



Andhra Pradesh Community Managed Natural Farming (A.P.C.N.F)

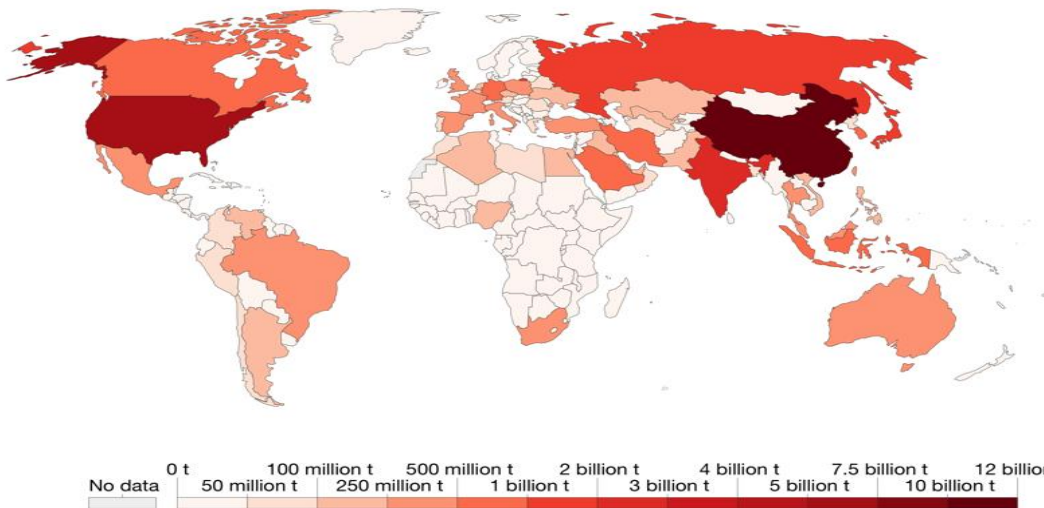
A Systemwide Transformation

Vision 2027 - 50 million people | all 6 million farmers | 8 million ha



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Annual CO₂ emissions, 2016
Annual carbon dioxide (CO₂) emissions, measured in tonnes per year.



Land management – leading to steady loss of soil organic matter

- Deforestation
- Forest fires
Burning crop residues
- Ploughing
- Keeping lands Fallow
- Over Grazing
- Excess Irrigation
- Wind and Water Erosion
- Biocides –
Chemical fertilizers and pesticides

Role of Agriculture in GHGs – 24%

Food systems account for 45 – 53% GHGs

Farming in harmony with

nature to reverse Global Warming

Regenerative Agriculture is 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



APCNF is Regenerative agriculture

Universal Principles of Natural Farming

365 days green cover,
Living root
Enhancing
photosynthesis

Diverse crops and
trees
> 8 crops

Minimal disturbance
of soils

Integrate animals
into farming

Bio stimulants as
necessary
catalysts

Increase amount
and diversity of
organic residues

Indigenous seeds

Pest management
through better
agronomic practices,
botanical extracts

No synthetic
chemicals



1. Microbial Seed Coating



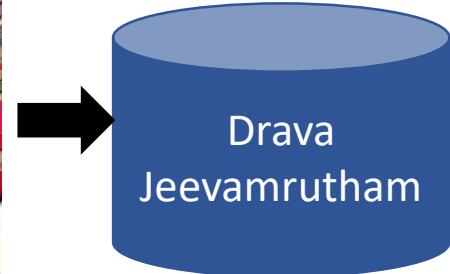
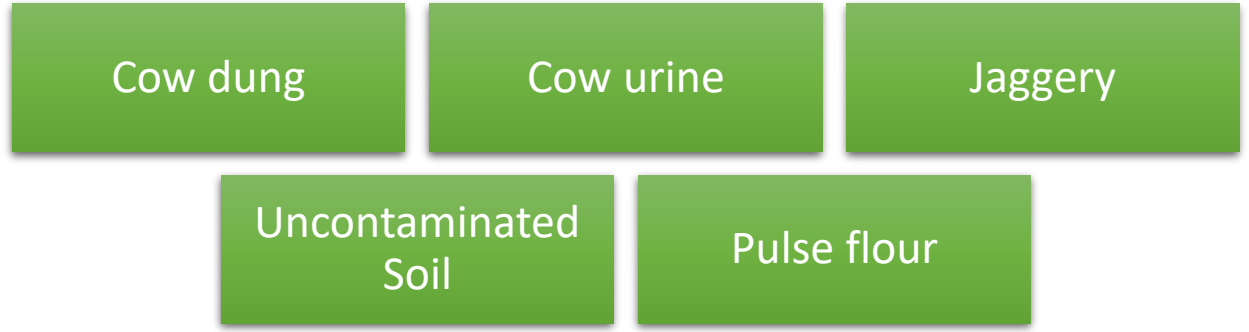
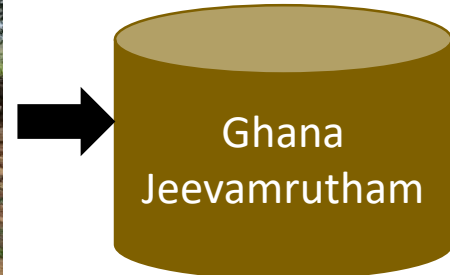
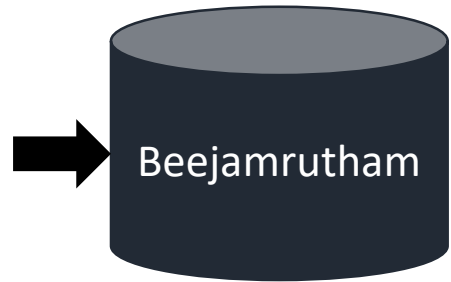
2. Soil Microbiome activation

Soil Microbial
enhancement –
Solid/ liquid bio
stimulant

Cow dung, cow
urine, jaggery,
uncontaminated
soil, pulses flour



Bio-stimulants - Locally made, cow-dung based formulations and botanical extracts



Andhra Pradesh Community-managed Natural Farming

Farming in harmony with nature | Safeguarding our collective future

Farmers' livelihoods

Food and Nutrition security

Youth welfare – Decent jobs

Environment
Enhanced soil health, water conservation, biodiversity.

APCNF Snap shot - Scaling 17 times in 4 years

40,656 farmers
704 villages

2016-17

163,000 farmers
972 villages

2017-18

523,000 farmers
3011 villages

2018-19

695,000 farmers
3011 villages
190,000 Ha
250,000 Kitchen Gardens

2019-20

10,50,000 farmers
3730 villages
340,000 Ha
700,000 Kitchen Gardens

2020-21

34% Villages
16% Farmers

25% Villages
10% Farmers

VISION – all 6 million farmers enrolled by 2027

Budget – Government schemes, philanthropies, borrowing through KfW

A.P.C.N.F IMPACTS

Cost of cultivation - significant reduction - NF costs are much lower than non-NF, across all crops

Yield differences are not significant between NF and Non-NF farms

Significant increase in net income for NF farmers

Independent Assessment

by Center for Economics and Social Studies (CESS)

- 3 seasons till now - 2018-19 (2 seasons) and Kharif 2019

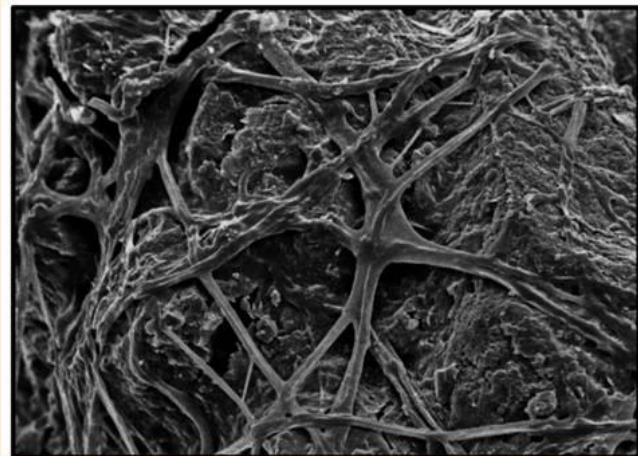
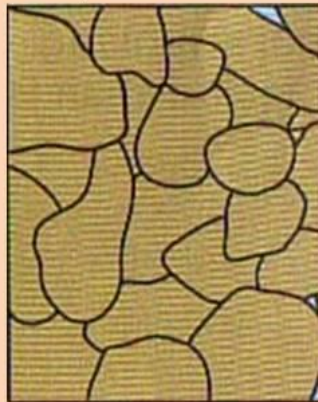


NF farms reported better soil health, crop health, resilience, bio diversity

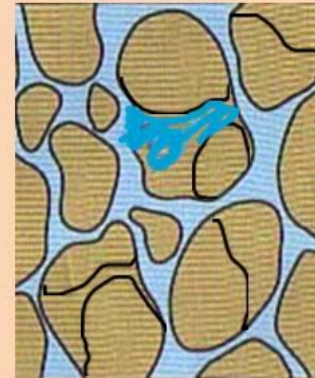
Harnessing water from the air... through natural farming

Soil aggregation

Non porous and non-permeable



Porous and permeable with connected pore spaces



Fungal hyphae, bacteria & root exudates glue together the soil particles
(Electron microscopic image)



Soil Aeration

- Water infiltration
- Water holding
- **Water vapour harnessed for irrigation**

rivers of water in the air – air in the tropics

contains 10 times the water in the rivers – upto 50,000 ppm

Anantapuramu – Conventional scenario

				Main Crop- Groundnut							
MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	JAN	FEB



Land kept fallow



Land kept fallow

0 income

Crop	Yields (In quintals)	Income (Rs.)
Groundnut	9	54000
Redgram	1	4500
Fodder	2 loads	4000

0 income

Gross income Rs 62500
Cost of cultivation Rs 19200
Net income **Rs 43300**

Semi arid district – 550 mm
 17 out of 20 years have been
 drought years

Distress migration a
 common feature

Keeping lands
 fallow further
 aggravates loss of
 soil fertility

Income ranges from
 – negative to
 20,000 a year
 during drought

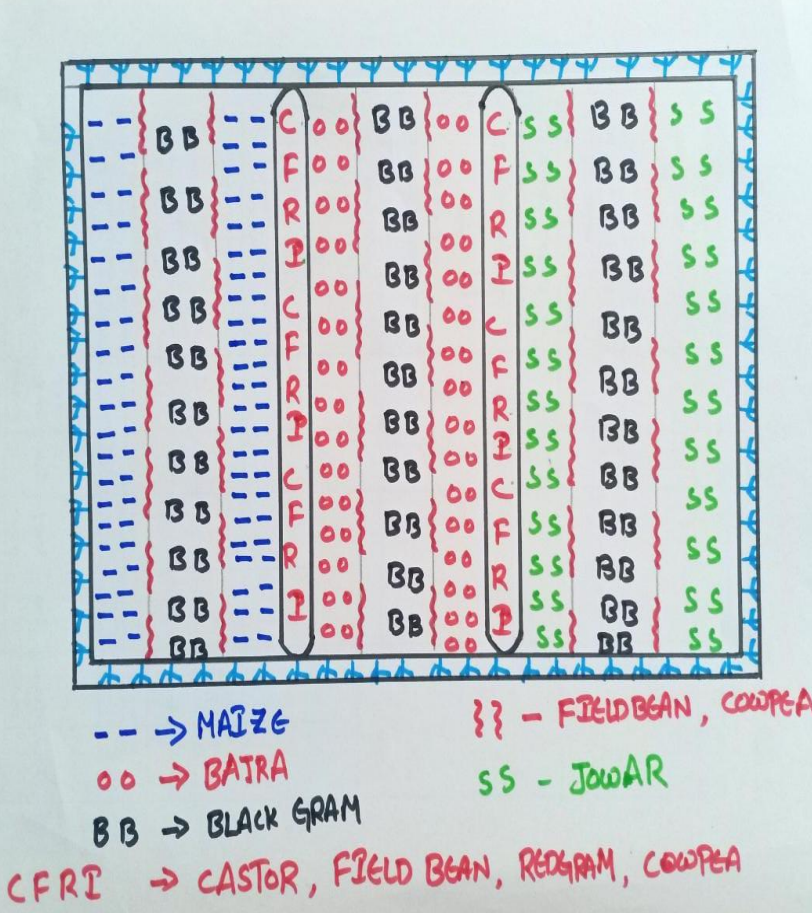
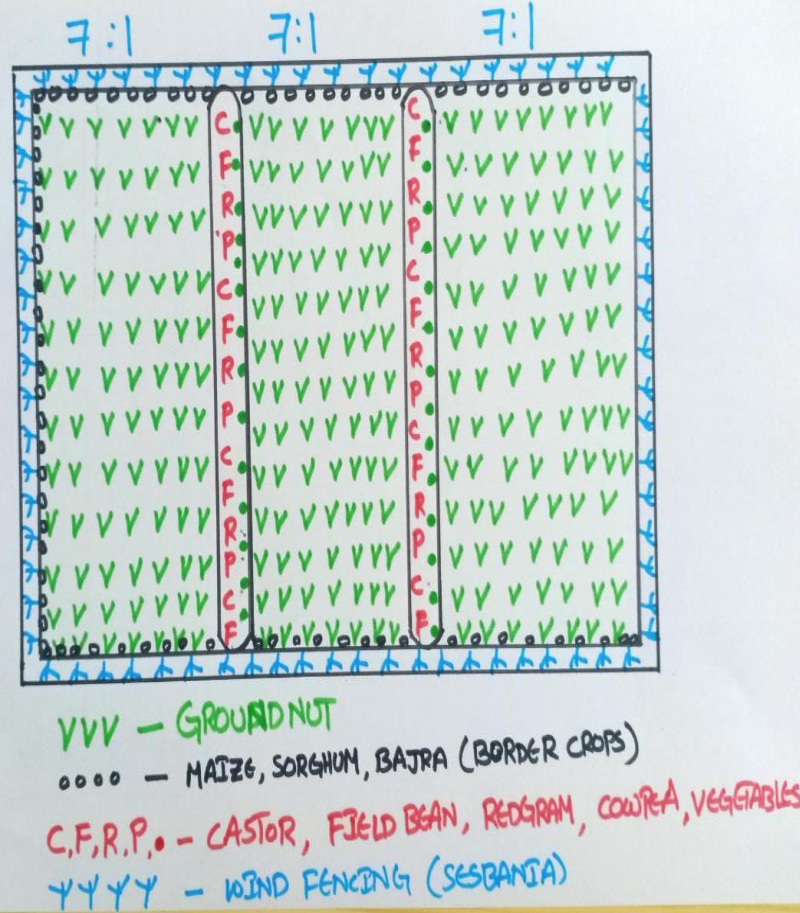
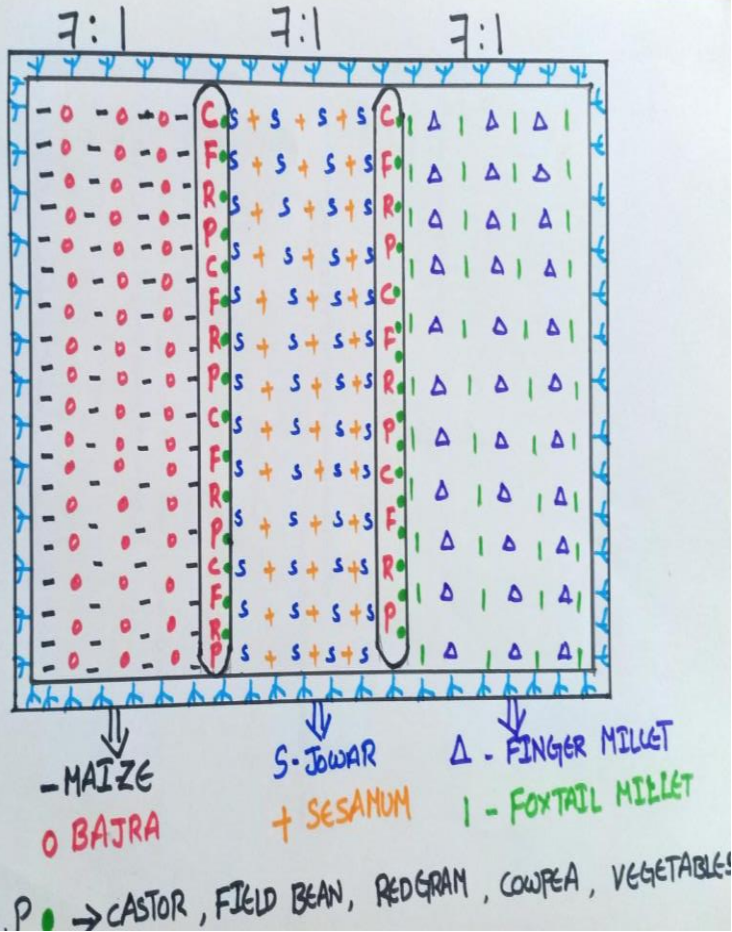
Anantapuramu - 365 Day Green Cover – even under low and irregular rainfall

Pre-monsoon Dry Sowing (15- 21 varieties of seeds sown)

Kharif – Groundnut integrated with PMDS

Rabi Dry Sowing (12-15 varieties of seeds sown)

MARCH APRIL MAY JUNE JULY AUGUST SEPT OCT NOV DEC JAN FEB



Anantapuramu – 365 Days Green Cover

Pre-monsoon Dry Sowing (15- 21 varieties of seeds sown)			Kharif – Groundnut integrated with PMDS				Rabi Dry Sowing (12-15 varieties of seeds sown)				
MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	JAN	FEB
Crop	Yields (In Quintals)	Income (Rs.)	Crop	Yields (in Quintals)	Income(Rs.)	Crop	Yields (In Quintals)	Income (Rs.)			
Jowar	1.6	3200	Groundnut	9	54000	Maize	4	6000			
Sesamum	0.5	4000	Castor	1	4000	Bajra	2	6000			
Korra millet	0.6	1500	Field bean	1	6000	Jowar	2.5	5000			
Bajra	1	3000	Cowpea	1	4000	Black gram	1	8000			
Maize	3	4500	Fodder	2 loads	8000	Field bean	1	6000			
Cowpea	0.5	2500				Red gram	1	4500			
Vegetables	-	2500				Vegetables	Own consumption	0			
Fodder	2 loads	4000				Castor	0.5	2000			
						Fodder	2 Loads	4000			

2nd crop Gross income Rs 76000
 Cost of cultivation Rs 17400
Net income Rs 58600

1st crop Gross Income Rs 25200
 Cost of cultivation Rs 9200
Net income Rs 16000

Gross income Rs 41500
 Cost of cultivation Rs 9200
Net income Rs 32300

TOTAL NET ANNUAL INCOME
 365DGC - **Rs 106900**
 Conventional Situation - Rs 43300

Farmer: Mallikarjuna,
 Basampalli – 2019 -20

Critical Innovations in APCNF programme

Formation of separate department of Natural Farming

Govt. Convergence

- Rural development
- Women and child development
- Tribal welfare
- Energy
- Water resources
- Education etc.

State
Government
Ownership

Extension
Champion
farmers

Ownership
of Women
SHGs

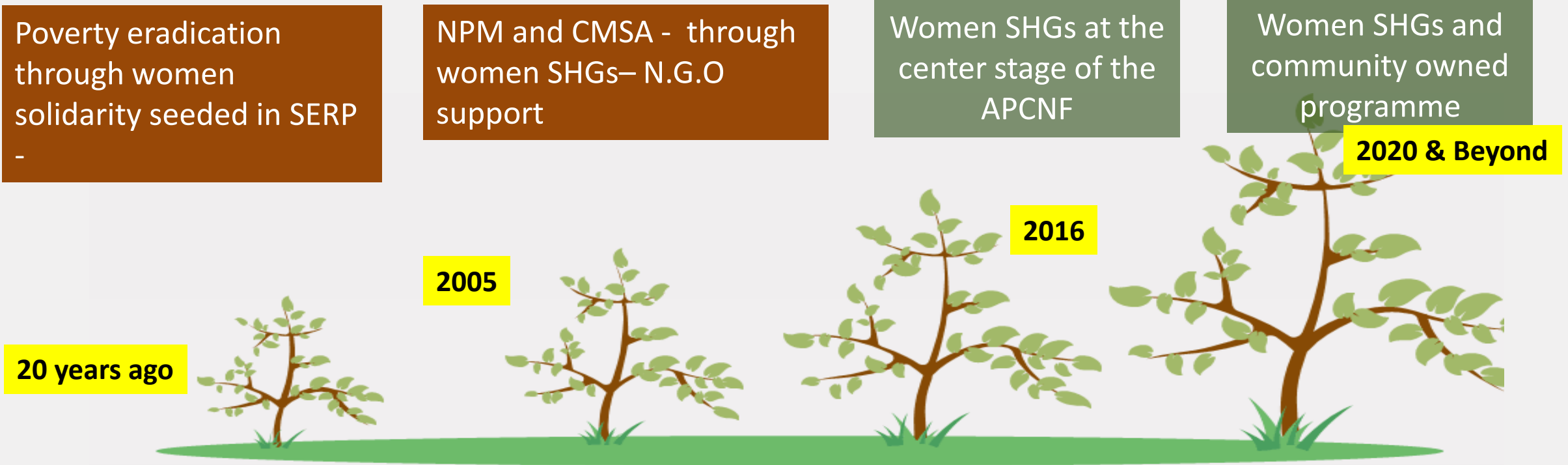
Knowledge
and
Research

Saturation: Farmers » Farms » Practices



Knowledge intensive agriculture – not input intensive

Women as Social Capital– Mobilization of Women in A.P - A Programme since 2000



Women SHGs led APCNF Programme at a glance



Women in Natural Farming: Our biggest Strength



Programme
Management,
transparency

Collective
Action

Peer Learning

131,672 women SHGs and their 5491 Federations are in charge

Farming Plans,
and,
consumption
plans

Inclusive of
the poorest



Farmer 'heroes' central to the programme

A Knowledge intensive and not input intensive programme

Most effective dissemination is "farmer to farmer"

Best practicing farmers, Community resource persons (CRPs) engaged to take NF to other farmers.

APCNF identifies such champions in the community and capacitate them



Inspiration

Knowledge Transfer

Handholding

Video Dissemination

Farmer Field Schools

6500 Community Resource Persons @ 1/100 farmers

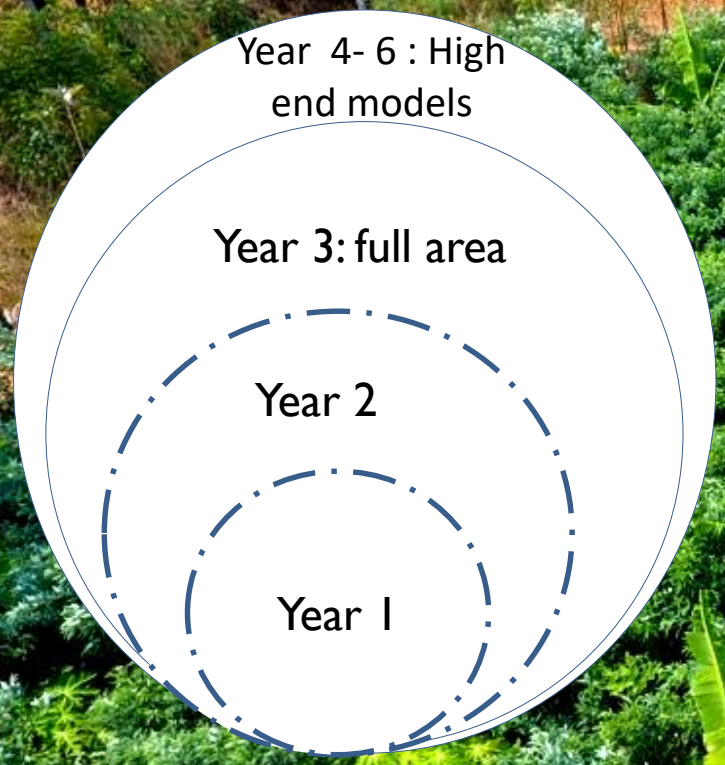
150 Young Agriculture Graduates as Natural Farming Fellows

Changing a farmer means changing entire village

All Villages All Farmers All Farms All Practices

Farmer Transformation

Village Transformation



Managing this transition is critical for scaling

Each farmer takes 3-6 years to cover the entire holding.

5% to 15% farmers
Year 1

30 - 50% farmers
Year 2

50 to 80% farmers
Year 3

100%
In 5 years, a village becomes a 'BIO-VILLAGE'
Year 5

Knowledge intensive programme – supported by strong digital backbone

Areas of ICT Application

CNF Core Activities

ICT based Extension System

Farmer/Cadre Verification

Financial Management

Human Resource Management

Soil health monitoring

Type of data collected

Demographic data

Land and Crop data

Farming practices

Farmer/Village Institutions

Crop Cutting Experiments

Extension activities

Farm verification data

Health and Nutrition

Research Activities



Mobile Applications

Farmer and Farm Registration

ZBNF Market Place (Under progress)

Cadre monitoring

Traceability

Farmer/Cadre Verification

Extension

Digital Partnerships in the programme



Extension videos

Training to field staff on dissemination through pico projector

Produced 500+ videos on various thematics

Video resource Persons from community to plan, develop, shoot and edit their own content

Location Details	
District	Vizianagaram
Mandal	Salur
Cluster	Mamidipalli
GP	Mamidipalli
Village	-
Habitation	-
Uploaded by	
Name	Donka Govinda
Designation	ICRP
Date	20-07-2019
Mobile Number	9491572776

Activity Info.	
Shg group details	Srimanikanta(5), Srimathamahilasangam(5)
1	NA
2	Preparation of Dravajeevamrutham

Radhika Bora
9346624781

18.61082479-83.17775179
20-07-2019 20:39:07



Developing Science behind NF through ICT

GPS Navigation

Land Degradation Surveillance Framework

Use open data kit, a mobile device to track the sites

Generate odk files with a questionnaire and all land use history

GIS maps generated for each site

The MiR spectroscopy using alpha with ICT technology help to generate soil analysis

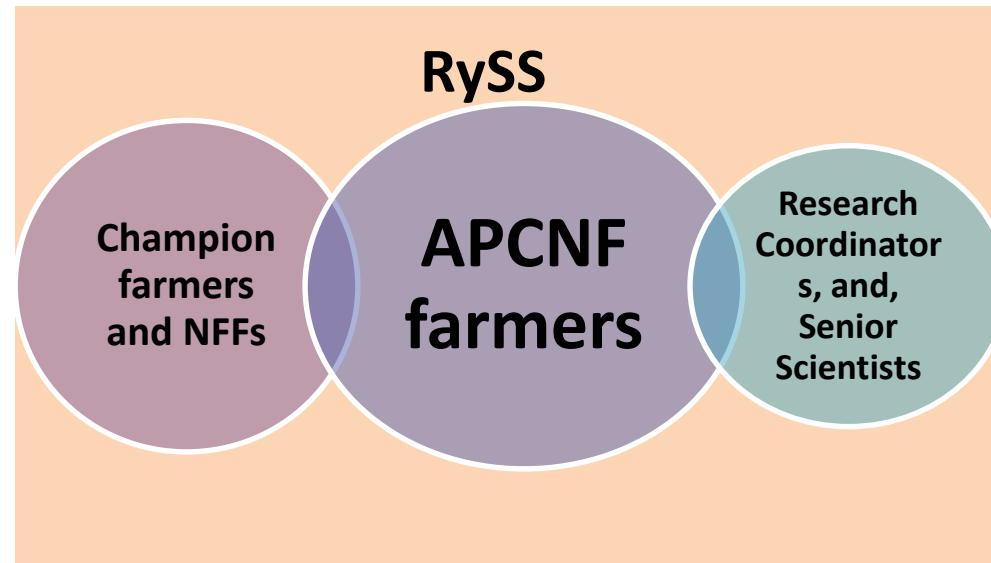
Collaboration for developing Natural Farming Science



University of Reading

**Walter Jehne –
Regenerate
Earth, Australia**

**National
Institutes -
CEEW, CSTEP**



Other potential Partners

1. GEF, IUCN, Rainforest Alliance
2. Climate Land Use Alliance, USA
3. TUFTS College, Fletcher School, USA
4. Indian Institute of Farming Systems Research (IIFSR)
5. Central Research Institute for dryland agriculture (CRIDA)

Categories of research

Socio-economic impact

Social networks action research

Soils

Water

Biodiversity

Health and Nutrition

Agronomical analysis

Farming systems

National and International Collaborations

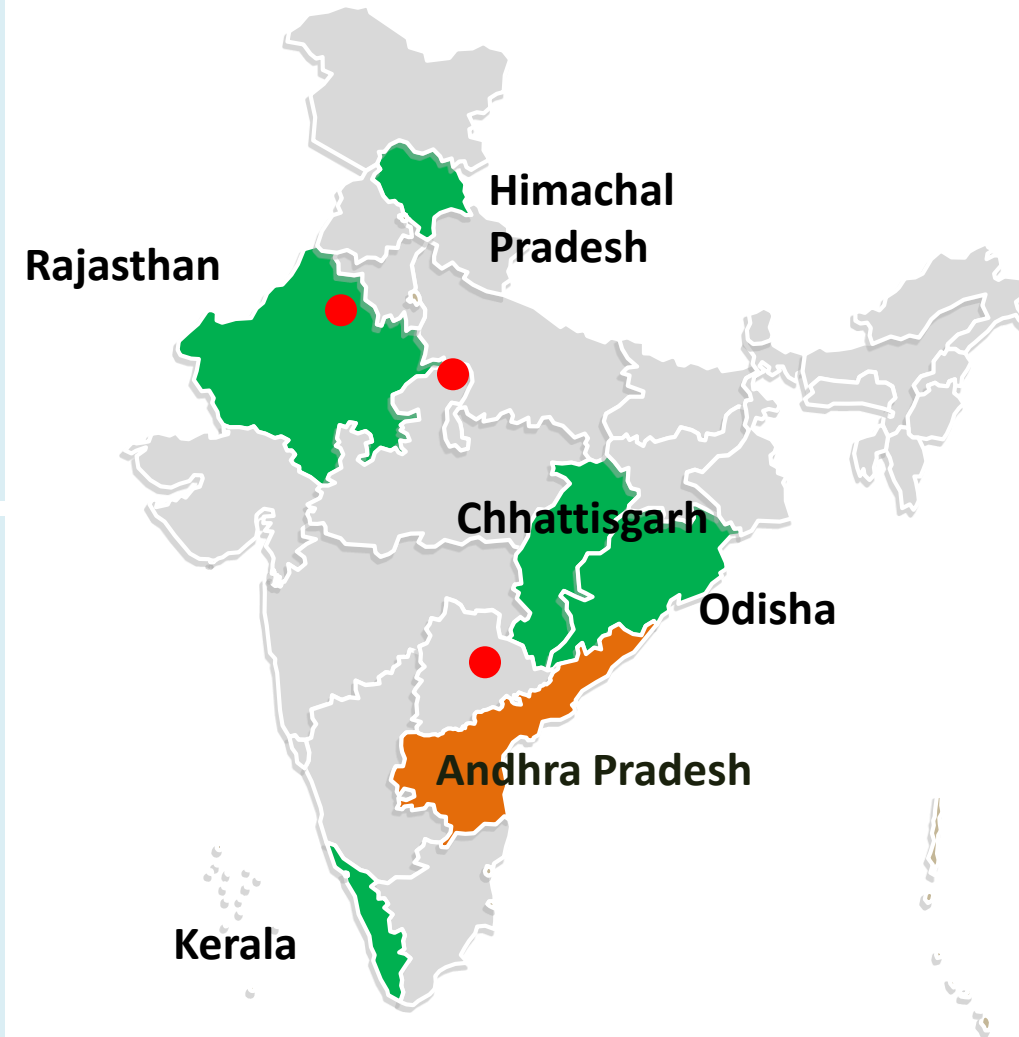


Partnerships with countries on Agro-ecology

- Government of Rwanda
- Government of Kenya
- CONABIO – Mexico
- The Alliance for food Sovereignty in Africa - AFSA

Partnerships with states and NGOs on Agro-ecology

- National Resource organization to NITI Aayog on Natural Farming
- Co-founder National Coalition for Natural Farming
- Support to state governments and national civil society institutions



● NGOs in Rajasthan and Bundelkhand and Tribal Welfare department in Telangana