management:** Managing pests through non-chemical methods and botanical preparations supports ecologically sustainable crop protection.
9. **No Usage of Agrochemicals:** Avoiding agrochemicals is the central commitment underpinning the APCNF regenerative approach, supporting the transition towards natural farming systems.

These nine principles provide an ecological foundation for natural farming by integrating crop diversity, soil health, biodiversity, livestock and locally available resources while avoiding the use of agrochemicals. Their implementation should be adapted to local farming conditions and community knowledge.

Comparison of Current Mainstream Agricultural Extension and Natural Farming Extension

Current Mainstream Agricultural Extension	Natural Farming Extension
Inequitable, non-inclusive and unsustainable.	Promotes equity, inclusiveness and sustainability.
Local extension support systems are largely oriented towards chemical fertiliser-based agriculture.	Integrates natural farming knowledge and best practices, supplemented by community-managed peer learning.
Information access is restricted, with elite capture and gender bias.	Promotes inclusive knowledge sharing through women's self-help groups, farmer groups and community institutions.
Input-intensive; inputs, information and troubleshooting support are primarily available for a limited number of large-scale monocrops.	Encourages diversified farming practices and locally adapted knowledge to support different cropping systems.
Extension services are sub-optimally functional.	Integrates research, knowledge and learning into the extension system.
Extension agents are not adequately aligned with the current agricultural crisis.	Natural farming practitioners serve as extension agents in the form of Resource Persons.
Provides little or no encouragement for multiple cropping.	Promotes crop diversity, green cover and regenerative farming practices.

Limited emphasis on community-led transformation and collective learning.	Emphasizes transformation through women's self-help groups, champion farmers and farmer groups.
Relies primarily on conventional information dissemination and support mechanisms.	Uses diverse knowledge-sharing approaches, including videos, primers, case studies, campaigns, wall paintings and community-based learning.

Natural farming extension shifts the focus from input-oriented, top-down information delivery towards an equitable, inclusive and sustainable system built on community participation, peer learning, farmer leadership and continuous knowledge development.

Integrating Technology, Social Capital and Government Support

Scaling up agroecology requires the integration of appropriate agricultural practices with social capital, government support and civil society participation. Technology alone cannot bring about large-scale transformation unless communities are actively involved in decision-making and implementation.

Government institutions have an important role in mobilizing resources, establishing supportive policies and creating an enabling environment for scaling up natural farming. Civil society organizations, non-governmental organizations, community-based organizations and farmer groups can facilitate community engagement and strengthen local ownership.

The three dimensions of scaling include: scaling out by reaching more farmers and farms, scaling up by influencing policies and institutions, and scaling deep by embedding agroecological practices within community values, culture and traditional knowledge.

Reorienting the Agricultural Extension System

There is a need to transform conventional agricultural extension into a more inclusive, participatory and sustainable system. The limitations include insufficient attention to crop diversification, inadequate involvement of women and marginalized communities, and an emphasis on information dissemination rather than sustained knowledge sharing and behavioural change.

A reoriented extension system should encourage extension personnel to gain practical experience in farming and work closely with farmers. Community resource persons and experienced practitioners can play an important role in providing locally relevant guidance and building trust among farming communities. The transition towards natural farming is a gradual process requiring long-term engagement rather than a one-time intervention.

Role of Women's Self-Help Groups in Natural Farming

The experience of Andhra Pradesh demonstrated the importance of women's self-help groups (SHGs) in promoting natural farming. The programme initially engaged male farmers but subsequently recognized the potential of women's collectives in facilitating agroecological transformation.

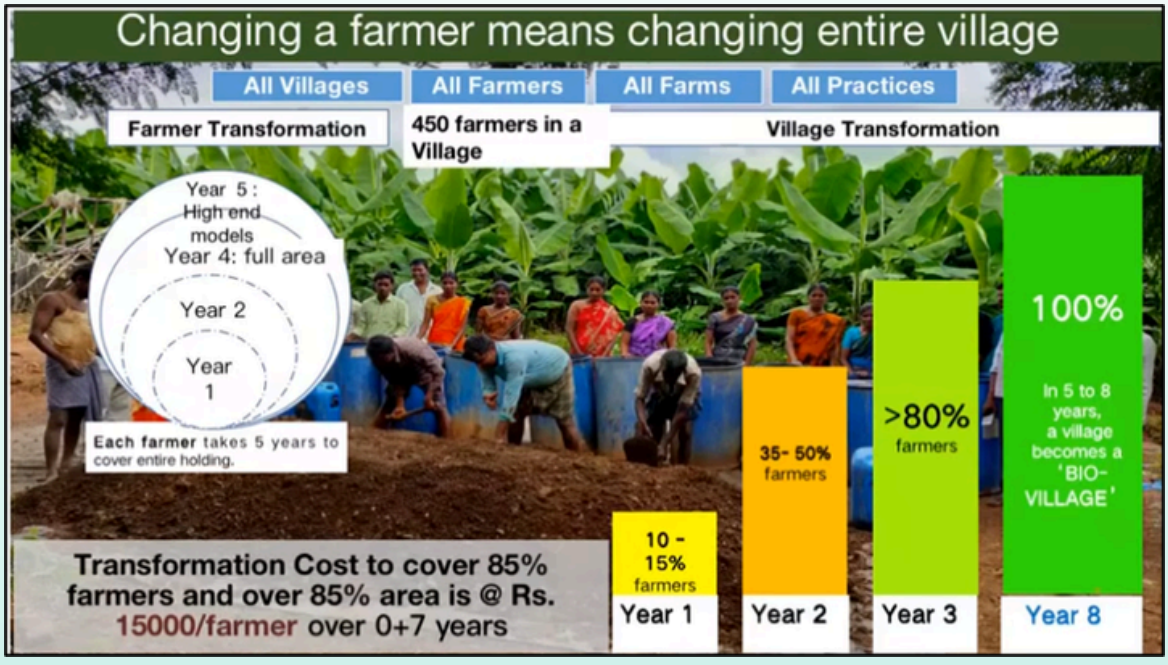
Women's involvement in household food preparation and agricultural activities was highlighted as an important factor in their understanding of food quality, soil health and sustainable farming. Organized SHG networks also provide an effective mechanism for disseminating knowledge across communities and expanding the reach of extension interventions.

The community institutions should develop the capacity to sustain natural farming initiatives beyond the duration of externally supported projects. Strengthening women's leadership, knowledge and decision-making abilities is therefore essential for building community ownership and ensuring continuity.

Developing Champion Farmers and Farmer-to-Farmer Learning

Farmer-to-farmer learning was identified as a central component of natural farming extension. Farmers who have personally practised natural farming can communicate their experiences, demonstrate field-level results and build confidence among other farmers more effectively than information dissemination alone.

The development of champion farmers involves identifying progressive practitioners, strengthening their leadership and technical capacities, and equipping them with participatory learning tools, including Farmer Field Schools (FFS). These farmers can serve as community-level facilitators and support the wider adoption of agroecological practices. There is a need to develop a large network of capable farmers who can facilitate transformation within their communities.



Use of Information and Communication Technology

Information and Communication Technology (ICT) is an important complementary component of natural farming extension. Mobile phones, social media, short videos and micro-learning materials can help communicate practical information in accessible formats.

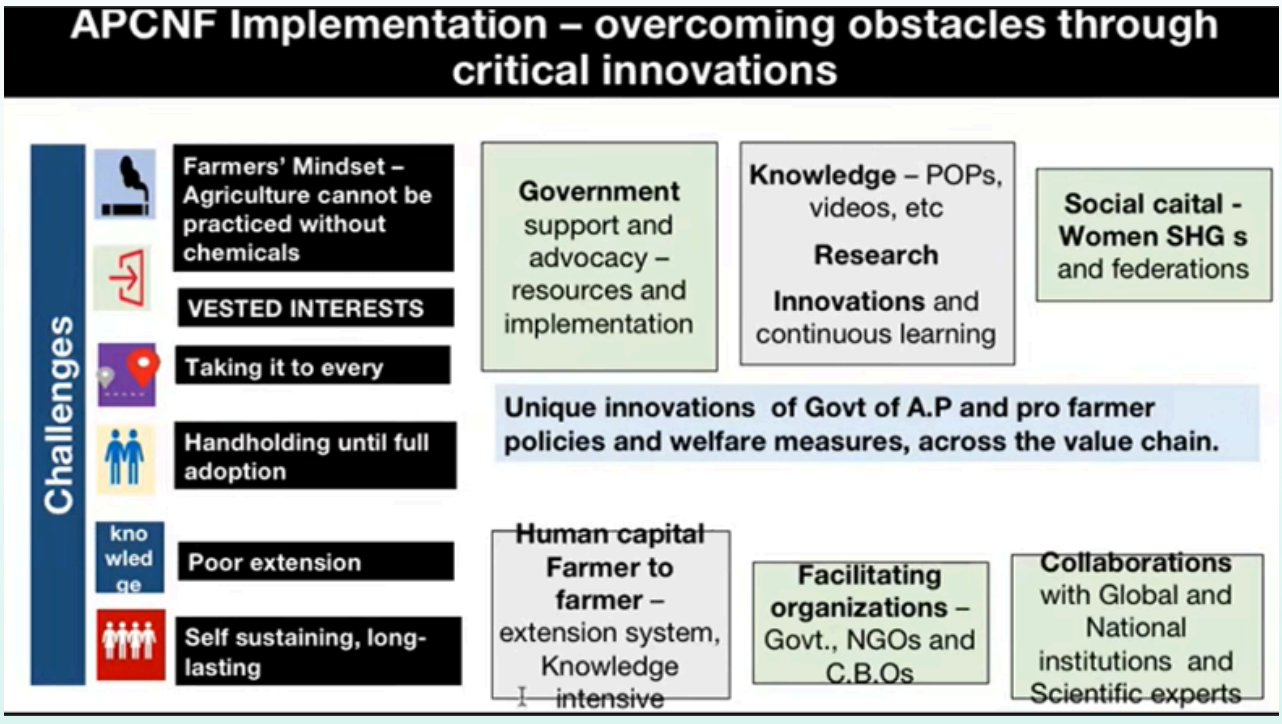
The importance of developing concise, engaging and locally relevant digital content that reflects farmers' experiences and cultural contexts should be emphasized. ICT should complement, rather than replace, face-to-face interaction, field demonstrations and community-based learning.

Village-Level Transformation and Long-Term Engagement

The adoption of natural farming by individual farmers should be viewed within the wider context of village-level and landscape-level transformation. Farming practices are influenced by community interactions, local resource conditions, biodiversity, water availability and prevailing agricultural norms.

Drawing on Andhra Pradesh's experience, there is a need for sustained engagement with farmers and communities. It indicated that programmes may require five to eight years of engagement at the village level and at least three years of support for individual farmers. Such an approach allows farmers to adopt practices progressively, observe results, build confidence and adapt methods to their circumstances.

The transition was described as iterative rather than standardized, with practices introduced in stages according to farmers' readiness, local conditions and experience.



Key Highlights

- **Natural Farming through Regenerative Principles:** The APCNF approach promotes nine regenerative principles, including cover crops, crop diversity, minimal soil disturbance, livestock integration, organic matter addition, local seeds and non-chemical pest management, with an emphasis on avoiding agrochemicals.
- **Transformation of Agricultural Extension:** Emphasis was placed on shifting from input-oriented, top-down technology transfer towards inclusive, participatory and ecologically sustainable extension systems that integrate scientific knowledge with traditional wisdom.
- **Community Institutions and Women's SHGs:** Women's self-help groups, farmer organizations and community resource persons play a vital role in mobilizing farmers, facilitating knowledge sharing and sustaining natural farming initiatives through community ownership.
- **Champion Farmers and Peer Learning:** Experienced natural farming practitioners can serve as community resource persons, demonstrate field-level practices and build farmers' confidence through farmer-to-farmer learning, Farmer Field Schools and participatory experimentation.
- **Integration of ICT and Multi-Stakeholder Partnerships:** Short videos, digital learning materials and social media can complement field-based learning, while collaboration among government departments, research institutions, civil society organizations and farmer groups supports wider adoption.
- **Gradual, Context-Specific and Long-Term Transition:** Natural farming requires sustained engagement, continuous technical support and adaptation to local agroecological conditions. Scaling involves reaching more farmers (scaling out), influencing policies and institutions (scaling up), and embedding practices in community values and culture (scaling deep).

Interactive Session

1. How can farmers be educated about natural farming, its impact on crop productivity and food security, and how can the transition be facilitated across different agroecological regions without affecting farmers' livelihoods?

Farmers can be educated about natural farming through participatory learning, field demonstrations, farmer-to-farmer knowledge sharing and continuous technical support. The transition should be voluntary, gradual and adapted to farmers' circumstances rather than imposed through short-duration training programmes. Farmers can initially adopt natural farming on a small portion of their land, such as one acre, and expand progressively as they gain experience and confidence. Some farmers may continue natural and chemical farming on separate portions of their holdings during the transition to manage livelihood risks.

Regarding crop productivity and food security, crop-cutting experiments and agronomic studies in Andhra Pradesh reportedly found no yield penalty in major crops such as maize and paddy in certain assessments. In other cases, yield reductions were marginal, while lower cultivation costs could help maintain or improve farmers' net income. Therefore, natural farming should be assessed not only in terms of crop yield but also in relation to cultivation costs, net income, soil health and the sustainability of production. Further crop-specific scientific assessments are necessary to understand its implications for food security under different conditions.

Furthermore, natural farming practices should be adapted to local agroecological conditions, resource availability and farming systems. The diverse conditions of Andhra Pradesh, including the semi-arid regions of Rayalaseema, the Krishna–Godavari delta and the Eastern Ghats tribal areas require context-specific approaches rather than a uniform package of practices. Extension personnel should work closely with farmers to identify suitable practices, facilitate experimentation and provide sustained support, enabling a gradual transition while safeguarding livelihoods and strengthening the resilience of farming systems.

2. How can natural farming be promoted beyond technology transfer, how can farmers be encouraged to adopt it, and how can pest management and risks from neighbouring chemical farms be addressed?

Promoting natural farming requires more than agricultural technology transfer. Agricultural extension should focus on farmer mobilization, participatory learning, field demonstrations, community engagement, partnership building and knowledge sharing. Coordination among government departments, research institutions, civil society organizations and farmer groups is essential for supporting agricultural transformation.

Farmers who have practised chemical-based agriculture for decades should be engaged through dialogue, practical demonstrations and participatory experimentation. The historical role of conventional agricultural approaches should be acknowledged while addressing emerging concerns such as soil degradation and climate change. Rather than criticizing existing practices or forcing immediate changes, extension personnel should build trust and support a gradual transition suited to farmers' economic, social and ecological circumstances.

Pest management requires crop-specific strategies, scientific validation and timely expert guidance. The pest incidence had declined in some natural farming fields after four to five years of sustained practice in Andhra Pradesh; however, this should not be considered a guaranteed outcome across all crops and locations.

The neighbouring chemical farming plots may pose concerns regarding potential contamination and the credibility of natural produce. Village-level and landscape-level adoption, along with community monitoring and Participatory Guarantee Systems (PGS), can support collective assurance efforts. Nevertheless, risks from neighbouring fields require appropriate management. Overall, promoting natural farming calls for sustained extension support, scientific guidance, community participation and coordinated action rather than reliance on technology alone.

3. What opportunities exist for startups and entrepreneurs in natural farming extension?

Natural farming creates opportunities for rural entrepreneurs, particularly in areas beyond primary production. The potential for startups includes diversified cropping systems, aggregation, processing, marketing, farmer collectives and value-chain development. Unlike monocropping systems, diversified farming generates multiple crops and products that require coordination, aggregation and market linkages. Farmer Producer Organizations (FPOs), digital platforms and village-level enterprises can help address these requirements. Rural youth can play an important role in developing services that connect farmers with markets and consumers.

4. Is the use of indigenous cows essential for natural farming?

Natural farming practices should be guided by ecological principles and adapted to local conditions rather than restricted to a single livestock type. In the context of biostimulants and soil microbial activity, the objective is to support soil biological processes using locally available resources. Where indigenous cows are unavailable, other locally available livestock, including buffaloes and small ruminants, may be considered depending on the context. The central principle is to identify locally suitable resources that support the intended ecological function

5. What challenges were encountered while scaling up natural farming in Andhra Pradesh, and how did women's self-help groups help address them?

Scaling up natural farming in Andhra Pradesh faced several challenges, including the initial difficulty of expanding beyond individual farmers, securing policy support and disruptions caused by the COVID-19 pandemic.

The programme initially progressed slowly when its focus was primarily on individual farmers. The involvement of women's self-help groups (SHGs) helped overcome some of these challenges by providing an organized platform for collective learning, knowledge sharing and community mobilization.

Through their established networks and regular interactions, SHGs enabled extension personnel to reach multiple farmers and households, creating a multiplier effect in disseminating natural farming practices. Community participation also supported continuity during the COVID-19 pandemic, as farmers continued practising natural farming despite disruptions to regular programme activities. Strengthening women's capacities and leadership further helps build community ownership and sustain natural farming initiatives beyond the duration of externally supported projects.

6. How can family farming principles be integrated with agroecology to promote natural farming as a sustainable, large-scale movement?

Family farming and agroecology share an emphasis on collaboration, ecological interactions and collective decision-making. In Andhra Pradesh, farmers and their families prepare annual action plans, particularly during the non-cropping period in March and April, to identify the land to be cultivated, crops to be grown and activities to be undertaken during the following agricultural year. This planning supports resource allocation, implementation and monitoring while helping identify farmers who can serve as champions of natural farming.

To promote natural farming as a sustainable, large-scale movement, coordinated efforts are required among government institutions, civil society organizations, community-based organizations, research and educational institutions, and private enterprises. Natural farming should be integrated into agricultural research, extension, rural development, animal husbandry and educational initiatives. The long term transformation depends on community ownership, continuous knowledge development, supportive policies and cross-sectoral collaboration. Integrating family-level planning with these institutional and community efforts can help move natural farming beyond isolated projects towards a sustained, community-led agricultural transformation.

YouTube Link:
https://youtu.be/s_3rj98PKlE?t=3

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