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Competing pathways for equitable food systems transformation: trade-offs and synergies

Community-based Approaches driving institutionalisation of sustainable agricultural practices

A success story from India

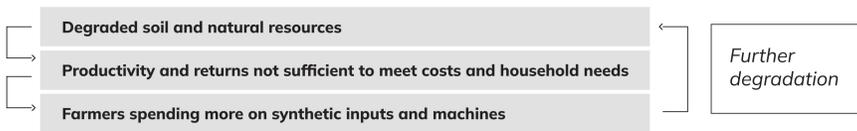
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Background

- Rise in global population and urbanisation has led to higher demand for agricultural produce
- Technological advances and government policies have helped ensure food security
- In India, the “Green Revolution” catapulted agricultural productivity by promoting synthetic inputs, mechanisation, and high-yielding seed varieties.

Problem Statement

- Conventional agriculture based on synthetic inputs is neither environmentally sustainable (soil, water, land, biodiversity, etc.) nor economically sustainable especially for the vast majority of farmers (small and marginal)
- Farmers find themselves trapped in a vicious cycle:



Solutions Implemented

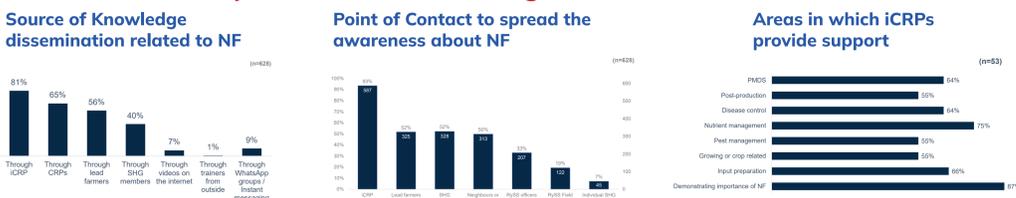
- Government of AP started Rythu Sadhikara Samstha (RySS), to create awareness among farmers on Natural Farming (NF) practices
- Knowledge dissemination & support through community-based approach using progressive farmers as Grass-root staff
- Grassroot level staff called internal Community Resources Persons (iCRPs) are selected from villages and trained to support farmers
- iCRPs are primarily NF practicing farmers, mostly women

MEL Approach

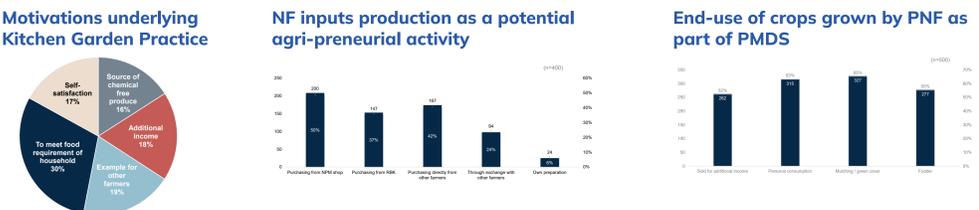
- Longterm MEL engagement
- Quasi-experimental design to understand economic and biophysical changes
- Structured surveys with complete and partial natural farmers, qualitative exchanges (IDIs and FGDs) with iCRPs and farmers, and soil and crop sample collection

Findings and Learnings

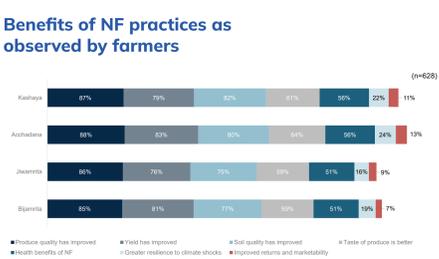
Role of Community Members in Knowledge Transfer



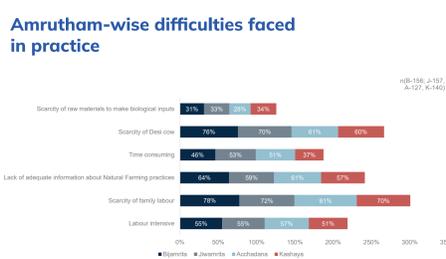
Agri-Business through NF: Motivation and Potential



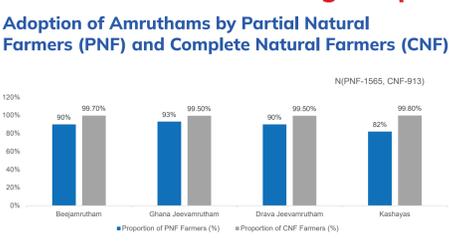
Key Benefits of Natural Farming adoption



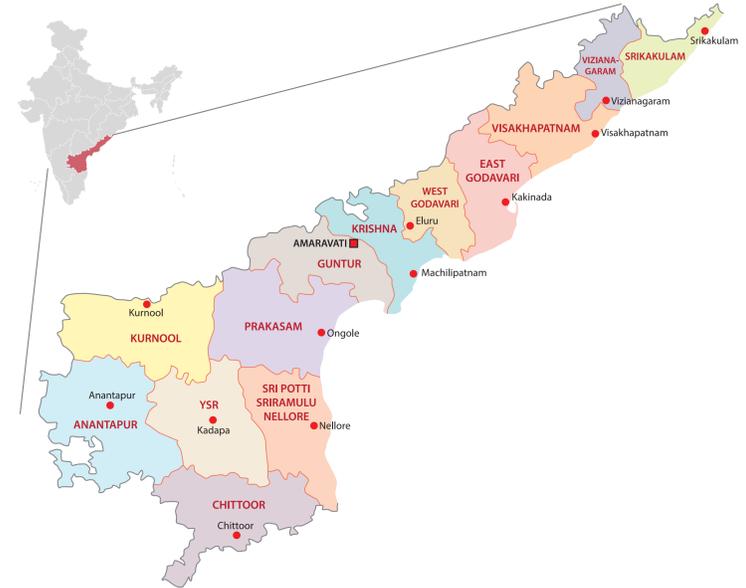
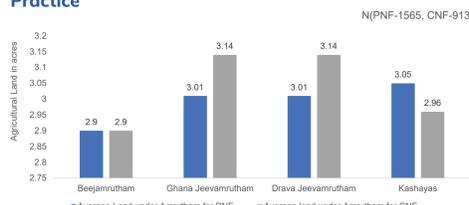
Scope for Improvement



Extent of Natural Farming Adoption



Area under Amruthams Practice



Core Principles of Zero Budget Natural Farming (ZBNF) Wheels of Zero Budget Natural Farming (ZBNF)

- 1st Wheel: Seed treatment (Bijamrita)**
Description: Seeds/seedlings are applied locally prepared solution before sowing/transplanting
Ingredients: Cow dung and urine, Water, Bio-inputs, Asafoetida, Phyllanthus Emblica
Benefits: Effectively controls many of the seed born diseases, provides immunity against many of the soil born infestations, Increases germination
- 2nd Wheel: Microbial Inoculant (Jeevamrutham)**
Description: Is a soil amendment incorporated in the topsoil to add nutrients to soil
Ingredients: Cow dung, Cow Urine, Jaggery, topsoil from the field and any gram (legume) floor
Benefits: Improved Soil microbial activity and Increases soil fertility
- 3rd Wheel: Mulching (Achhadana)**
Description: Dry crop mulching covers the root zone and conserves moisture, Live crop mulching increases crop cover, PMDS
Ingredients: Growing pulses, vegetable, and fodder crops
Benefits: Live mulching increases crop diversity, soil health, adds to farm income
- 4th Wheel: Soil Aeration (Waaphasa)**
Description: Soil aeration increases because of increased use of Amruthams, mulching, and bio-inoculants - results in increased SoC and soil porosity
Benefits: Water holding capacity increases
- 5th Wheel: Tonics (Kashayas) (Add-on to the ZBNF Wheel)**
Description: Foliar spray replacing pesticides, insecticides, and micronutrients
Ingredients: Various locally available ingredients are used in different proportion depending on the tonic
Benefits: Reduces cost of cultivation replacing chemical pesticides and insecticides

Snapshots from field



Acknowledgement

1. The study is outcome of the on-going APCNF project, commissioned by KfW (Kreditanstalt für Wiederaufbau), German Development Bank for verification of APCNF project from 2021-2025.
2. Entire study is conducted with support and Cooperation of RySS research and field team members.
3. Special thanks to all the farmers of APCNF project

Key Citations

<https://apcnf.in/ryss/>

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All authors are affiliated with *Sambodhi Research and Communication and part of APCNF-IVA project implementation commissioned by KfW.

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