

# APCNF – farmers' livelihoods, health of citizens, planetary health and securing our common future



**Andhra Pradesh Community Managed Natural Farming (APCNF)**  
**Vision 2031 - all 6.0 million farmer households, and 2.0 million farm worker households**

Vijay Kumar Thallam, Executive Vice Chairman, RySS  
and Spl C.S, Natural Farming, Agriculture Dept, Govt of Andhra Pradesh, INDIA

# APCNF programme – a people's movement



**86% - small and marginal farmers.**  
**1 ha per capita**

40,656 farmers  
704 (v)

**2016-17**

480,000 farmers

3730 (v)

220,000 Ha

**2020-21**

**Whole village concept – all farmers and all farms**

27% of villages  
**12% of farmers**  
4.8 % of area

**630,000**

farmers

3730 (v)

290,000 Ha

**2021-22**

27 % of villages  
14 % of farmers  
6.3 % of area

**851,000**

farmers

3730 (v)

378,000 Ha

**2022-23**

**Target**

**31 % villages**  
**20 % of farmers**  
**8.3 % of area**

**1,200,000**

farmers

4260 villages

500,000 Ha

**2023-24**

**Largest Natural farming programme in the country, in terms of farmers enrolled.**

**Funds: Govt – PKVY, NMNF, KfW loan**

**Grants:**

**1. Azim Premji Philanthropy**

**2. Co Impact**

**Transition of a farmer – 3 to 5 years**  
**No cash incentives during transition, and, no promises of market premia after transition**

# APCNF Implementation – the key levers

**Government**  
support and  
advocacy –  
resources and  
implementation

**Knowledge** – the  
Science of NF, POPs,  
videos, etc  
**Innovations** from the  
field and continuous  
learning

**Social capital -  
Women SHG s** and  
federations

**Human capital**  
**Farmer to farmer** –  
extension system,  
Knowledge intensive

**Facilitating  
organizations** –  
Govt., NGOs and  
C.B.Os

**Research**  
**Collaborations** with  
Global and National  
institutions and  
Scientific experts

# Farming in harmony with nature – 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.

Nature's Sophisticated  
Carbon Capture Mechanism

*How did nature create and sustain soils, over millions of years? Nutrient Cycling in Nature*

**PLANT CONVERTS**

**SUNLIGHT, WATER and CO<sub>2</sub> into SUGARS**

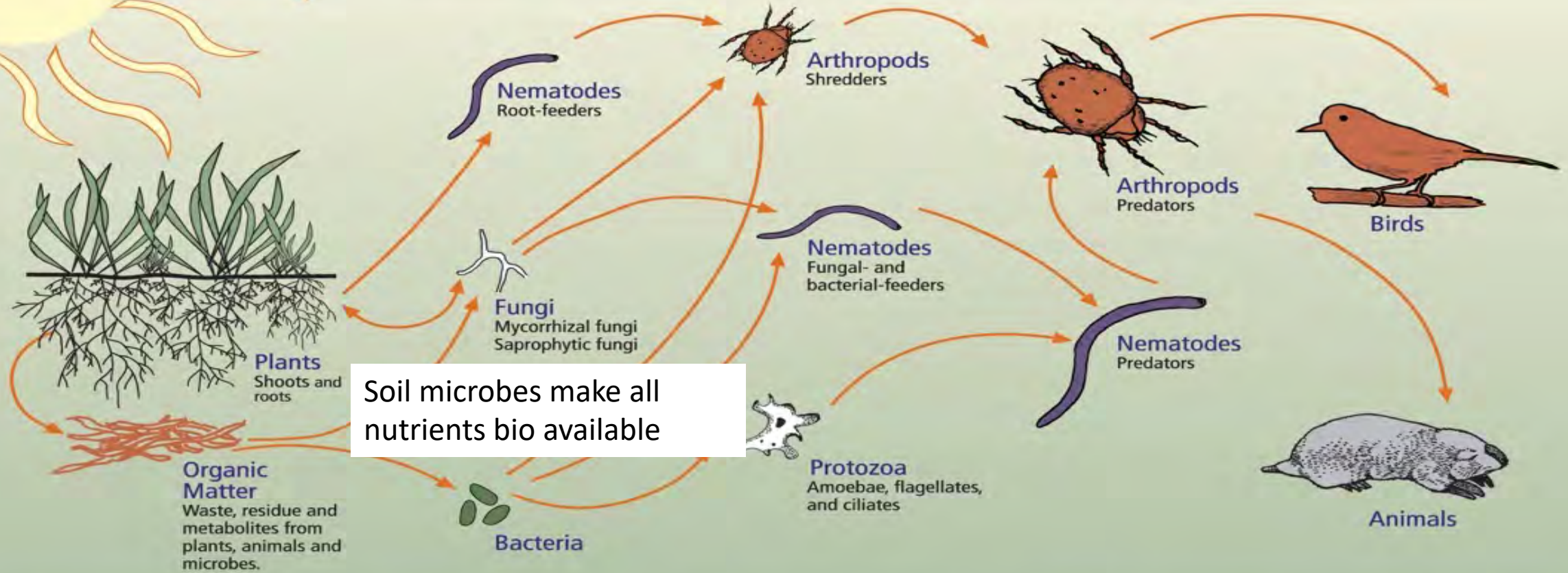
**40% of Plant Sugars stored  
in Above Ground Biomass**

**30% of Sugars stored in Roots**

**30% of Sugars moves into  
the Soil as Exudates,  
feeding vast microbial  
population**

Image courtesy: Natural Resources SA Murray-Darling Basin YouTube channel

# The Soil Food Web



First trophic level:  
Photosynthesizers

Second trophic level:  
Decomposers  
Mutualists  
Pathogens, Parasites  
Root-feeders

Third trophic level:  
Shredders  
Predators  
Grazers

Fourth trophic level:  
Higher level predators

Fifth and higher trophic levels:  
Higher level predators

Nature's Sophisticated  
Carbon Capture Mechanism

## Nutrient Cycling in Nature

1. Efficient nutrient absorption mechanism
2. Mycorrhiza and other microbes create soil structure
3. Increase in soil porosity
4. Greater water holding(+1 gm carbon -> +8 gm water)
5. Soil carbon sequestration

40% of Plant Sugars stored  
in Above Ground Biomass

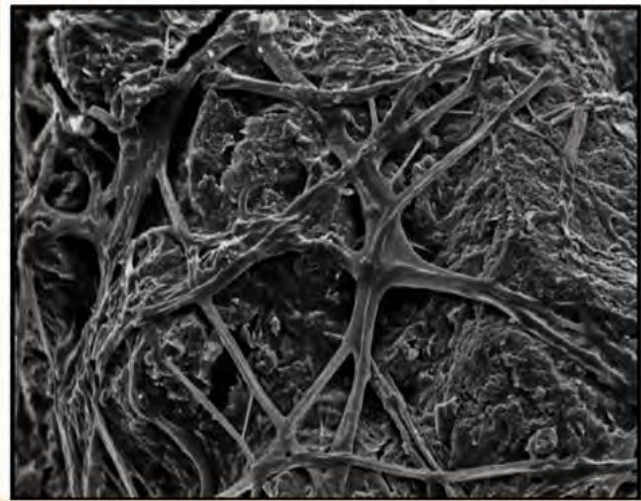
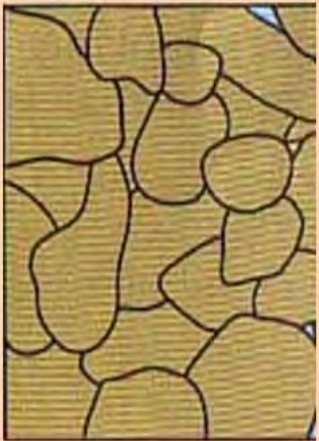
30% of Sugars stored in Roots

30% of Sugars moves  
into the Soil as  
Exudates, feeding vast  
microbial population

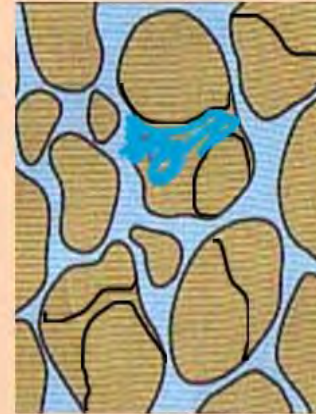
# Soil structure and water conservation - building sub soil reservoirs

## 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 harvested for irrigation**

# Universal Principles of Natural farming



**Mimicking  
Nature**

- 1 Soil to be covered with crops 365 days, (Living root principle)
- 2 Diverse crops , 15 – 20 crops, include trees
- 3 Keep soil covered with crop residues, whenever living plants are not there
- 4 Minimal disturbance of soils – minimize tillage
- 5 Farmers' own seeds to be used. Indigenous seeds preferred
- 6 Integrate animals into farming
- 7 Bio stimulants as catalysts to trigger soil biology
- 8 Pest management through better agronomical practices and botanical pesticides

**9. No synthetic fertilizers, pesticides, herbicides, weedicides**

## **Photosynthesis – maximization:**

1. 365 days green cover
2. Crop diversity – diverse plant families
3. Incorporate trees in the landscape

## **Soil**

1. Covered for 365 days – living crops or crop residue mulch
2. Soil structure to be maintained – no tilling or minimal tillage

**Seed** : (core microbiome, endophytes, rhizophagy cycle )

1. Own seed
2. Indigenous seed

## **Biostimulants for biological activation at every stage of the plant growth :**

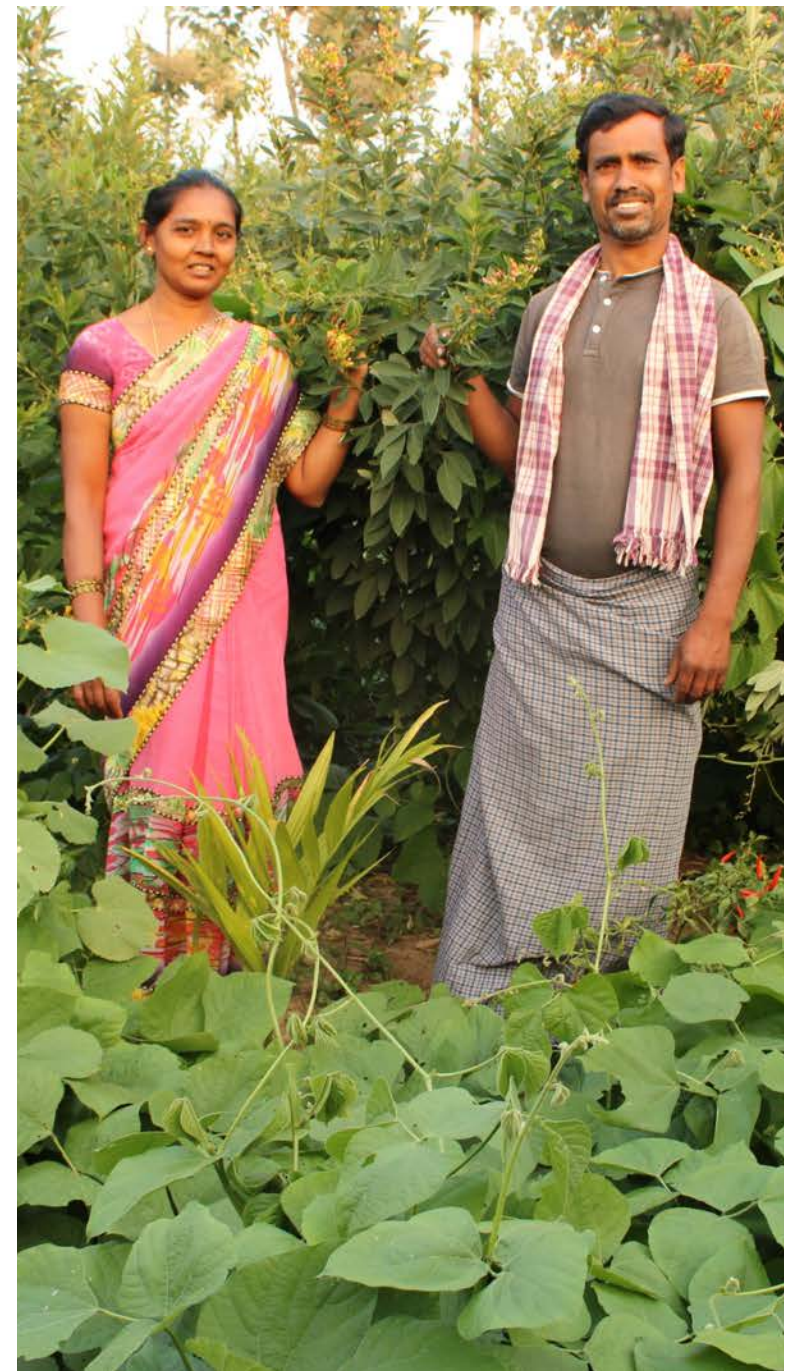
1. Seed treatment
2. Soil amendment/ Sowing of the seed
3. Plant growth
4. Flowering and fruiting
5. Pest management



## Crop diversity – poly cropping

Crop diversity is an integral part of the APCNF system.

- **Resilience** from vagaries of weather
- **Reduces** risks, surplus income
- Provides **nutrition diversity**
- **Strengthens** soil structure



# Microbial seed coating - Beejamrutham



Cow dung – 2 kg

Cow urine – 2 liters

Lime – 40 grams

Handful of chemical free soil

Water – 20 liters

## Ingredients



Step 1

Wrap the cow dung in a cloth and submerge in water and let it soak for 12 hours

Squeeze the cloth after 12 hours, add lime, chemical free soil. Mix well in clock wise direction



Step 2

Spray the concoction on all seeds and ensuring each seed is coated by it before sowing



Step 3

# Soil Microbial enhancement - Bio stimulant - Ghanajeevamrutham



## Ingredients

Cow dung - 100 kg

Jaggery - 1Kg

Pulse flour- 1 kg

Cow urine - 10 liters

Hand full uncontaminated soil



Step 1

Mix all the ingredients properly



Step 2

Make cakes and shadow dry for 5 – 7 days for fermentation



Step 3

Apply these cakes in the field at the time of sowing the crop

# Soil microbial enhancement – Liquid biostimulant - Dravajeevamrutham



## Ingredients

Cow dung- 100kg

Cow urine- 3-6  
ltrs

Pulse flour- 2 kgs

Jaggery – 2 kgs

Water- 200 ltrs

Hand full of  
uncontaminated  
soil



Step 1

Add all the ingredients and mix  
twice a day



Step 2

Keep it fermented for 5 – 7 days. The colour and smell changes.  
Keep mixing it in between



Spraying of Dravajeevarutham in the field

# Pest management through botanical bio stimulants and mechanical devices



Preparation of *kashayams*  
(bio-innoculants for pest  
management prepared from  
local ingredients)



Yellow and blue  
sticky traps

# Seed Pelletization: Critical part of Summer sowing, PMDS



Navdhanya seed mix, consisting of 9 pulses and legumes

**Seed pelletization:** Seeds are coated with a mixture of sifted GJM, field soil, ash, with sprinkling of water.

The resulting pellet is 5 to 10 times the size of the original seed.

The seed pellet protects the seed, allows for moisture retention and favorable conditions for seed germination

The image below: process of pelletization. It is a snapshot of a YouTube video which demonstrates the same.



# Women in Natural Farming: Our biggest Strength



Programme  
Management,  
transparency

Collective  
Action

Peer Learning

**7550** village SHG federations, **202,000** women SHGs with a membership of **1,880,000** women 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.

'Teaching by doing' and 'Learning by doing'



Inspiration

Knowledge Transfer

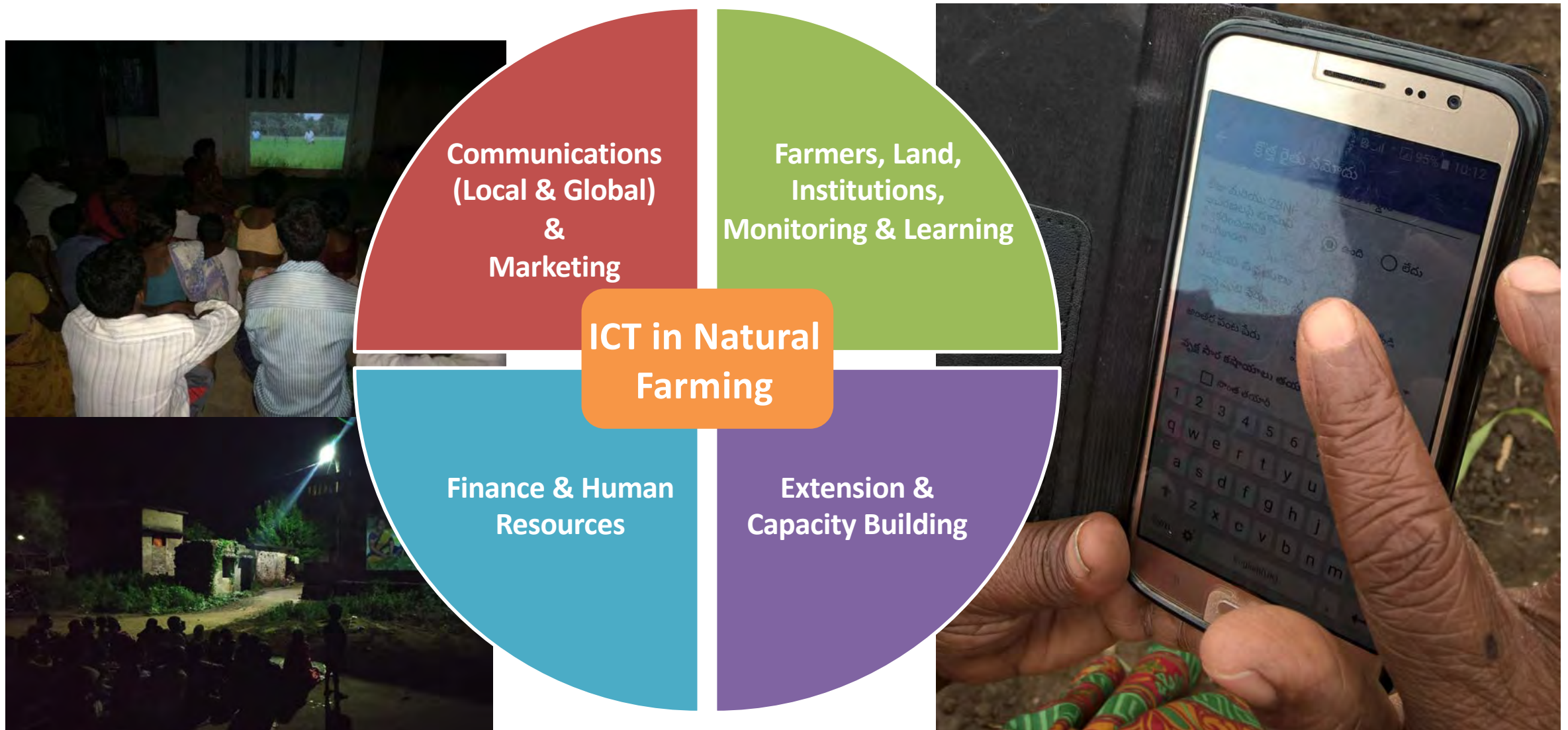
Handholding

Video Dissemination

Farmer Field Schools



10,000 Community Resource Persons @ 1/100 farmers



**Data Collection**

**Data Management**

**Data Analytics**

**Decision Making**

**Information & Communication Technologies (ICTs) in Natural Farming**

# Changing a farmer means changing entire village

All Villages

All Farmers

All Farms

All Practices

Farmer Transformation

450 farmers in a Village

Village Transformation

Year 5 : High end models

Year 4: full area

Year 2

Year 1

Each farmer takes 5 years to cover entire holding.

Transformation Cost to cover 85% farmers and over 85% area is @ Rs. **15000/farmer** over 0+7 years

10 -15% farmers

Year 1

35- 50% farmers

Year 2

>80% farmers

Year 3

100%

In 5 to 8 years, a village becomes a 'BIO-VILLAGE'

Year 8

# APCNF 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 I.D.S

8 seasons till now - 2018-19 (2 seasons) and 2019 – 20 (2 seasons) , Kharif 2020 and Rabi 2020-21 ( 2 seasons) and Kharif 2021 and Rabi 2021-22 ( 2 seasons)



NF farms reported better soil health, crop health, resilience, economic empowerment of farmers and dignity of labor.

The report also mentioned that APCNF has higher potential for expansion of extension services by way of increasing CRPs at the village level

# Summary Results For Kharif 2021-2022

Crop	Yields (quintals/ hectare)			Gross Income on Output (₹/hectare)			Paid out Costs (₹/hectare)			Net returns (₹/ hectare)		
	CNF	Non- CNF	% Change	CNF	Non-CNF	% Change	CNF	Non- CNF	% Change	CNF	Non- CNF	% Change
Paddy	45.89	39.12	17	99,612	88,491	13	54,173	65,659	-17	45,439	22,832	99
Groundnut	16.35	15.64	5	71,529	45,850	56	50,933	55,113	-8	20,596	-9,264	*
Cotton	12.61	11.53	9	84,581	81,358	4	53,957	73,770	-27	30,624	7,588	304
Red gram	6.07	4.78	27	54,163	43,305	25	31,490	28,382	11	22,673	14,923	52
Chillies	26.31	26.91	-2	310,419	282,723	10	99,240	123,301	-20	211,179	159,422	32
Ragi	12.19	9.01	35	133,854	89,359	50	43,746	44,341	-1	90,107	45,018	100
Tomato	186.7	133.45	40	220,781	1,60,673	37	71,805	100,892	-29	148,976	59,780	149

\*In view of negative net income on output in non-APCNF, percentage change over CNF is inappropriate.

Source: IDSAP, Field Survey 2021-22

NF farmer – 2.2 years experience

\* CNF sample HH-1380, Non - CNF sample HH -974

\*\*CNF CCEs - 470, Non - CNF CCEs - 263

Summary Results For Rabi 2021-2022												
Crop	Yields (quintals/hectare)			Gross Income on Output (₹/hectare)			Paid out Costs (₹/hectare)			Net returns (₹/hectare)		
	CNF	Non-CNF	% Change	CNF	Non-CNF	% Change	CNF	Non-CNF	% Change	CNF	Non-CNF	% Change
Paddy	59.7	60.31	-1	108,810	1,09,362	-1	52,350	62,474	-16	56,460	46,888	20
Groundnut	24.1	26.41	-9	154,440	1,66,556	-7	59,202	62,293	-5	95,238	104,263	-9
Bengal gram	19.9	7.24	175	110,131	36,948	198	31,761	32,651	-3	78,370	4,297	1724
Black gram	14	10.71	31	94,697	68,747	38	19,312	32,098	-40	75,385	36,649	106
Maize	52.7	45.36	16	115,581	96,690	20	48,808	48,538	1	66,773	48,152	39
Source: IDSAP, Field Survey 2021-22							NF farmer – 2.2 years experience					
* CNF sample HH- 1145, Non - CNF sample HH - 737							*CNF CCEs - 465 , Non - CNF CCEs - 288					



**Increased beneficial insects, butterflies, and bees**





Increased Birds presence in APCNF farm

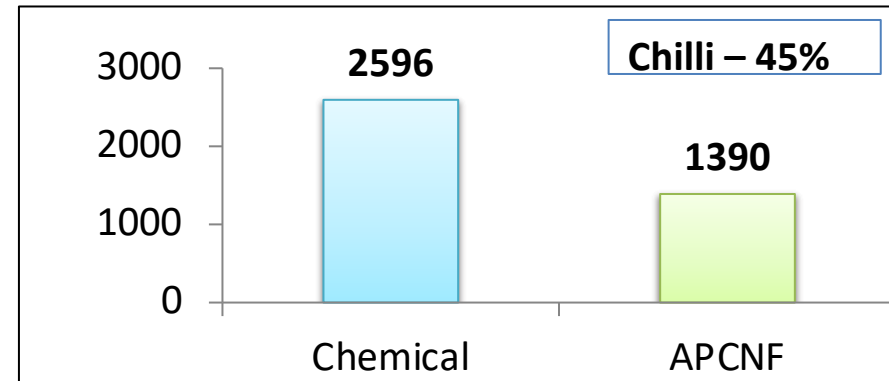
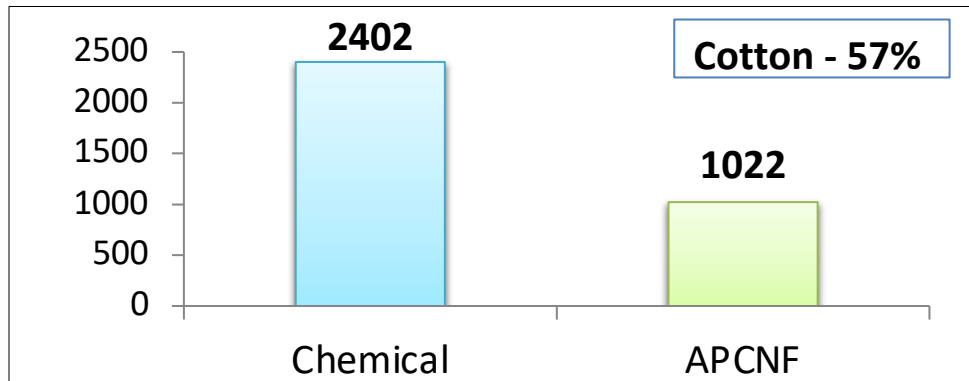
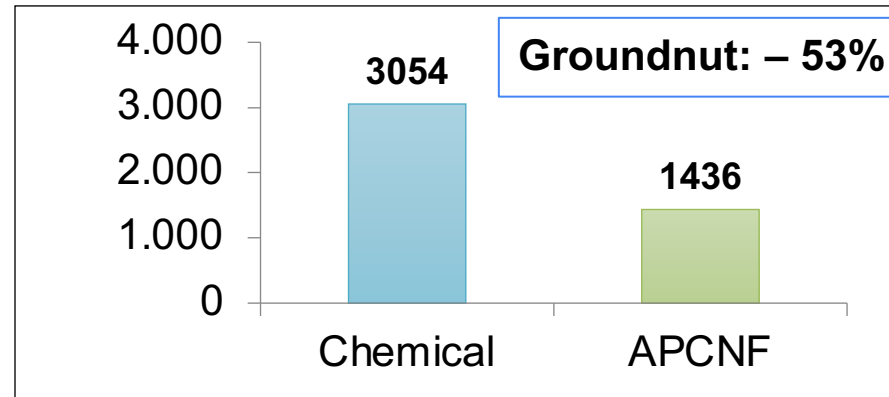
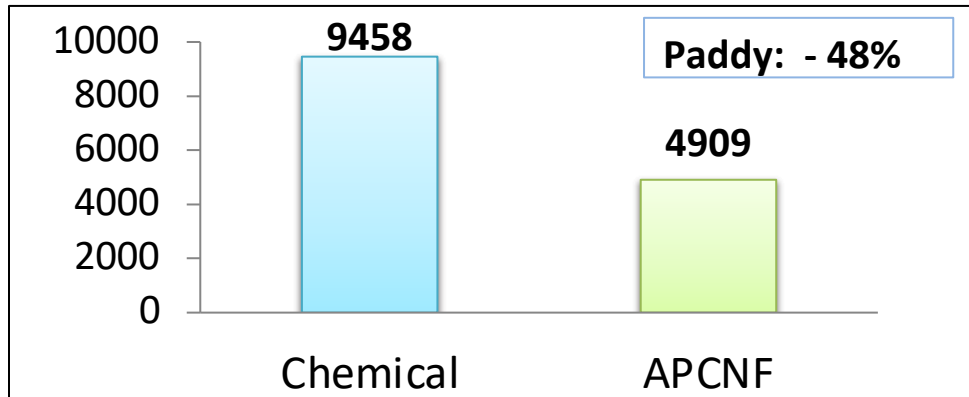




Increased Earthworms



## Water consumption in one cropping cycle 2020-21 (RySS – internal study)



External independent studies:

1. ASCI – Core Carbon X

2. WALAMTARI Ministry of Water Resources

Y-axis = Water consumption in kilolitre

An aerial photograph showing two adjacent rice plots. The plot on the left is labeled 'CONVENTIONAL CHEMICALLY FARMED PLOT' and shows significant damage, with rice plants bent over and some areas appearing washed out or covered in debris. The plot on the right is labeled 'NATURAL FARMING PLOT' and shows much healthier, more upright rice plants. A thin vertical line separates the two plots. In the background, there are some trees and a distant shoreline under a clear sky.

## Resilience to floods:

NF Farmers have experienced less damage compared to other farmers  
December 2023 –  
MICHUANG CYCLONE

**CONVENTIONAL  
CHEMICALLY FARMED  
PLOT**

**NATURAL FARMING  
PLOT**



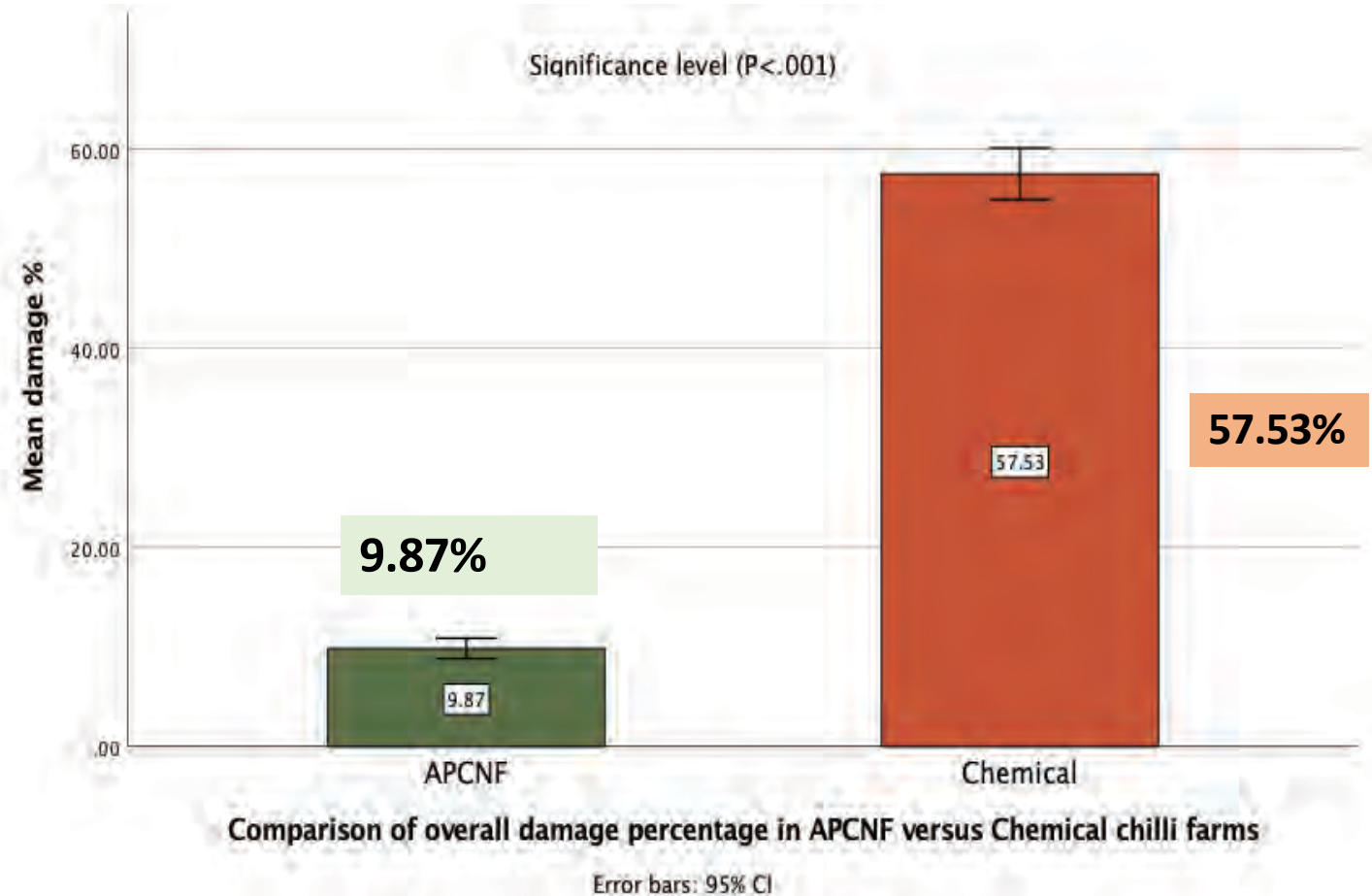
**Greening the desert**  
**Drought proofing through**  
**Natural farming - just 3 months**  
**of intervention**



Percentage damage in chilli crop in APCNF versus Chemical crop :  
Due to Thrips infestation

- Number of farmers surveyed : 143 in Guntur and Prakasam
- APCNF farms : 70
- Chemical farms : 73
- The average proportion of damage in APCNF farms is **just 10 %**, compared to conventional farms, where the average percentage of damage is substantial - 57 %

## Resilience to pest attack



# Food and Nutrition diversity

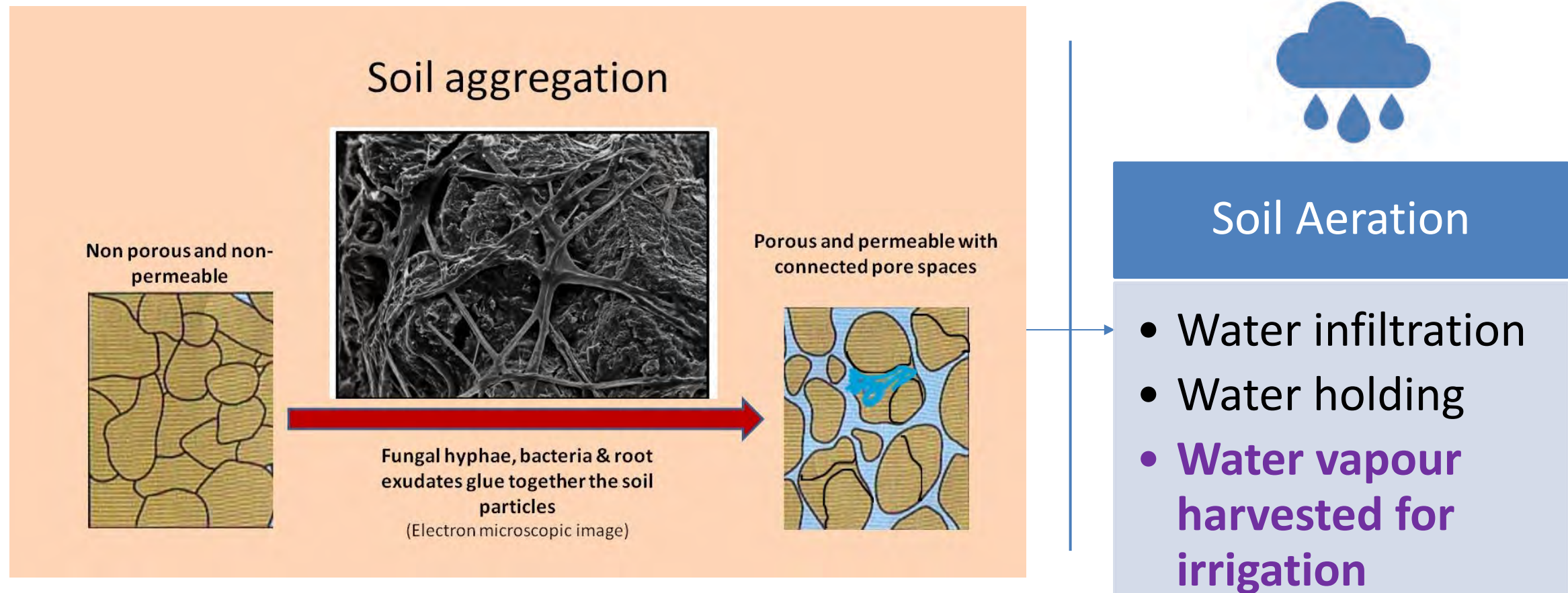
Aim to include 5-7  
food groups in the  
household diet

Universal coverage strategy  
**Focus on landless,  
farmworkers**



**Homestead gardens – Mini food forest in one's own backyard**

# NF - a possible solution to the global water problem and reversal of desertification



Rivers of water in the air – in tropical countries, air contains 10 times the water in the rivers – upto 50,000 ppm. Natural farming is enabling plants to harness this water vapour



**16<sup>th</sup> Nov 2019 - Mr. Walter Jehne, Soil- Microbiologist, Australia, visiting the PMDS field**

# Climate change resilience through natural farming

---

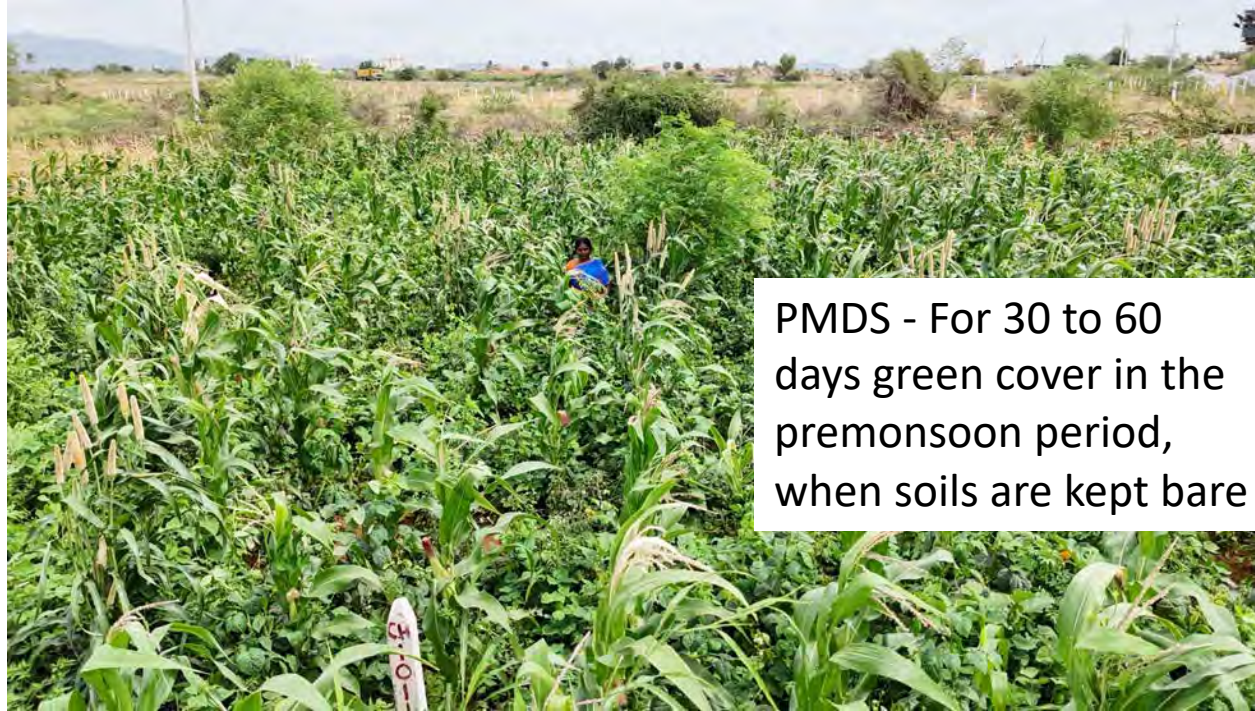
**April 2023 – PMDS + 365 days green cover – Maize model :**

**<https://youtu.be/kZ9WZJImuU8>**

**December 2023 : Resilience to Cyclone Michaung**

**<https://www.youtube.com/watch?v=bdXCp1scSAw>**

# Scaling up of Pre – Monsoon Dry Sowing breakthrough – harnessing water from the air



	PMDS 2018	PMDS 2019	PMDS 2020	P.M.D.S 2021	P.M.D.S 2022
Number of farmers	11 (Pilot)	21,635	103,340	348,000	600,700
Area covered (in acres)	11 acres	13,068	80,409	353,000	608,700

# 3 crops in an year in semi arid, dry lands

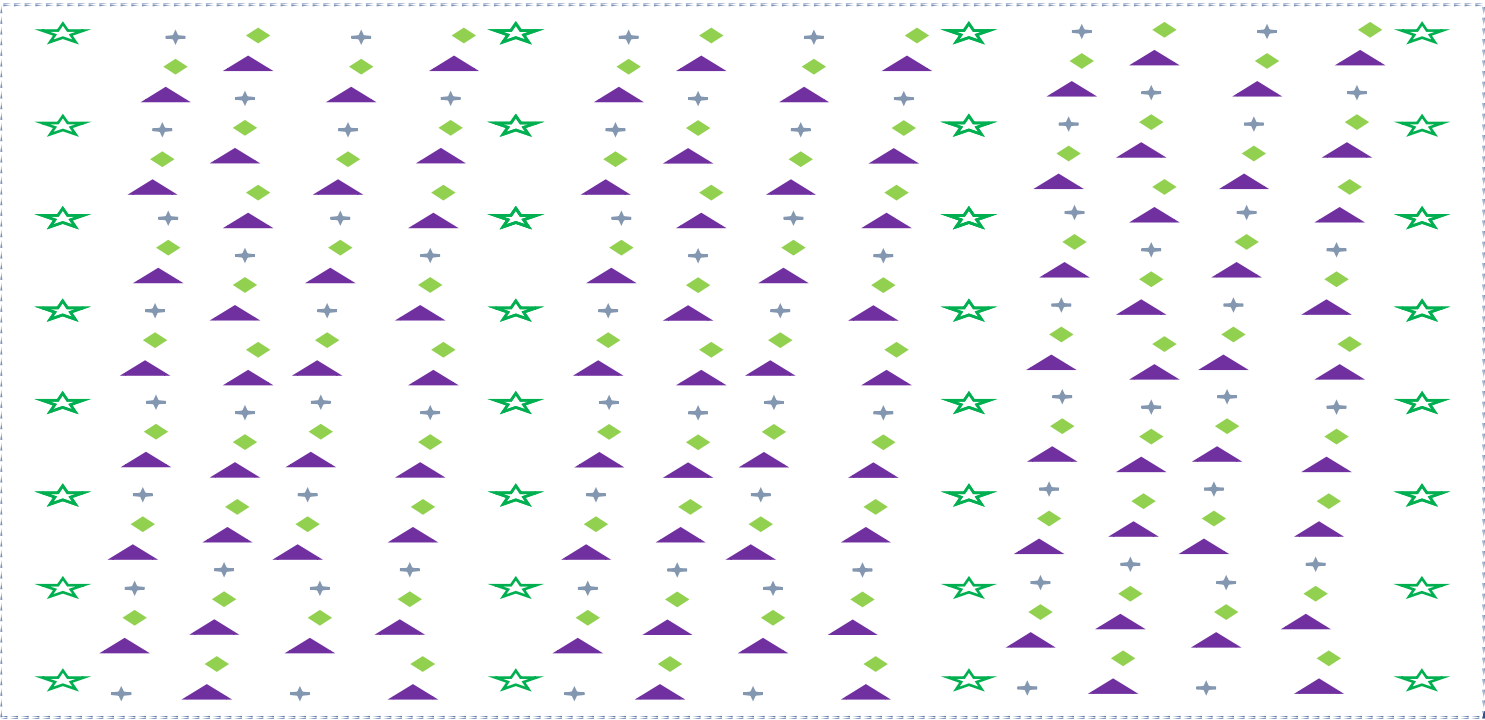
## Ananthapuramu District Cropping Pattern based on Agro Ecological Zones

Agro Ecology zones		Aprl	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
		PMDS Window				Kharif window				Rabi Window				
Redsoils	I	Millets and pulses other 22 types crops				Groundnut & other 21 types crops				Vegetables & others 35 types				
Blacksoils	I	Millets and pulses other 22 types crops			Cotton /Bengalgram & 21 types crops						Vegetables & others 35 types			


COTTON ‘A’ GRADE MODEL


COTTON, COWPEA, PEARL MILLET, CLUSTER BEAN


GREENGRAM, OKRA, CASTOR





**LEGEND**


 COTTON


 COWPEA

 PEARL MILLET

 CLUSTER BEAN

 GREENGRAM

 OKRA

 CASTOR

COTTON A-GRADE MODEL				
Crop Geometry and Seed rate (June to September)				
S N O	Name of the crop	Crop Geometry Spacing (cm)	Seed Rate (Kg/Acre)	Duration
1	Cotton	60 x 150	0.800	Perennial continued
2	Cowpea	30 x 30	3.00 to 5.00	90 days
3	Pearl Millet	30 x 30	1.600	90 days
4	Cluster bean	30 x 30	4.000	120 days
5	Okra	120 x 120	1.00 to 1.25	120 days
6	Castor	20 x 20	2.00 to 2.50	Perennial
7	Biodiversity 25 crops	Randomised	5 % Seed rate	for 365 days

# A grade model in cotton

<u>COTTON A-GRADE MODEL</u>				
<u>Crop Geometry and Seed rate (October to June)</u>				
S No	Name of the crop	Crop Geometry Spacing (cm)	Seed Rate (Kg/Acre)	Remarks
1	Cotton	60 x 150	0.800	Perennial continued
2	Tomato	90 x 60	0.05 to 0.06	Biennial
3	Sesamum	30 x 30	1.00 to 1.20	90 days
4	Brinjal	90 x 60	0.070 to 0.080	Perennial
5	Field bean	150X150	1.00 to 1.25	120 days
6	Castor	2000 x 2000	0.500	Perennial
7	Pearl Millet	120X120	0.400	every 90 Days
8	Okra	120X120	1.00 to 1.25	every 120 Days
9	Greengram	120X120	1.00 to 1.25	every 90 Days
10	Biodiversity 25 crops	Randomised	5 % Seed rate	for 365 days

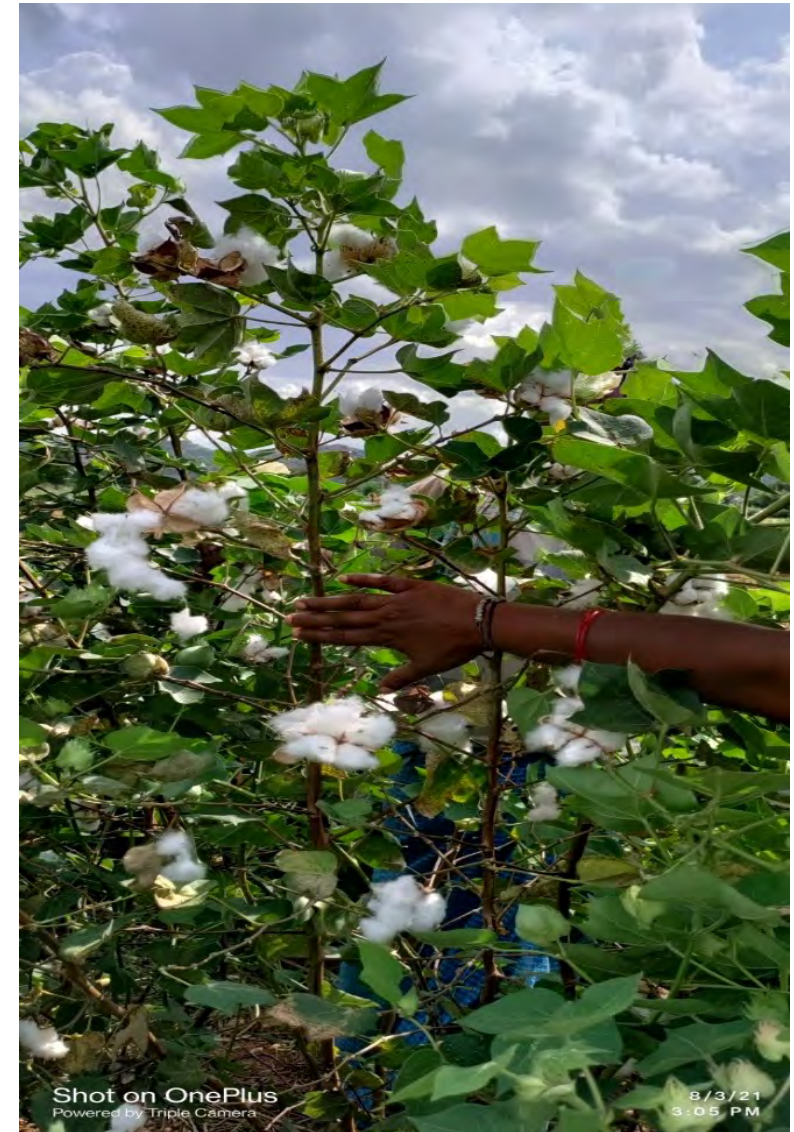
25 DAYS CROP



180 DAYS CROP



365 DAYS CROP



45 DAYS CROP



# BANANA PMDS MODEL

Smt S. Saraswathi, Tadipatri, Ananthapuramu  
6 acres owned farm with Banana as main crop  
along with Marigold, Cowpea, Cluster bean



## DATA OF 365 DAYS BANANA MODEL UNDER NATURAL FARMING

### PMDS Abstract for 3 years

Year	2020-21 (6 acre)	2021-22 (6 acre)	2022-23 (6 acre)
Total Expenditure(USD)	2397	2356	2215
Total Gross income(USD)	19183	20442	22657
Total Net Income(USD)	<b>16786</b>	<b>18086</b>	<b>20442</b>

## Mrs. Radhamma, Ghantapuram, Sri Satya Sai district

























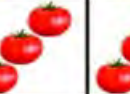

























- 2 acres Rain-fed , NF - 2018
- Groundnut, with cowpea, field beans, pearl millet, castor and red sorrel
- 2022-23 Rabi Ground model yields & incomes
  - Groundnut Yield: 23 Quintal
  - Groundnut Income: Rs. 1,35,000 at the rate of Rs.5869 per quintal
  - Income from Intercrops: Rs.15,000
- Own seed used, owns two desi cows
- Own materials used to prepare Ghana and Dravajeevamrutham
- Rabi groundnut crop followed by pearl millet, maize, cluster beans, field beans redgram and castor etc.

# A grade model in Vegetables

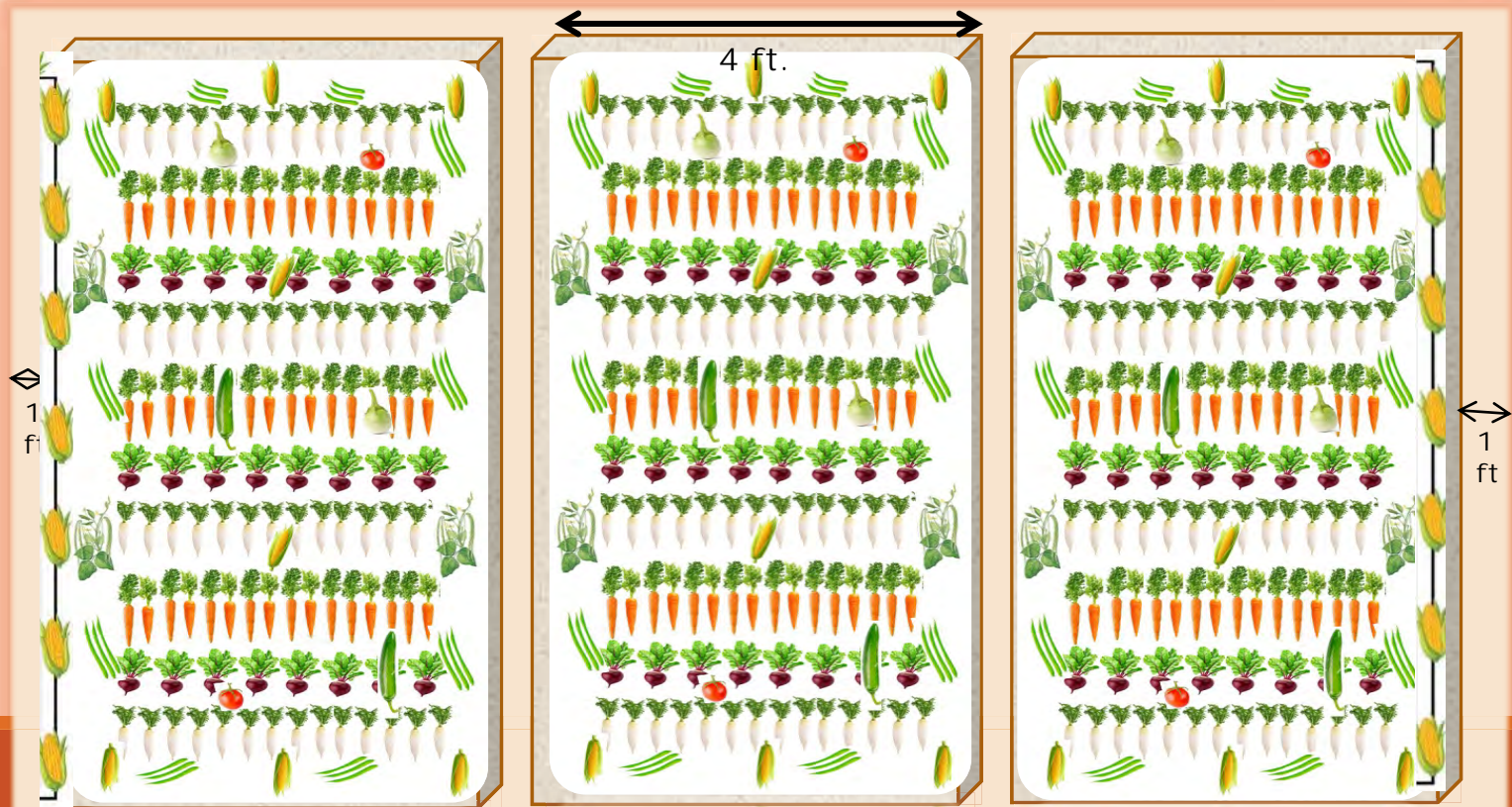
- The A grade model showcases the most important principles of natural farming –
- 365 days green cover, diverse live plants at all times, relay cropping
- higher land equivalent ratios
- minimizing tillage
- crop residue mulching
- pelleting seeds
- use of bio stimulants to activate soil biology, use of indigenous seeds, etc.
- All these practices implemented in the same plot of land create an excellent model of climate resilient farming.

## 'A' GRADE VEGETABLE MODEL

Months																
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII					
																
																
																
																
																
																
	Brinjal			Tomato			Chilli			Radish			Beetroot			ca

ATM model suited for landless farm workers and small farm holders  
It is a 20 cents plot ( 0.20 acres) model with 15 – 18 vegetable crops,  
and continuous relay cropping of vegetables.

Farmers start getting incomes from the 15th day itself. Each crop that is  
harvested is replaced with another crop.  
farmers can get net incomes of Rs.50,000 (588 USD) to  
Rs.100,000 (1176 USD) per annum.



## Any Time Money Model (ATM)

Crop Geometry and Seed rate for 20 cents (or) 0.20 acres ( 800 sq m )			
S No	Name of the crop	Crop Geometry Spacing (cm)	Remarks
1	Leafy Vegetables	5 x 5	Repeated every 25 days
2	Radish	10 x 22.5	Repeated every 45 days
3	Beet root	10 x 22.5	Repeated every 75 days
4	Carrot	10 x 22.5	Repeated every 90 days
5	Cowpea	30 x 60	Biennial
6	Brinjal	90 x 60	Perennial
7	Tomato	90 x 60	Biennial
8	Chillies	90 x 60	Perennial
9	Drum Stick	300 x 300	Perennial
10	Mango	800 x 800	Perennial

# ATM Model in Mango orchard

**M.Narayana**, Champion Farmer, Kalyanadurgam, Anantapur

- 0.40 acres
- Red soils, Rain fed
- Date of sowing: 13 February 2023 ATM
- Date of Germination: 21 February 2023
- Crops Radish, Beetroot, Carrot, Cluster bean, Cowpea, Maize, Bajra, Marigold, Chilli, Brinjal, Tomato, Leafy Vegetables in Mango orchard
- No of germinated crop seeds: 18
- Live Mulching



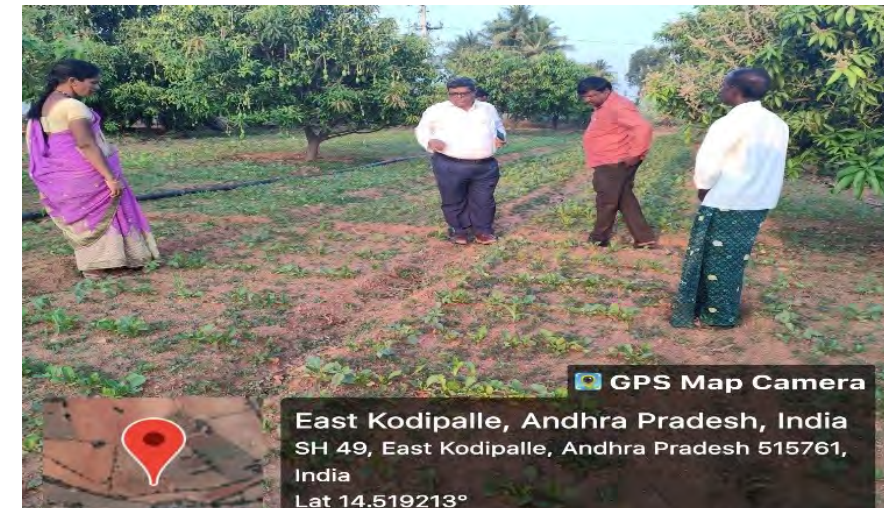
Bed preparation



Variety of seeds



Sowing 13 February 2023



Field evaluation 13 March 2023



M. Narayana and his wife  
Parvati in their ATM model  
Field, 120 days from the day of  
sowing



Harvesting Radish and cluster beans



DATA OF 365 DAYS MULTI CROPPING ATM METHOD UNDER NATURAL FARMING		
PMDS Abstract for 1 year		
Year	2022-23 (0.40 acre) Mango – multiple harvests	2022-23 (0.40 acre) ATM Model
Total Expenditure(USD)	18	107
Total Gross yield income(USD)	570	1725
Total Net Income(USD)	<b>552</b>	<b>1618</b>

# Drought Proofing MODEL

NAME OF THE FARMER : -Prameelamma

Age - 48

Division - Kalyandurgam

Mandal- Kalyandurgam

Unit – Duradakunta

Village - Palavoi

RBK – Duradakunta

Mobile No – 9652438646

NF total Land - 2.50 Acres

Soil Type – Red Soil

Irrigation type -Rainfed

Model Name -Drought proofing

Model Extent- 2.50

Date of Showing - 17/8/2023

Date of rainfall :- 02/09/2023

Rainfall received - 5 mm

Crops Sown – Redgram, castor , Field bean, cowpea, bajra  
,Cluster bean



Germination and growth of seeds of Redgram, Cowpea, Field bean under rainfed conditions Dt  
24.09.2023



Latitude: 14.496995  
Longitude: 77.199992  
Elevation: 551.31±8 m  
Accuracy: 5.4 m  
Time: 24-09-2023 15:53

Note: దురదకుంట ప్రమీలమ్మ 2 ఎకరాలు బీడు భూమిలో Drought proofing మోడల్

Powered by NoteCam

**Drought proofing and 365 days green cover in Rain-fed areas – M Adilakshmi of Ipur village, Palanadu has transformed half-an acre of dryland into a productive farm**



# Research studies in collaboration with International research organisations

- **CIFOR- ICRAF** : LDSF, GHG Comparison
- **CIFOR - ICRAF and Climate works**: Exemplar Landscapes in Andhra Pradesh
- **University of Reading** : Comparing production system (APCNF vs Organic vs Conventional)  
Phase 2 - Supported by KFW
- **U.N.F.A.O** – Farmer Field School concept, Foresight Study
- **Walter Jehne, Australian Climate Scientist** – PMDS, 365 DGC
- **CIRAD** - Foresight Study
- **Cambridge University - PhD Study** on APCNF impact on Pollinators
- **Tufts, Wood Hole Institute, USA** - Long term panel studies to track the soil health and Yields
- **James Hutton Institute** - Study on Nutrient Dynamics – PhD thesis
- **University of Edinburgh** - BLOOM study to assess health and nutrition impact of NF food
- **Global Alliance For Future of Food and GIST** – TeebAgri framework, true cost accounting for Natural farming food
- **CGIAR** – comprehensive impact assessment of natural farming



# Research studies in collaboration with National research organisations

- Comprehensive Survey for Assessing the impacts of ZBNF in AP – **CESS, IDS**
- Life Cycle Assessment of ZBNF and Non-ZBNF- a study on Energy and Water **C-STEP**
- Comparative analysis of Water and Energy use reduction in APCNF vs Chemical farms – **WALAMTARI**
- Comparative analysis of Water and Energy use reduction in APCNF vs Chemical farms – **ASCI and Core Carbon X**
- Collaboration with ICAR institutes – rice, maize, groundnut, pulses, abiotic stresses – comparison between Natural farming and conventional farming in farmers' fields
- State Agriculture and Horticulture University
- ICAR Research institutions dealing with rice, maize, cotton, groundnut, and Bengal gram.
- In house studies by RySS Science team with farmers





# **Indo-German Global Academy for Agroecology Research and Learning (IGGAARL)**

Govt of Germany – 20 million Euros  
over 5 years

Govt of AP, INDIA – land, buildings  
and a budget of 15 million Euros



# The Government of AP initiative

Indo-German Global Academy for Agroecology Research and Learning has been launched in collaboration with the Government of Germany

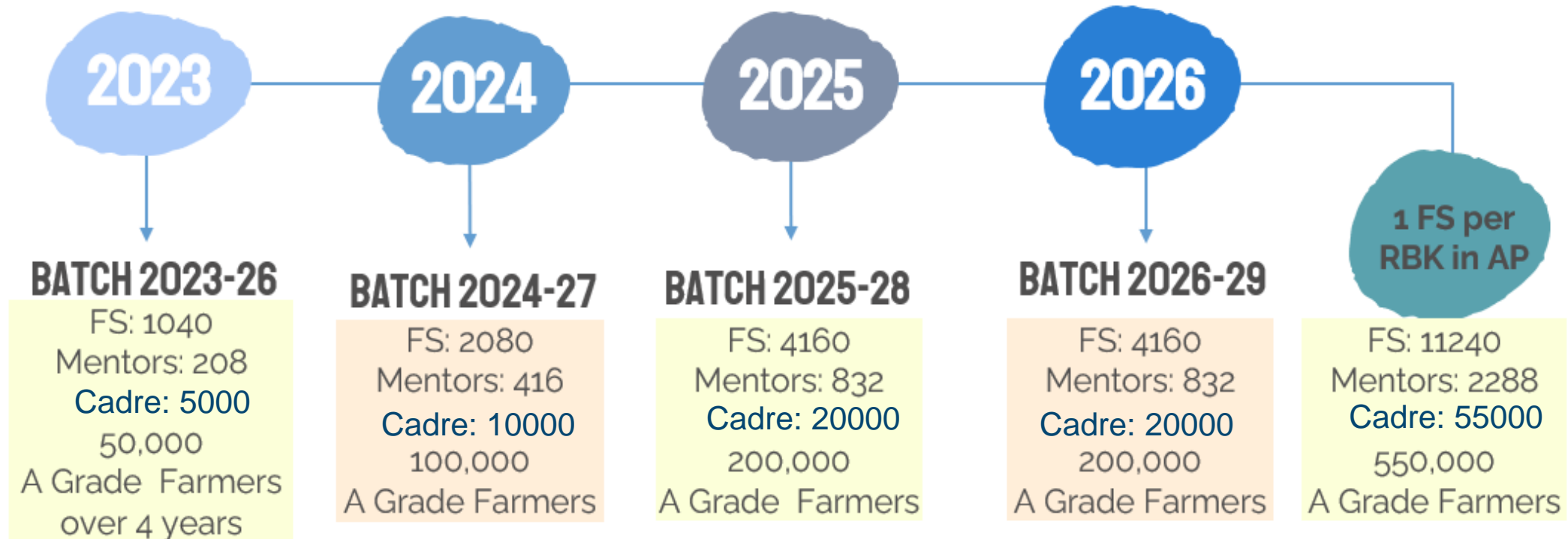


## The Academy Portfolio

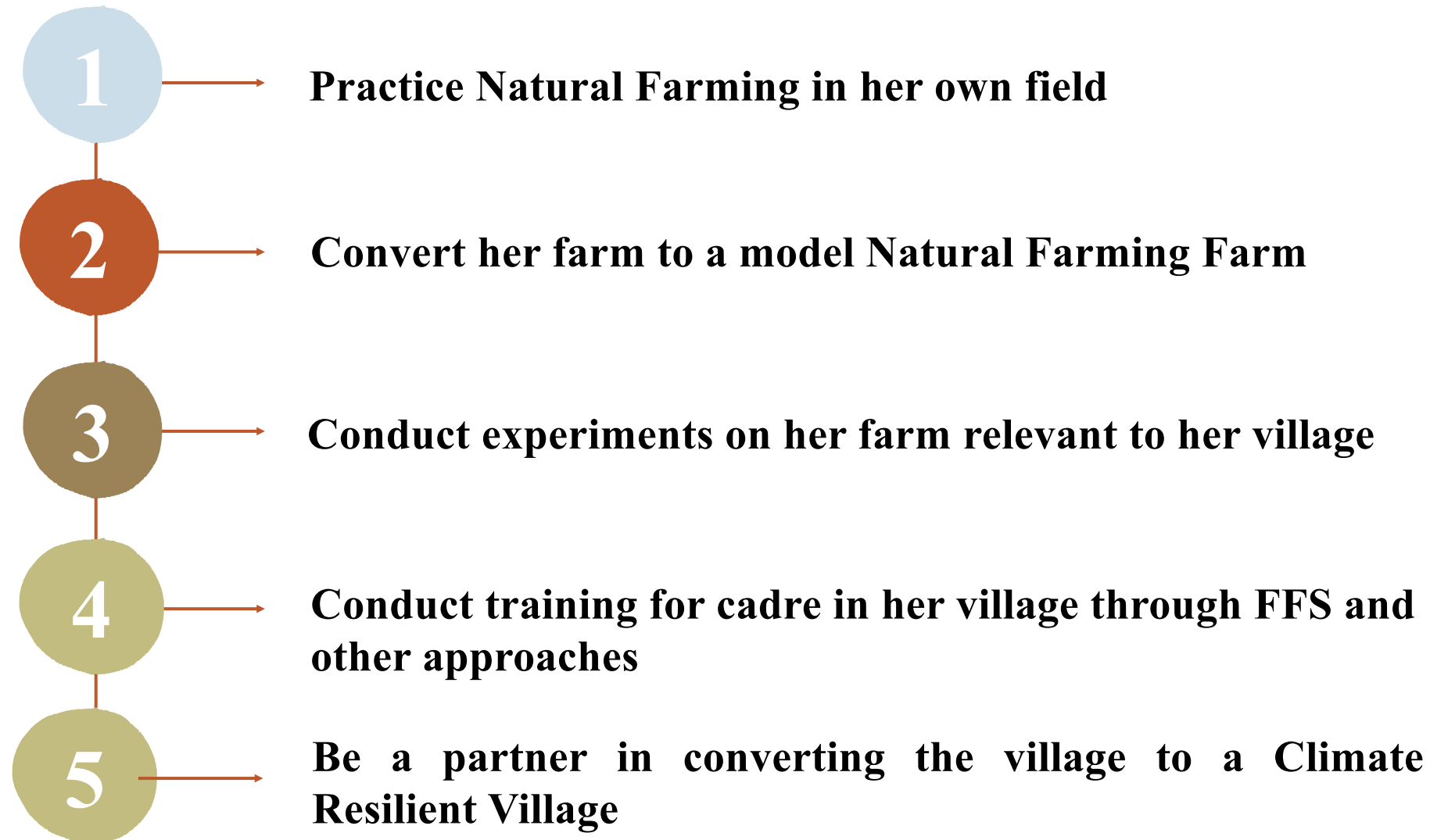
- Graduation for Farmer Scientists; PG for Mentors; Diploma/PG Diploma for Learning Facilitators/cadres; Certificate for farmers
  - Self-learning and Assisted Learning Courses; Certifying Learning Facilitators
  - Knowledge Repository
  - Farmers' Learning/Living Landscapes
  - *Global and Local Research Partnerships - Collaborations, and*
  - *Upscaling Partnerships/Consulting Support*
  - *NF Congress, NF Journal*
- 
- 
- 

One farmer scientist per RBK

## PLAN TO DEVELOP ~10,000 FARMER SCIENTIST GRADUATES & ~2000 MENTORS



# ***Farmer Scientist Course (FSC)- A Practice Oriented Course***



## **FS Selection:**

- 25-40 years
- Intermediate / Diploma Graduation
- 2 years in NF, 365DGC
- One per Village
- VO resolution
- Test

**B1: 604 Farmer Scientists (from 2543 applicants)**

S. No	Module/Subject	Credits
0	<b>NF Foundation:</b> Non-credit Module in first month	0
1	<b>Managing Farms:</b> Crops, Soils and Microbes, Pests, weeds, diseases	18
2	<b>Deepening NF:</b> Integrated Farming and Landscapes, Climate Resilience and Ecosystems. Technology, water and Energy	15
3	<b>Foods Systems</b> and value-chains, Innovations and Enterprises	15
4	<b>Systems Change:</b> Living and Farming Systems, Working (Being and Scaling) with Community	12
5	<b>Learning and Managing:</b> Learning, Data and Communications, Managing, Leading and Mentoring	12
6	<b>Research Methods</b>	6
	<b>Total Classroom Credits</b>	<b>78</b>
	<b>Non-credit Modules, across Semesters</b>	
7	<b>Own Field</b> (Production, Value Addition & Nutrition)	78
8	<b>Own Field Experiments and Integrated Project:</b> Own Experiments, Integrated Project (Class-Field)	42
9	<b>Cadre Training (Field)</b>	24
10	<b>Climate Resilient Village (Field)</b>	18
		<b>162</b>
	<b>Grand Total</b>	<b>240</b>

## ***FSC Modules***

- ❖ Course consists of 10 modules, 7600 Hours
- ❖ Classroom: 1936 Hrs
- ❖ Mentor's Field: 480 Hrs
- ❖ FS Site: 200 Hrs
- ❖ Online: 600 Hrs
- ❖ Experiential: 4473 Hrs

*“A Grade Farmers”  
Deployed in R&L  
Entrepreneurs  
R&L Facilitators  
Catalysts in upscaling*



Classroom sessions

Practical Sessions in the field

Mentor visits to Farmer Scientists fields

3	అక్షరాలు	అక్షరాలు	అక్షరాలు
4	అక్షరాలు	అక్షరాలు	అక్షరాలు
5	అక్షరాలు	అక్షరాలు	అక్షరాలు
6	అక్షరాలు	అక్షరాలు	అక్షరాలు
7	అక్షరాలు	అక్షరాలు	అక్షరాలు
8	అక్షరాలు	అక్షరాలు	అక్షరాలు
9	అక్షరాలు	అక్షరాలు	అక్షరాలు
10	అక్షరాలు	అక్షరాలు	అక్షరాలు

[illegible]

కట్నం (ప్రవేశవాయిదా) అయినా



FS 9 కృత్యం దేవ జీవాత్మలకు ఆలంకారం

క్రిటర్మ్  $10 \times 10$  చ. అక్షరములు



నిరీక్షింపబడిన (మే 15 నానాల్. 23 వేరి 15)  
 మార్గం నీయం నానాల్ నానాల్  
 వేరి.

—கூடு, குதகிவி ஷங்கு ஸ்ரீரங்கம் நாயுடு  
DPP மூலம் வாங்கு.

55/12/20 (മുൻപോട്ടുള്ളതും മുൻപുപോൾ)

100 சீ. நீళ్.

1 కృ - శివశాస్త్రి

118-3000

5011. ചെറിയ, 5012. കുറുക്കി  
5013. കുറുക്കി, 5014. കുറുക്കി

ಮುಂದಾಗಿ 100ರಲ್ಲಿ ಸ್ವಲ್ಪ ತೋರುತ್ತದೆ. ಸಹಾ ಪೀಲಿಸಿ  
ಹೊಲು ಕೆಂಪಾಗಿ, ಮುಂದಾಗಿ ಹಸಿರುಹೂಂ ತೋರುತ್ತದೆ.  
ಪೊಂ ಮರಗಳಲ್ಲಿ ಹಸಿರುಹೂಂ, ಕಾಗು ಹೂಂ  
ಸ್ವಲ್ಪ ಹೂಂ ಕೆಂಪು ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ  
ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ  
ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ ಹೂಂ

ఈ పాఠం 7 నుండి 10 వరకు వాళ్ళు  
శాస్త్ర పదాల డిక్షనరీ, నాటికలు వంటి పుస్తక  
లలోని పదాలను వ్రాయుట బాగాను చేరుతుంది  
పాఠ్యం - పుస్తకం వాడటానికి.

కటినల ఘనజీవాత్మలం



FS 3 పిల్లల చరిత్ర పుస్తకం



FS visit to my own field

25 కలలా దుగ్గిల పల్లెల గోల మొదలికి పువ్వి  
 బొమ్మలం వేసాడు

అంతా వాడుక మా పాటలకు సైన్లు పెట్టండి.  
విడివిడి వేద మంత్రానికి వాడుకలు ఇవ్వండి.  
సామాన్య మంత్రానికి క్రమం పాటించి వేద సత్యం  
లాగా వివరిస్తూ ఉదాహరణ మునుపటివంటిది చేయండి.  
అక్షరాల పేర్లు పెట్టండి - ఉదా: పంజర మొనము  
మరి సామాన్యమైన వివరాల చేయండి.

వాడెంతో పట్టాను ముందుగా పాదే,  
 గుంటూరు కేవలము ముచ్చ ముచ్చము.  
 తొట్టెనా పాదే ముచ్చము ముచ్చము ఆది  
 ముచ్చము వాడుకు వచ్చ వచ్చి విచ్చివచ్చి  
 వచ్చి ముచ్చము, ముచ్చము - అది వాడు  
 వచ్చి - అందుకు వచ్చిము.

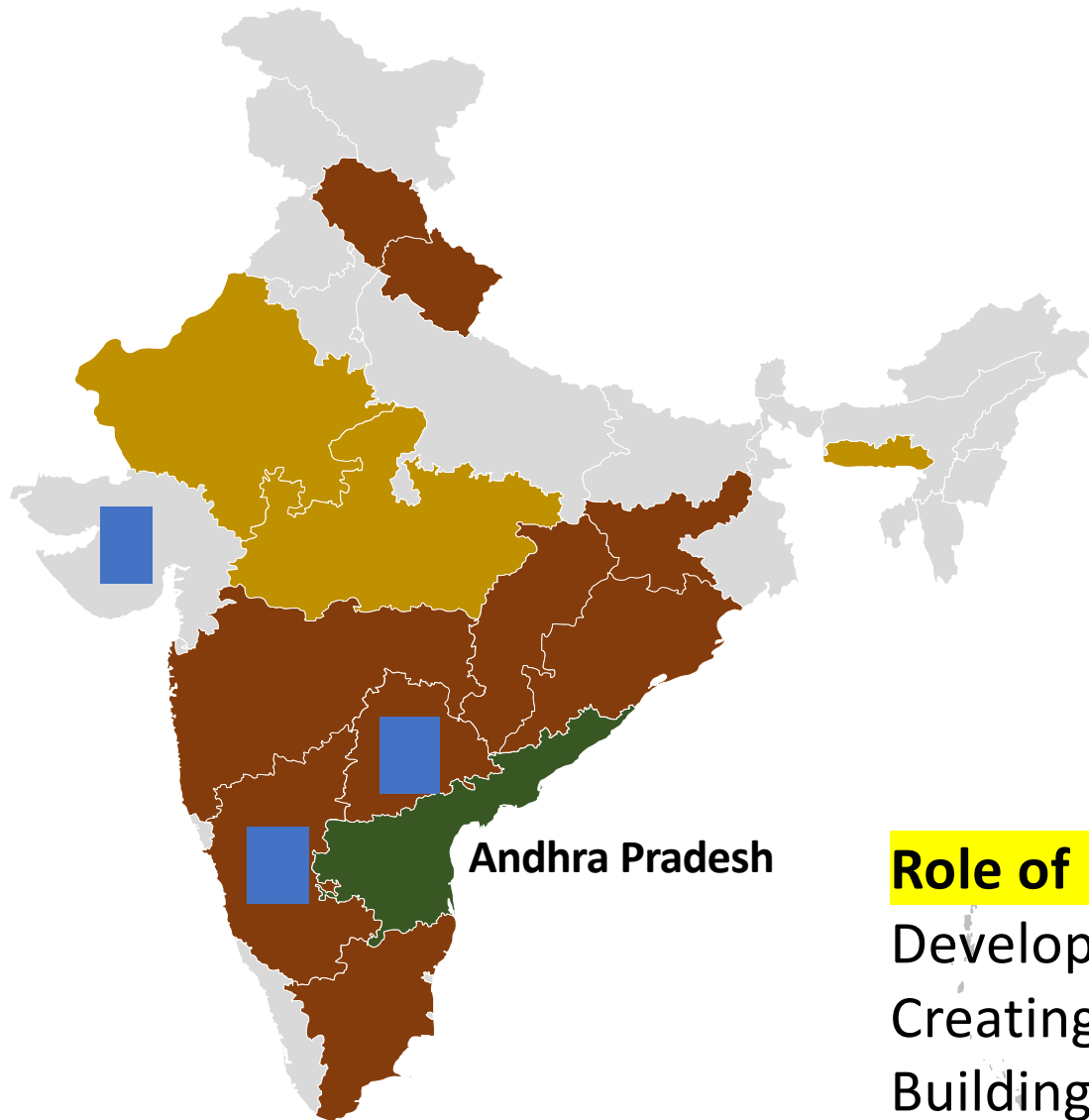
1210 అర్జునుని విజయం తీసుకువచ్చిన  
వారి పేర్లు వారి పేర్లు  
అనుబంధం.

# Documentation of A grade models and ATM models & Farmer Scientists daily Activities

# International delegations from 45 countries have visited from from all continents



## APCNF as National Resource Organization – Supporting other states



Andhra Pradesh

### State Govts

1. Madhya Pradesh
2. Meghalaya
3. Rajasthan

### GIZ- NABARD Bank project

1. Chhattisgarh
  2. Himachal Pradesh
  3. Karnataka
  4. Maharashtra
  5. Odisha
  6. Telangana
  7. Uttarakhand
  8. Jharkhand
  9. Tamil Nadu
- Duplicated:  
M.P and A.P

### Role of RySS as NRO –

Developing proof of concept models

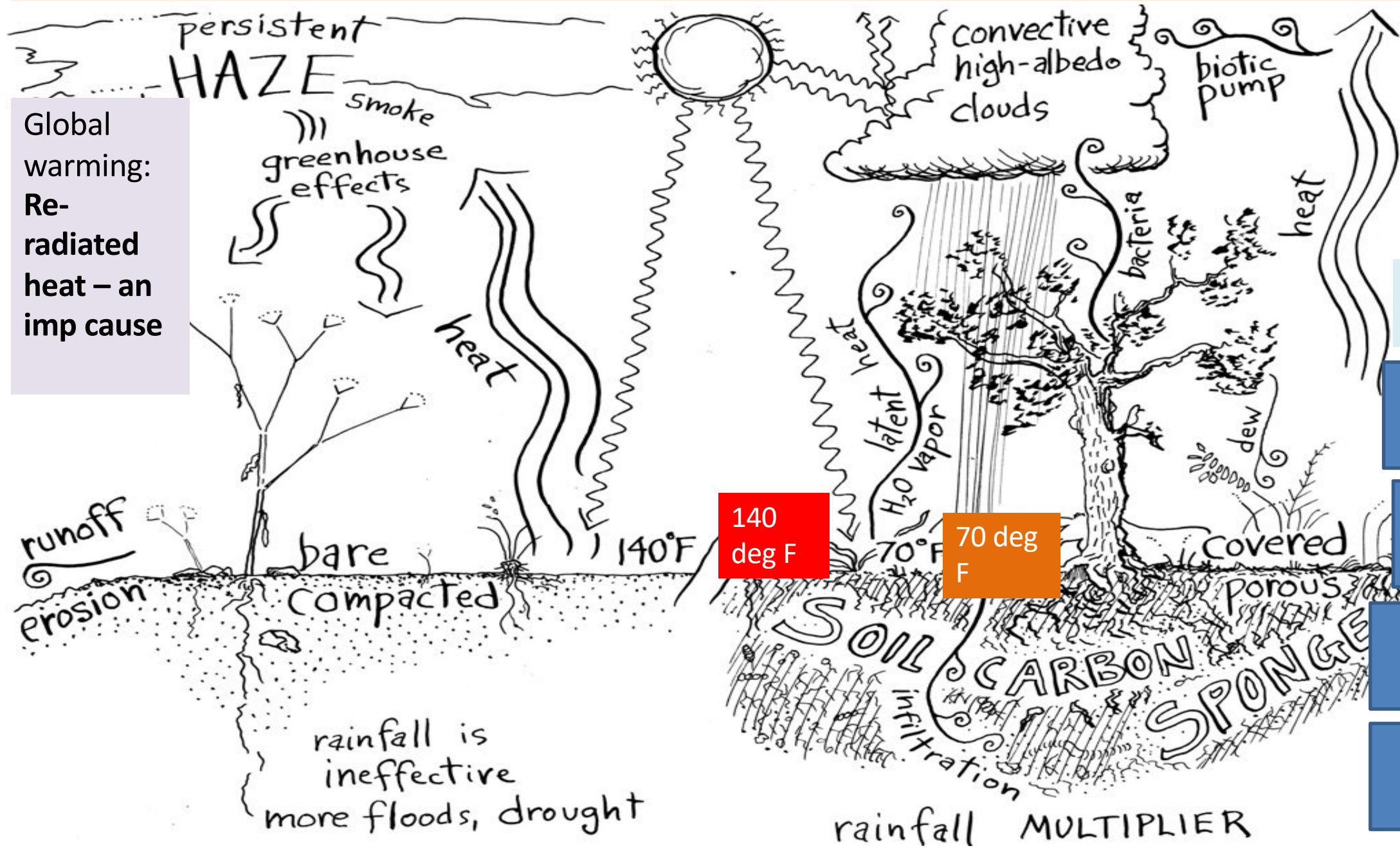
Creating local capabilities

Building sustainable mechanisms

Support by trained professionals and experienced mentors

# Natural farming and 365 days green cover can cool the planet

Global warming:  
Re-radiated heat – an imp cause



NF + 365  
DGC

Reversal of  
desertification

Soil / Water  
conservation

Food and  
nutrition  
security

Income  
generation



**“..We do not inherit the earth from our ancestors, we borrow it from our children..”**

**LET US ALL ACT NOW**



**Visit: [apzbnf.in](http://apzbnf.in) Follow us - Twitter/ Facebook/ Youtube @APZBNF**