CSE SCHOOL OF SUSTAINABLE FOOD SYSTEMS AAETI

NATIONAL CONCLAVE

SUSTAINABLE FOOD SYSTEMS

October 27-29, 2025

Anil Agarwal Environment Training Institute, Nimli, Rajasthan

Enhancing Soil health through Natural farming

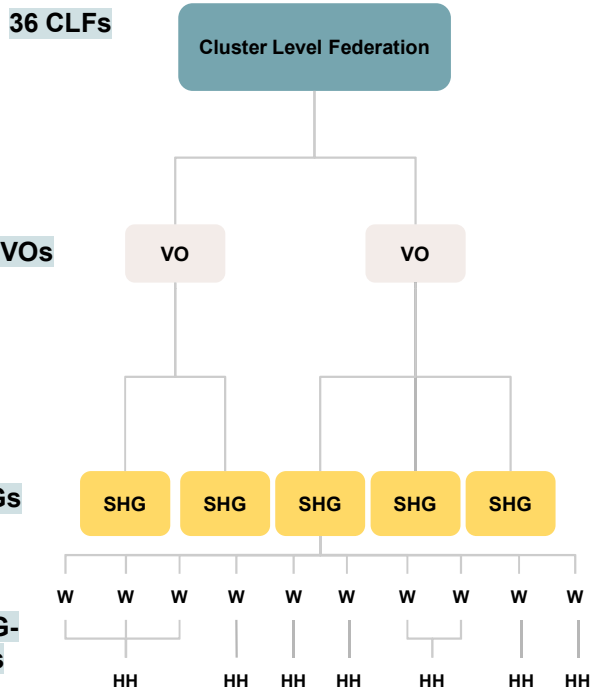
Meghalaya State Rural Livelihoods Society (MSRLS)

Presented by
Shanlang F Lyngdoh – Chief Operating officer MSRLS

Natural farming Project –Meghalaya

Project Outreach

3-Tier SHG Network Natural farming



W: Woman HH: Household

District Covered	12
Block Covered	20
Village Organisations (VO) Covered	102
No. of ECRPs	55
No. of ICRPs	112
No of NF Farmers /Area	4258/2593Acres
No. of Lead Farmers	1860
No. of Local CRPs developed from Lead farmers pool	135

Vision:

To alleviate multidimensional poverty by enhancing the income of Meghalaya's rural population through access to natural farming expertise, supported by strong community organizations and strategic partnerships with technical departments and agencies.

Goal by 2030

- **Increase Farmers' Income** – Double farmers' income through sustainable farming practices while ensuring **365-day green cover**.
- **Strengthen Community Organizations** – Empower **5,655Village Organizations (VOs)** across all districts to implement and expand natural farming initiatives.
- **Enhance Climate Resilience** – Develop **climate-resilient soils and crops** capable of withstanding evolving weather patterns.
- **Build a Skilled Resource persons**– Train and deploy **5,655 Krishi Sakhis/ICRPs**, positioning Meghalaya as a leading **Natural Farming Resource Hub** for the entire Northeast region of India.

Universal Principles of Natural Farming

Soil to be covered with crops 365 days (Living root)	Diverse crops , trees 15 – 20 crops
Minimal disturbance of soils	Integrate animals into farming
Bio stimulants as necessary catalysts	Increase amount and diversity of organic residues
Use indigenous seed	Pest management through better agronomic practices, botanical extracts

No synthetic fertilizers, pesticides, herbicides, weedicides

Microbial Seed Coating

Beejamrutham - cow urine, cow dung, and lime – fermented

Microbial Soil enhancement

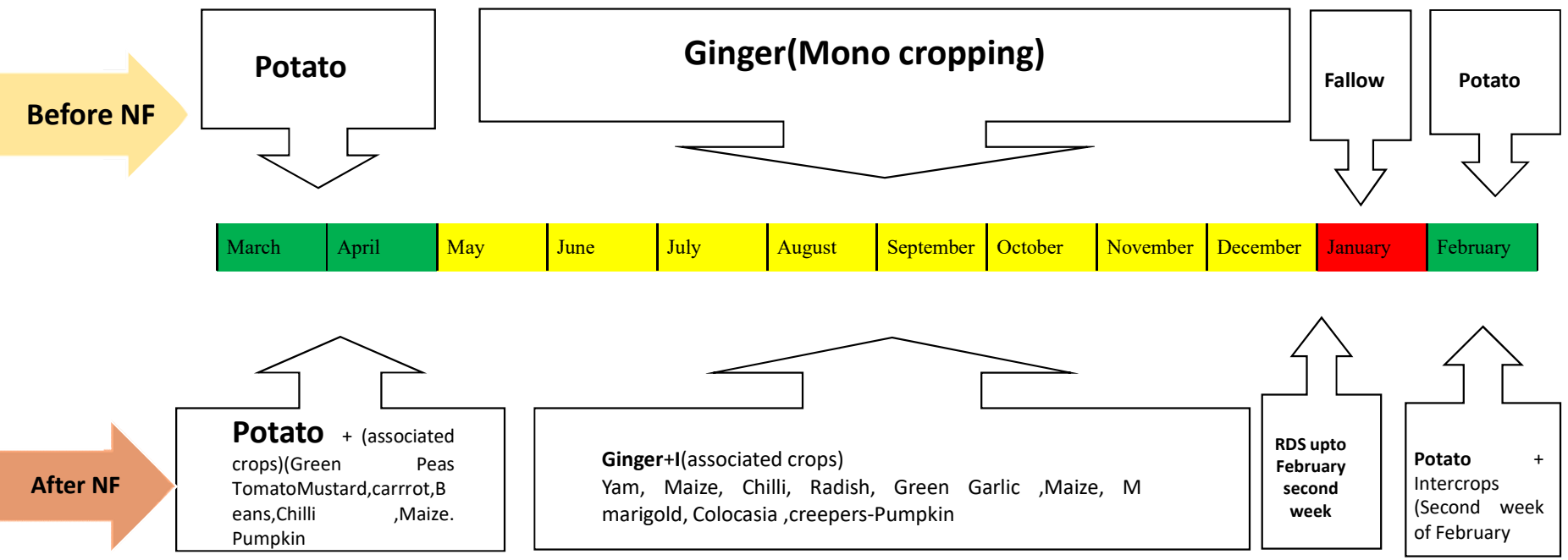
Jeevamrutham (bio-stimulant) - cow dung, cow urine, soil, jaggery, pulses flour – mixed and fermented

Bio-stimulants

Bio stimulants - unique strength in Indian Agriculture

N.F + Pre monsoon dry sowing – a unique breakthrough

Farming System-1 before and after Natural farming in Up Land (Ginger)



365-Days Green cover

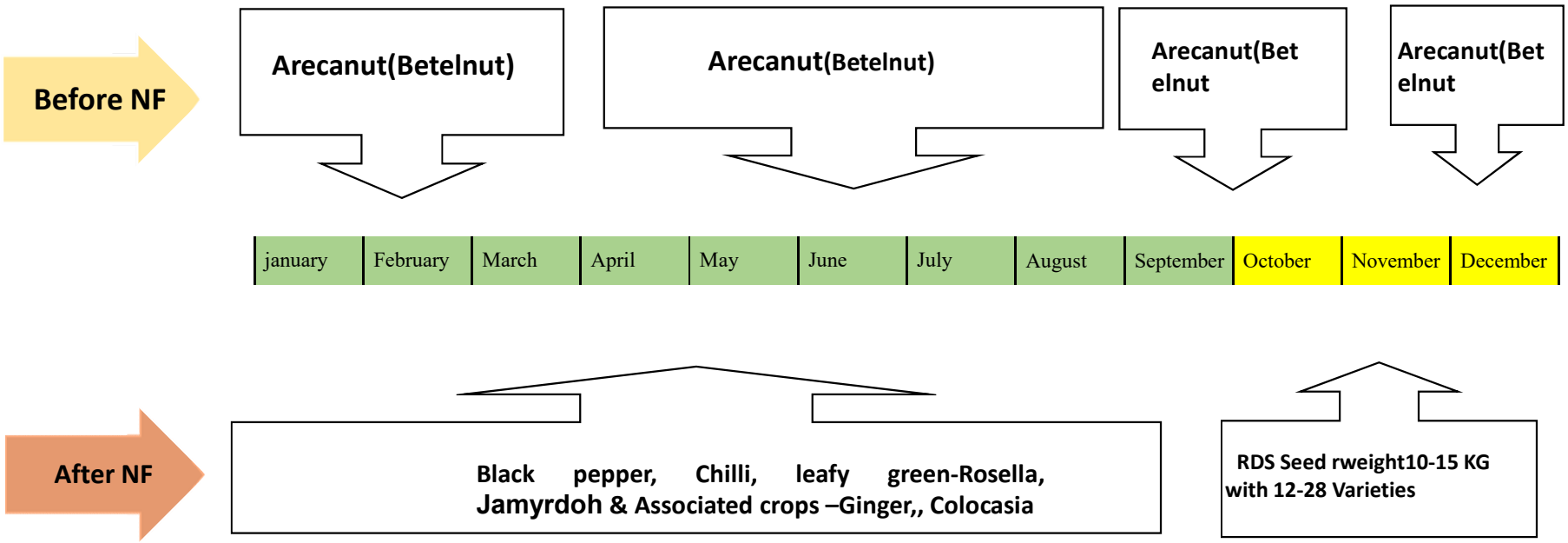
Farming System-1 before and after Natural farming in Up Land (Ginger)

S. no	Total No of farmers in this FS	area	No of farmers Practicing NF	Area	No.of farmers increased Yield/income
1	865	652	392	190	102

Farmers Pre-Call Analysis

- Previously, the bed system was not properly followed or was limited. After NF interventions, the raised bed system is now 20–25 cm.
- Incidence of soil erosion on sloping lands has been reduced due to crop diversity (Ginger + Maize / Cowpea / French beans), improving Land Use Efficiency (LUE).
- Earlier, monocrop ginger was highly prone to rhizome rot and leaf spot diseases. Intercropping with cereals and legumes breaks the pest and disease cycle.
- Crop diversity combined with application of Ghana and regular Jivamruth spray at 15 DAS has increased average yield to 5–6 Qt.

Farming System-2 before and after Natural farming in UP land (Arecanut/Betelnut-1-5-year-old Orchards)



365-Days Green cover

Farming System-2before and after Natural farming in UP land (Arecanut/Betelnut-1-5-year-old Orchards

S. no	Total No of farmers in this FS	area	No of farmers Practicing NF	Area	No.of farmers increased Yield/income
1	1836	2469	260	238	58

Farmers pre call analysis

Arecanut provides **annual income only.**

Through NF intervention We optimize **spacing** and integrate **black pepper, pineapple, leafy vegetables and ginger** as intercrops/associate crops

For **3–5-year-old trees**, continuous ring-basin application of **Jivamruth** has increased nut yield from **20–40 nuts/tree in previous years to 25–55 nuts/tree**, resulting in an average **increase of 500–600 kg per acre**.

Additional income from associated crops is generated, ranging from **₹8,000–14,000 per acre**.

Objective to start Nursery for arecanut saplings by Poorest of Poor communitues to upscale income generation with support from VO

Inter-cropping in Turmeric -Ginger

Intercrops (Maize, Beans, Marigold ,Peas, Pumpkin, Radish, Mustard) in Potato field A grade model

NATIONAL CONCLAVE ON **SUSTAINABLE FOOD SYSTEMS**

Village :Laitong & Phasi Block :Mawkarwat & Laskein(SWKH &WJH–District)

Community Resource Persons(CRP) – Facilitators for NF Project

Act as **Mentors for new ICRPs**, guiding them in real-time field activities.

Systematic Approach byICRPs

1. Village Understanding & Entry

Study the geographical conditions and farming situations of the village.

Conduct consultation meetings with SHGs, stakeholders, and NGOs.

2. Data Collection & Planning

Conduct a baseline survey to collect farmer and land details.

Prepare a **Village Profile** to understand available resources and existing gaps.

3. Input Preparation & Demonstration

Prepare bio-inputs such as **Beejamruth, Jeevamruth, and Ghana Jeevamruth**.

Establish **Agri-Nutri Gardens** in farmers' fields.

Farmer Field School-Paddy Crop








Impact of Cow Urine–asafoetida solution

Sowing Seeds of Change: The Journey of Smt. Wadlynti Syieim(Sucuess Story)

Location: Umkrem Village, Mawthadraishan Block, Eastern West Khasi Hills, Meghalaya
Affiliation: Member – *Kynthuplang SHG* | Lead Farmer – *Natural Farming Movement*

From Chemicals to Natural Farming

Once depended on **chemical fertilizers & pesticides** → faced low yields, high costs & soil degradation.

Turning Point

Met **ECRP under NF Initiative (Andhra Pradesh)** who introduced her to Natural Farming.
Inspired by the use of **local, Bio inputs** to restore soil health & boost productivity.
Despite **skepticism from peers**, she embraced **Natural Farming principles** with determination.
Earned **over ₹2,00,000 in two years** through continuous production and local sales.
Inspired fellow farmers to start their own ATM Models.
Improved Health & Savings – reduced doctor visits & medical expenses through NF produce
Field Visited by MSRLS, Agriculture Dept, KVK, RAWE Students, State Anchor, and KFW Team
Regularly participates in trainings & motivates others towards sustainable farming.
🏆 **Recognized as "Best Farmer" by the State Team** for outstanding contribution to NF.

Result

Transitioned to sustainable practices with **visible improvement in yield & soil vitality**.
Became a **role model** motivating other farmers in Umkrem to adopt Natural Farming.

Impact

- ☑ Increased Yield & Productivity
- Community-wide adoption of Natural Farming
- Cost Savings & Nutrient-rich Food
- Promoting Sustainable Agriculture

Receiving Award as a Best Lead Farmer

Regular Harvests

Regular Harvests

Visited by KFW Team

Visted by ADO Agriculture

Farmer Voice – Being a Farmer It's not easy to keep the farm green all 365 days, but with natural farming, I make the impossible possible.

Glimpses of SRT(Saguna Rice Technique)

Sowing SRT (Saguna Rice Technique)Model after 10days

1×1Observation in SRT model

40 Days after Sowing

Community owned NPM (Bio resource center)

NF Initiatives towards Climate Action and Sustainable Development

1. **365 Days Green Cover** – Builds soil carbon (Rhizodeposition), maintains living roots year-round → improves soil biology & structure.

2. **Crop Diversity** – Promotes microbial diversity, reduces pests & diseases, improves productivity → higher yield & farmer income (15–20 varieties).

3. **Bio-Stimulants** – Enhances plants' nutrient absorption. Products: Jeevamrutham, Beejamrutham, Ghana Jeevamrutham.

4. **PMDS (Pre-Monsoon Dry Sowing)** – Improves soil health, nitrogen fixation & biodiversity → green fodder, weed & pest suppression.

5. **ATM & A-Grade Model** – Planned multicropping (20 crop varieties) → continuous yield & steady farmer income.

impacts of NF on enhancing Soil Organic Carbon

Significant observations from Natural farming Practiced Plots .

- ✓**Increased water infiltration**
- ✓**Improved soil biodiversity**
- ✓**Improved Soil Physical Properties**
- ✓**Increased Earthworm count**
- ✓**Increased main crop yields**
- ✓**Additional income**

1. **Increase in Paddy Yield**:
   -An increase in the yield and number of bags for paddy was observed under Natural farming practice as compared to conventional farming after conducting CCE experiments
   -Yield was more from fields implementing PMDS + line sowing methods as compared to conventional broadcasting methods
2. **Creating community force :Concept of 2**Lead farmers from SHG to 1064 Lead farmers emerged further to ICRPS
3. **Crop diversity increased (No of crops): cultivation from Monocropping to 5 Major associated crops cultivation concept has been increased**
4. **365 Days Green cover (PMDS+ Main crops+RDS+Rabi crops) first principle of natural farming fallowed by 216 farmers**

Line sowing in Paddy Crop

Line Sowing in Paddy and weeding with (Cono weeder) at Kharkutta Block

FFC in Paddy crop (AESA)

Buck wheat Crop Cultivation

Buck wheat cultivation in Kyndong Village, Mawshynrut block

Community (VO) Practicing-Natural farming

Jaiksha village Block :Mawkynrew

Multicrop diversity along with jevamruth tank

Plant Parameters recording by ICRPS



CCE for Biomass Estimation & Plant Parameters taking by ICRP &VO Block –Mawkyrwat District: South West Khasi Hills

PMDS(Pre monsoon dry sowing) Crop CCE

CCE in Potato-Mawkynrew Block –East Khasi hills

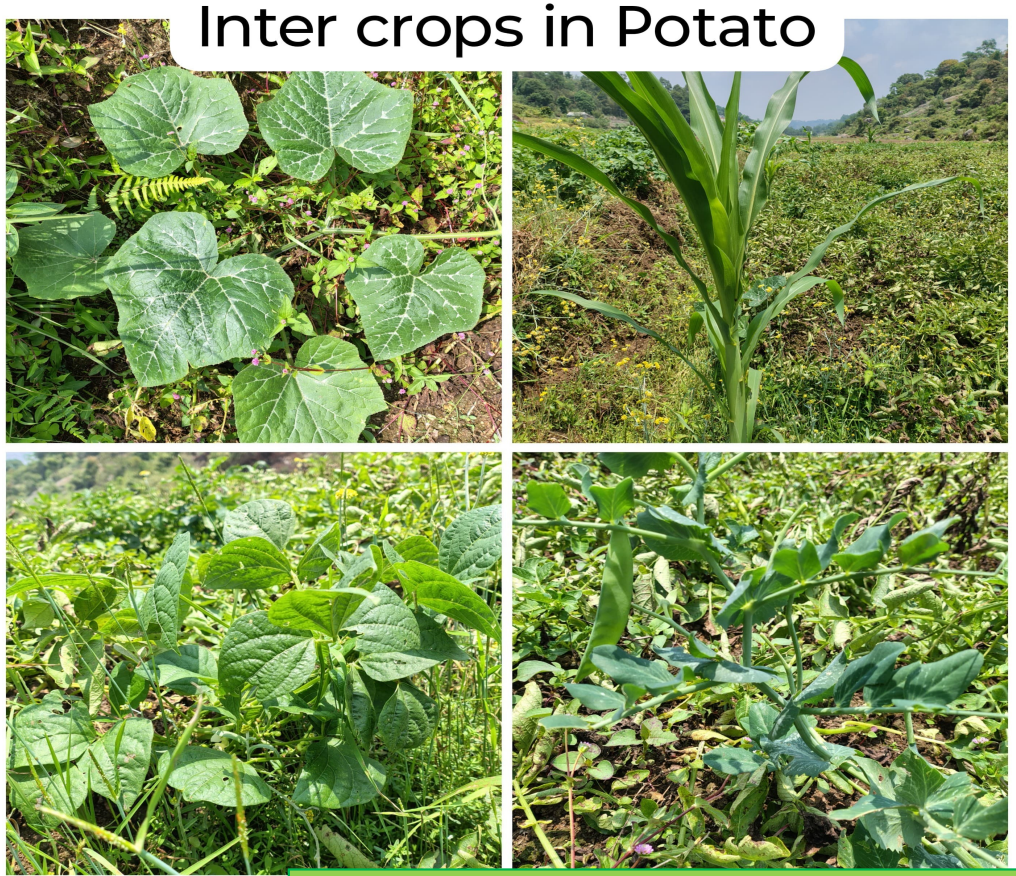
Indicators	Natural farming (1 acre)	Conventional farming (1 acre)	Differentiate
Crop	Potato	Potato	Potato
cost of cultivation(Rs)	3500	6000	2500
Production Q/t/kg	19 quintals	12 quintals	7 quintals
Gross income (Rs)	38000	24000	14000
Net Income(Rs)	34500	18000	16500

PMDS Sowing

PMDS seed mixture – sown in April 2025
showing varietal differentiation 55 Days after sowing (DAS)
Area : 0.1 acre (10 cents)
Seed weight:2.7 Kg
Seed varieties: 15 types(Ragi, bitter gourd,Mustard,Oats,buck wheat,radish,cucumber,Maize,Jowar

Inter-cropping in Potato –NF POPs

Inter crops in Potato



Inter crops harvested

Intercrops (Maize, Beans, Peas, Pumpkin, Radish, Mustard) in Potato field A grade model

NATIONAL CONCLAVE ON **SUSTAINABLE FOOD SYSTEMS**

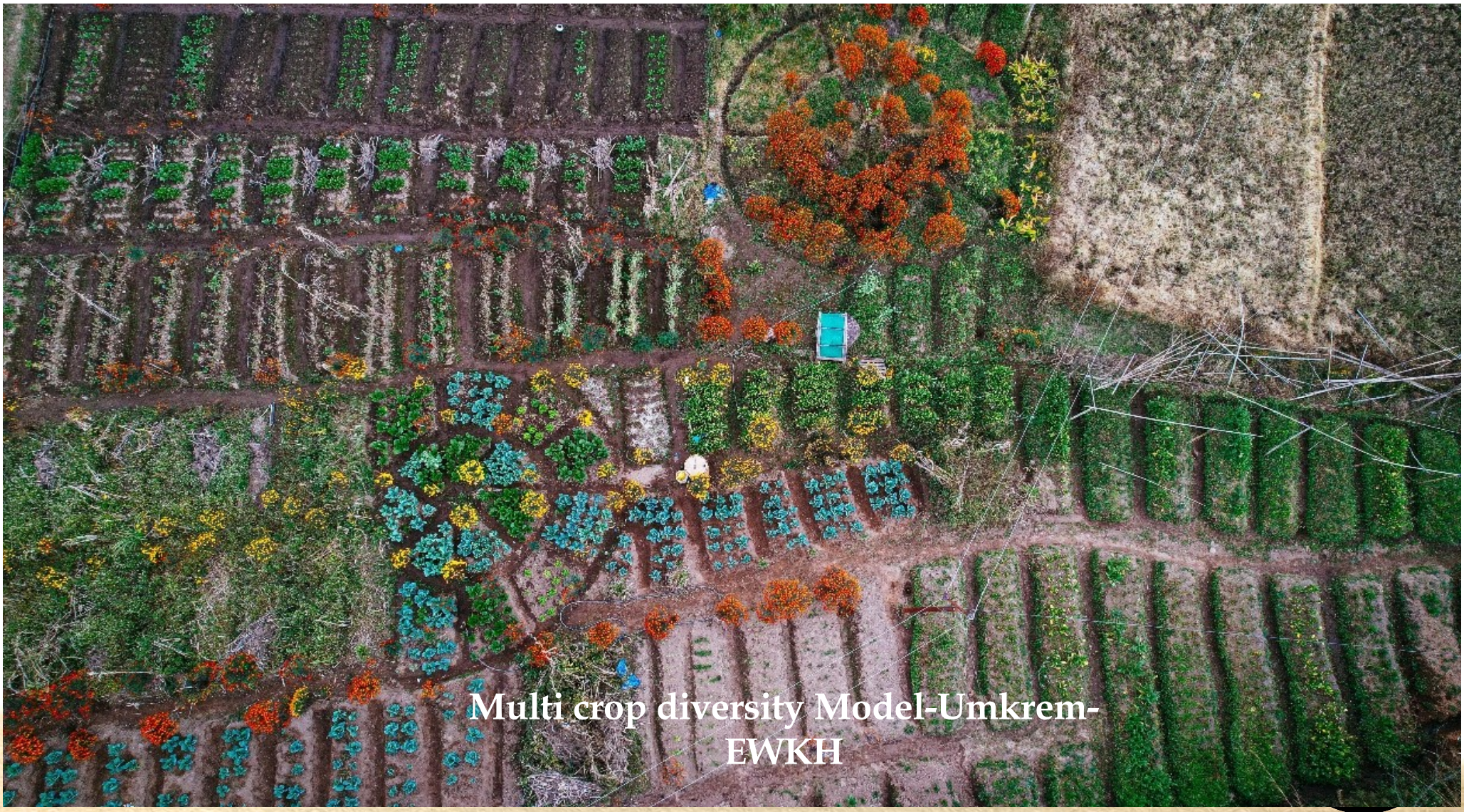
Village :Laitong Block :Mawkarwat (SWKH –District)

Developing Seedlings in Orange Orchards trough Air Layering-





Name of the Village – Porla
Total No of Farmers Covered under NF – 13
No of Acres – 14
No of Farmers done Air Layering Developed – 12
No of Trees Covered – 86
To protect the indigenous variety of Khasi Mandarin, the VO has initiated the development of saplings through air layering. These saplings will also be supplied to other farmers in the region.



Multi crop diversity Model-Umkrem-EWKH

Thank You