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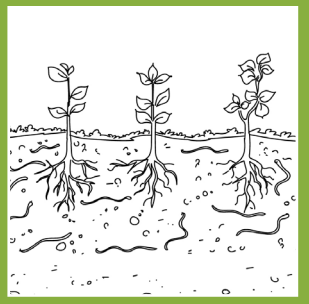
Natural Farming Practices in India

HEALTHY SOIL • HEALTHY FOOD • HEALTHY FARMER











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Farming with Nature, Not Chemicals

Natural farming is a chemical-free farming system rooted in Indian traditions and enriched by modern ecological understanding, resource recycling, and on-farm resource optimization. It is an agroecology-based diversified system that integrates crops, trees, and livestock with functional biodiversity. The approach mainly relies on on-farm biomass recycling, with emphasis on biomass mulching, use of cow dung and urine formulations, maintaining soil aeration, and avoiding all synthetic chemical inputs.

In simple words, Natural Farming is a way of farming that:

- Uses local natural inputs
- Use of chemical fertilizers and pesticides reduced, improving health of farmers
- Improves soil fertility and biome
- Lowers farming costs
- Provides safe, nutritious produce for farm families and consumers
- Protects human, animal and environmental health
- Saves water and biodiversity

Nature already knows how to grow plants. Farmers only need to support nature.





Why Should Farmers Shift?

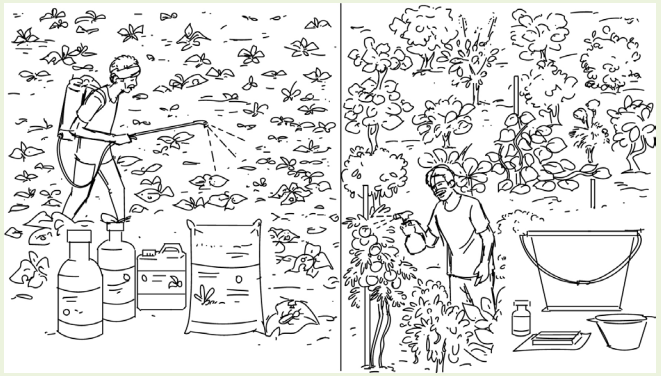
Chemical farming can lead to:

- Soil becoming hard and lifeless, losing fertility over time
- More pests and diseases
- Higher dosages of fertilizers and pesticides each year to maintain farm yields
- High input costs and debt burden
- Health problems to farmers and families due to chemical exposure
- Water bodies getting polluted and poisoned

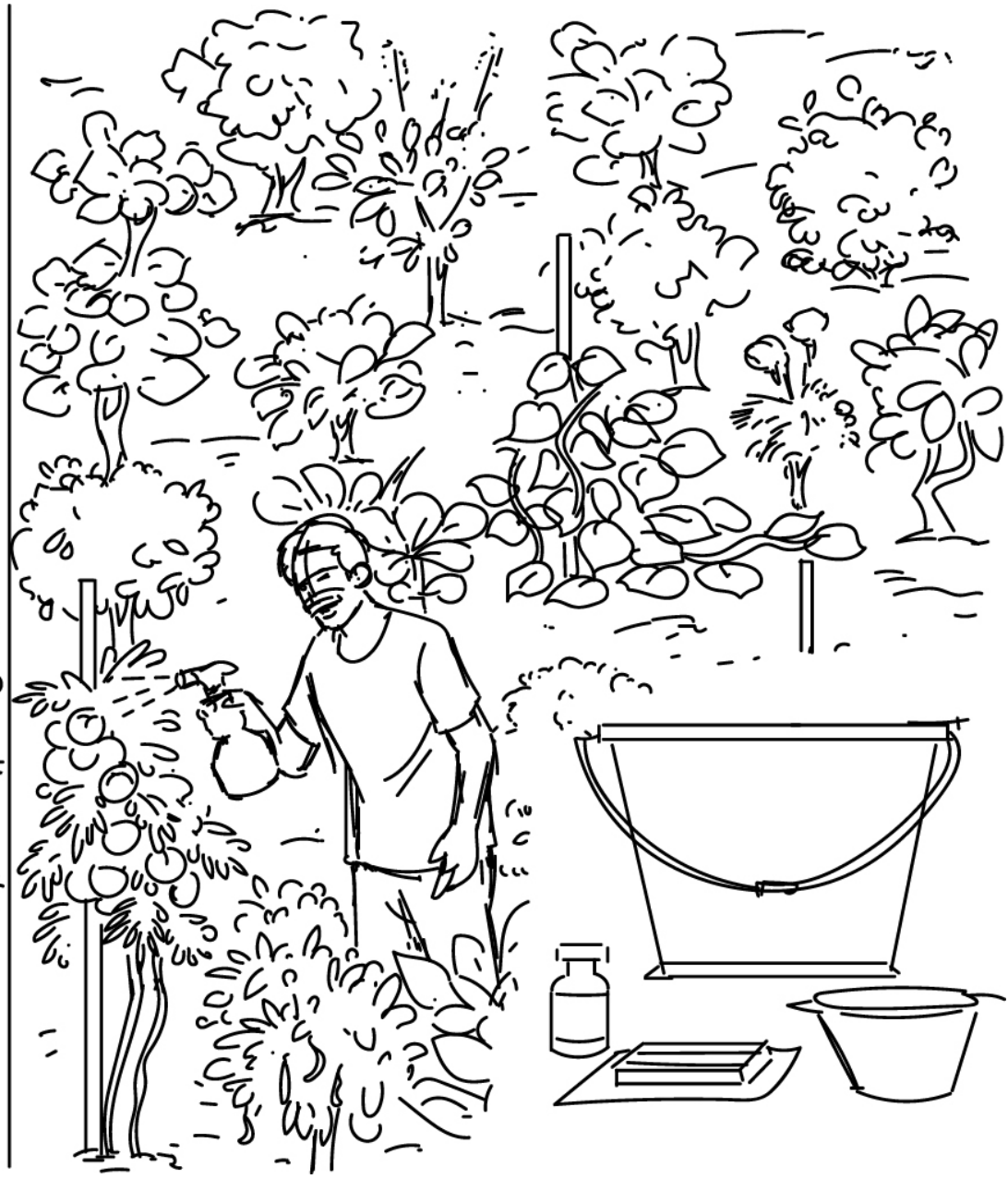
The agrarian distress seen across rural India in recent decades reflects declining productivity and rising input costs, which pushed many marginal farmers into debt and led to widespread farmer suicides, destroying families and dreams.

Natural Farming Helps:

- Reduce expenses
- Improve soil life
- Increase resilience during droughts, floods and climate vagaries
- Produce healthier and more nutritious food throughout the year.
- Improve long-term farm income, sustainably







Zero Budget Natural Farming (ZBNF)

ZBNF means:
- Farming with very low external-input costs
- Using local cow-based inputs
- Making your own fertilizers and pest control
- Building healthy soil naturally

Four Key Pillars of ZBNF

Jeevamrutham (Soil Nourishment)

Food for Soil Microbes: Jeevamrutham is a natural liquid made from - Cow dung and urine, Jaggery, Pulse flour, Soil from bunds or forests and Water

Benefits
- Increases soil microbes
- Improves nutrient availability
- Boosts crop growth
- Reduces need for chemicals

Healthy soil microbes = healthy plant

Beejamrutham (Seed Treatment)

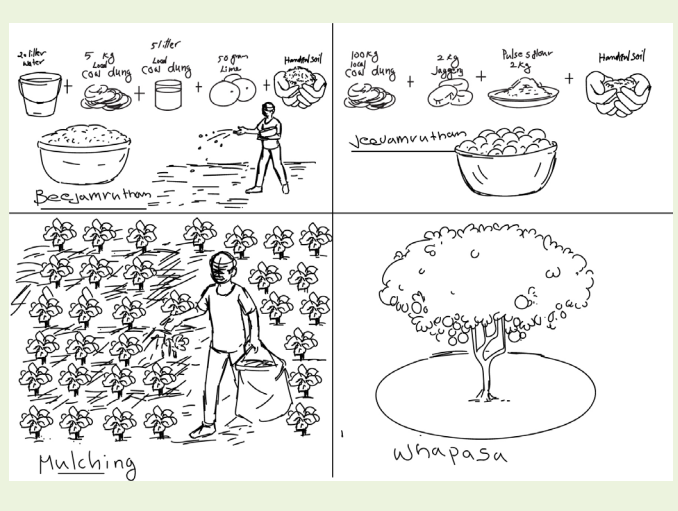
Natural Seed Treatment: Before sowing seeds coat them with Beejamrutham. It protects them from fungal diseases and aids germination.

Made from- Cow dung and urine, lime, local soil and water

Healthy seed = healthy crop.

Acchadana (Mulching)

Cover the Soil: Mulching means covering soil with dry leaves, straw, crop residues and green matter



Why mulch?
- Creates micro-climate that preserves soil moisture and aeration
- Reduces weeds
- Protects soil from damaging strong sunlight and heat
- Improves soil fertility, quality as soil micro-biome thrive
- Reduces irrigation need

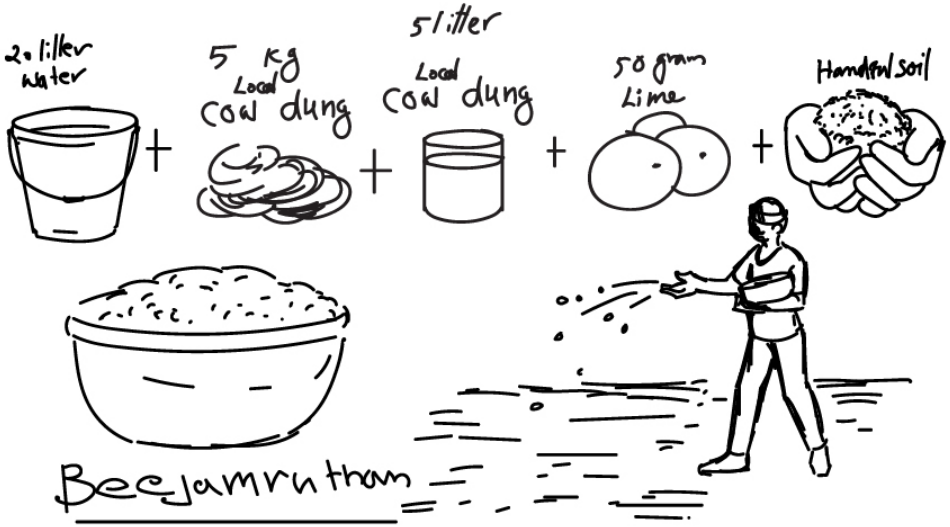
Bare soil facing repeated chemical doses becomes dead soil.

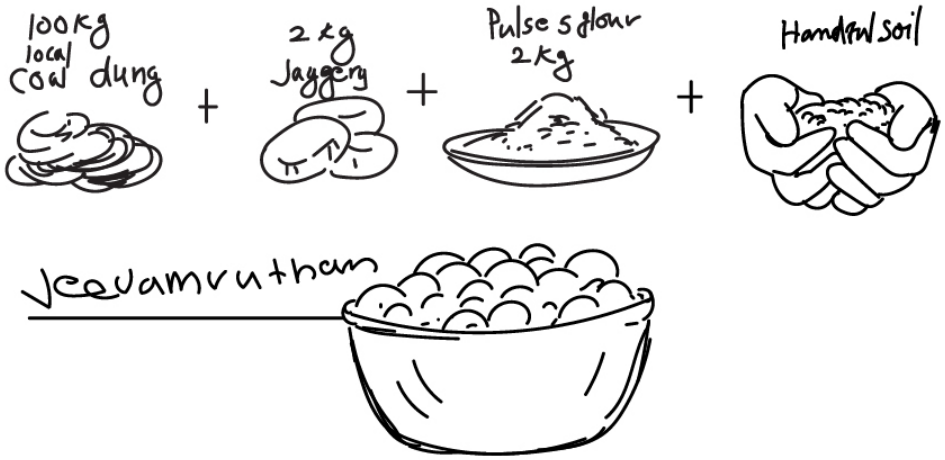
Whapasa (Soil Moisture and Air Management)

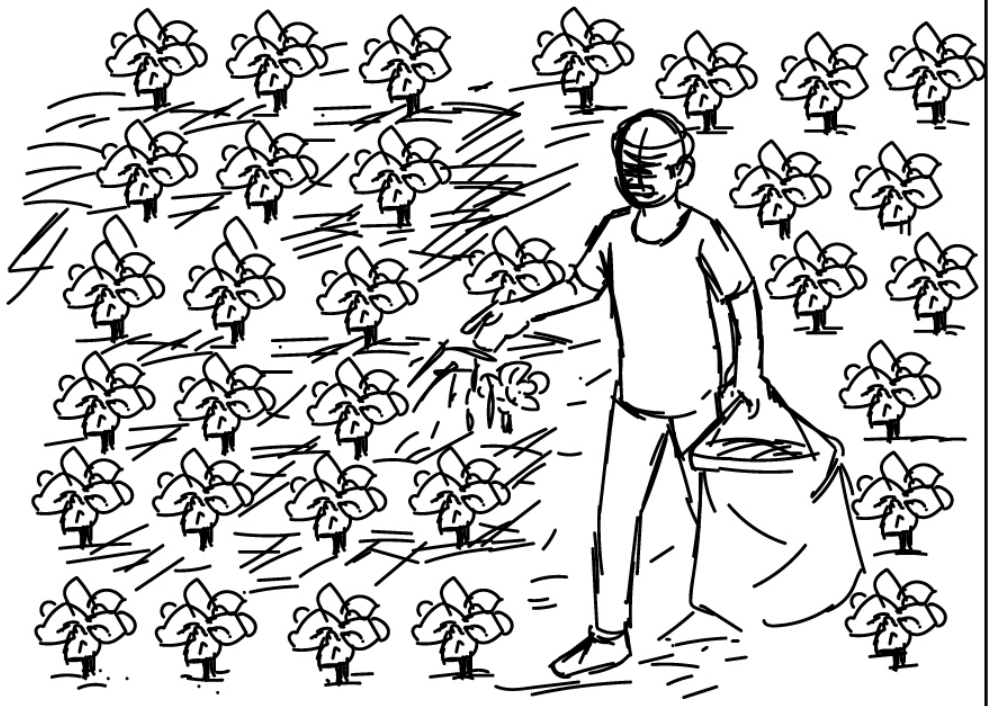
Soil Moisture and Air: Plants need balanced moisture and air in the soil, so Natural Farming avoids overwatering.

Benefits
- Strong roots, better plant health
- Better soil aeration
- Lower water use

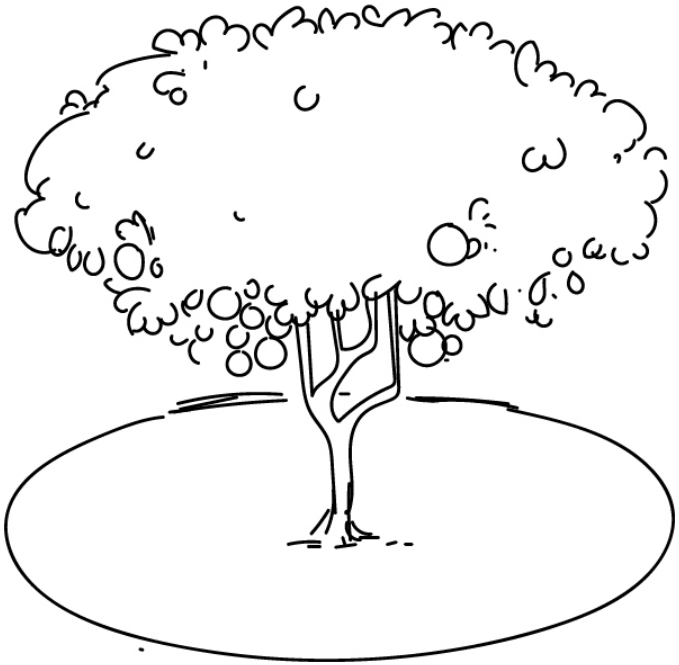
Too much water can damage roots.







Mulching



Whapasa

Natural Pest Management (NPM)

Nature controls pests naturally. NPM utilizes eco-friendly methods to manage pests without synthetic chemicals

Use: Neem extract or neem oil, mint, butter-milk, soap-oil emulsion, chilli-garlic spray, cow urine mixtures, yellow sticky traps, companion planting of trap crops (e.g., marigolds, basil), birds (owls, Indian Roller, cuckoos, egrets), animals (bats, frogs, lizards, poultry) and beneficial insects (dragonflies, ladybugs, parasitoid wasps, praying mantises)

Avoid excess chemical pesticides

Use Nature's friends: Birds, some animals and good insects also protect crops.



Intercropping & Mixed Crops

Grow different crops together. Intercropping involves growing two or more crops in defined rows, while mixed cropping grows 10 or more crops together based

Examples: Maize + Beans + Vegetables or Millets + Pulses + Vines or Groundnut + Redgram + Vegetables and so on, based on local conditions

Benefits

- Reduces pest attack
- Improves soil fertility
- Gives multiple incomes
- Reduces crop failure risk

Diversity makes farms stronger.



Andhra Pradesh Community-managed Natural Farming (APCNF)

APCNF by a government non-profit Rythu Sadhikara Samstha (RySS) demonstrates how Natural Farming can be scaled through community institutions, farmer training, and decentralized extension systems. It promotes climate-resilient, low-cost, ecosystem-based agriculture. APCNF is now a National Resource Organization (NRO) under the Ministry of Rural Development's National Rural Livelihoods Mission (NRLM), supporting other State Rural Livelihoods Missions.

Key Features

- Practical climate-resilient agriculture models for diverse agro-climatic zones
- Ensures year-round nutrition and food security
- Women SHG participation and livelihood opportunities for all sections
- Farmer-to-farmer extension, village-level knowledge sharing
- Community resource persons work with field teams, experts
- Nutrition-sensitive farming eliminates chemical risks to farmers, consumers
- Ecological and biodiversity protection due to non-chemical practises

Why Study APCNF's Practices

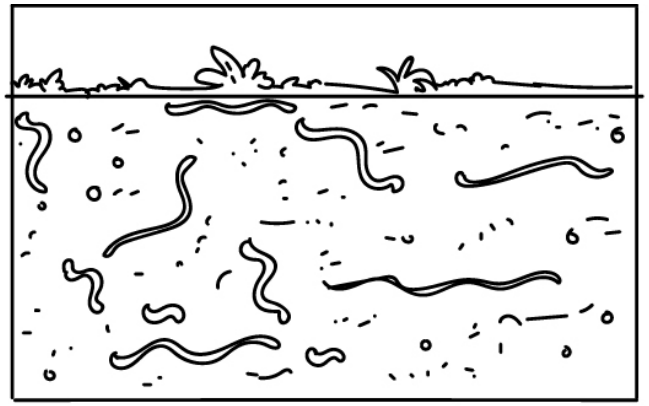
- Promotes climate-adaptive models for diverse agro-climatic zones: drought-prone, arid, irrigated, and wetland; for regular farms, marginal smallholders, landless households, kitchen and community gardens.
- Zero chemical use lowers input costs by use of bio-stimulants made with locally available or homemade resources.
- Sustainable long-term support by community resource-persons, mentors, program field teams, who aid transition from experimental plots to full-farm or compact blocks with neighbors
- Focus on improved soil health through zero-tillage, revived soil biology, plant-root-fungal microbiomes, root exudates, and use of bio-stimulants
- Focus on improving household and rural health and nutrition through kitchen gardens, group procurement by landless or poor households, by hostels, schools and Anganwadis



- Gender-positive approaches enabling women's groups, practitioners and entrepreneurs
- Strengthens rural livelihoods – nutritious farm produce and processed food products, sale of bio-stimulants, treated seeds and linked innovative services
- Encourages sustainable farming practices that improve the health of farmers, their families, and consumers by reducing chemical-ingestion risks.
- Protects local bio-diversity, ecosystems, water-bodies from chemical farm pollutants and encourages use of wild birds, animals, insects, native plants and trees for pest eradication

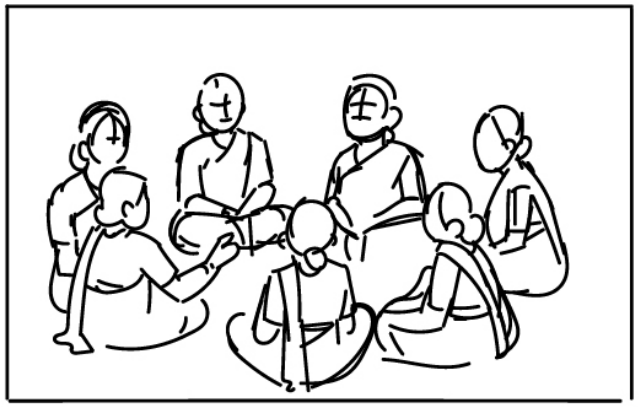
APCNF Impact

- Over 1.8 million farmers working on over 2 million acres covered
- Improved food security and nutrition
- Enhanced climate resilience
- Increased farmer incomes



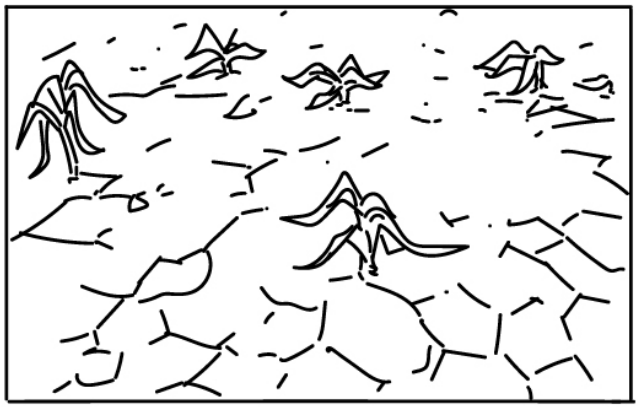


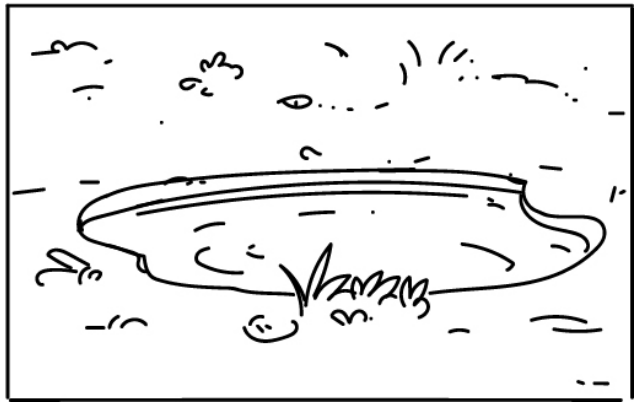












APCNF Key Practices

Some key practices of APCNF's scientific Natural Farming, aimed at preserving ecosystem services and natural resources, arrived at after practical on-field studies are explained.

Soil is Alive and Critical to Farming

Healthy soil contains: Microbes, earthworms and other organisms, fungal networks, root networks, humus, organic matter. **Soil must not be tilled**– a network of living roots, organic matter provides the porosity and support to soil microbiomes that brings even dead soil to life.

Healthy soil can:

- Hold more water or moisture and air
- Resist drought
- Grow healthy crops
- Reduce or eliminate fertilizer need

Soil & Seed Microbiome

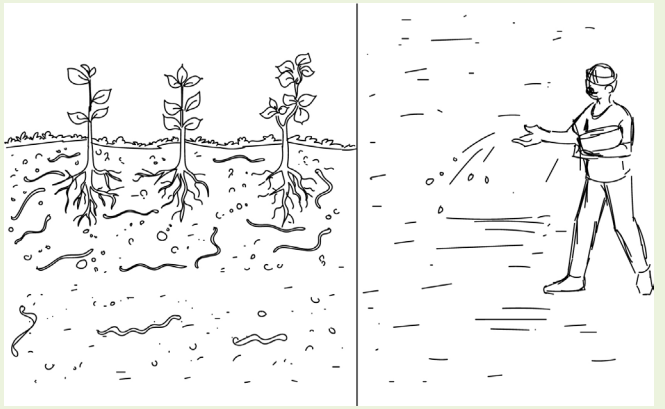
Healthy soils contain billions of beneficial microbes. Natural Farming restores – Soil fungi (Mycorrhizae), bacteria, earthworms and other soil biota.

Why It Matters

- Improves nutrient availability
- Enhances plant growth
- Increases carbon sequestration
- Produces nutrient-rich food

APCNF techniques such as PMDS seed coatings, 365-DGC (covered later) and others help beneficial microbes, biota develop and colonize around roots and in the soil.

Nourish the soil first, care for it and it will reward you with abundance.



Pre-Monsoon Dry Sowing (PMDS)

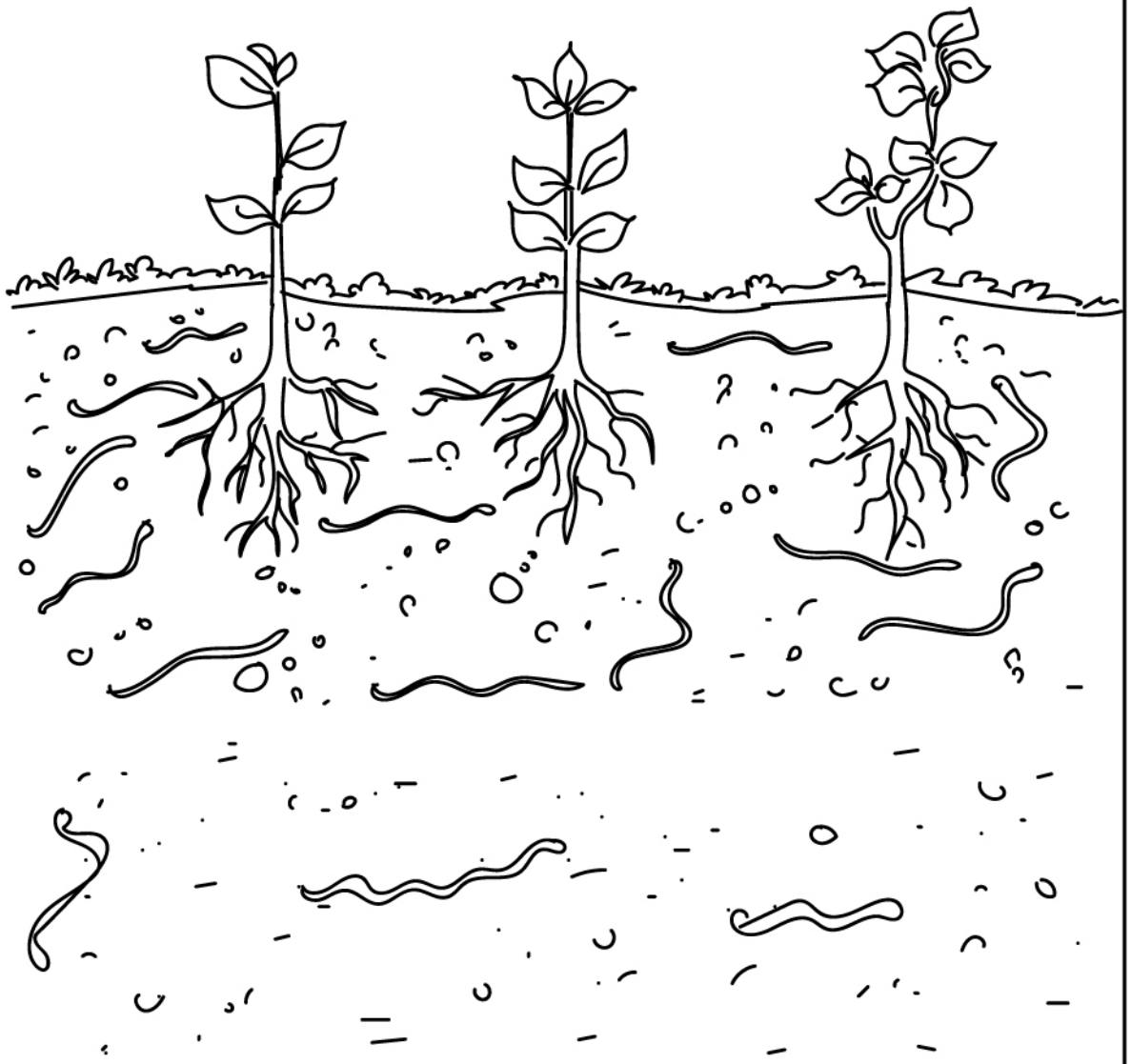
PMDS is a breakthrough farming practice where seeds treated and coated (pelletized) are sown before monsoon rains. APCNF's philosophy abhors tilling of land and keeping land fallow. To protect and preserve soil micro-biome, PMDS is practised with 365-Days Green Cover (365 DGC) enabling even farmers from rainfed, dryland areas to harvest three crops a year.

Why PMDS?

- Prevents land from remaining fallow
- Protects soil from extreme summer heat and oxidative sunlight
- Reduces soil carbon loss
- Enables seedlings and crops to survive with very little moisture

Benefits

- Better soil moisture retention
- Reduced greenhouse gas emissions
- Improved climate resilience
- Supports a third crop season





Seed Pelletization

Seeds are coated using the following, sun-dried and then sowed by end of May, before pre-monsoon showers:

- Beejamrutham
- Clay soil
- Ghanajeevamrutham
- Wood ash

The coatings protect seeds from fungi, pests, and birds. They help seeds germinate with minimal moisture, while the microbes and nutrients support seedling growth, retain moisture, and enrich the surrounding soil.

How It Helps

- Clay and bio-stimulants boost beneficial microbes, fungi and retain moisture
- Protects seed from birds, pests and fungi
- Supports germination even in dry conditions with minimal moisture, from say, pre-monsoon showers

Mulching & Bio-Stimulants

Plant Residue Mulching: Crop residues like straw, leaves, and groundnut shells are spread over fields.

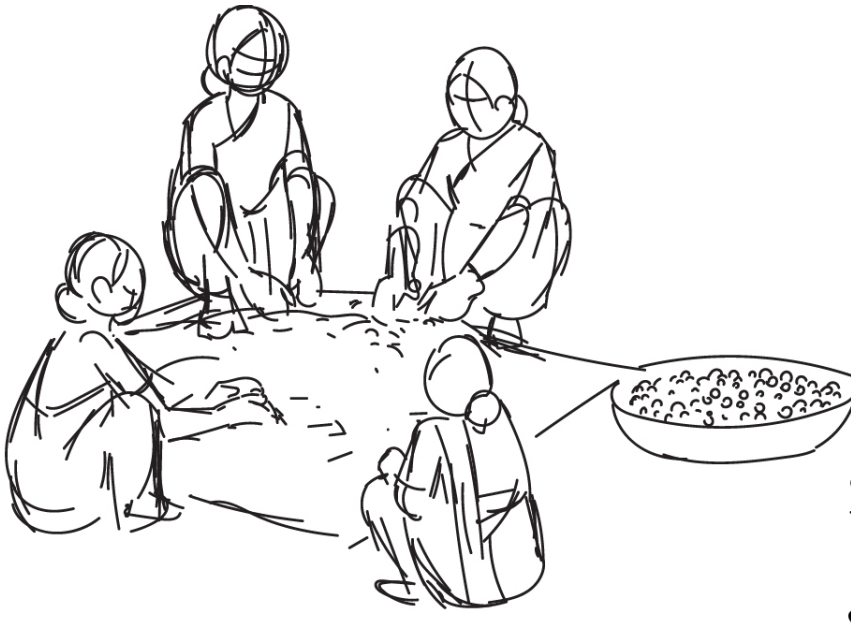
Benefits

- Conserves soil moisture, creates a micro-climate
- Reduces evaporation, protects oxidation of nutrients by harsh sunlight, heat
- Prevents erosion
- Improves soil fertility, shelters soil biota, releases nutrients, moisture as it decomposes
- Works with bio-stimulants and organisms to make soil alive



Bio-stimulants: APCNF teaches creation of natural formulations such as *Ghanajeevamrutham and Dravajeevamrutham* that are broadcast or sprayed on the farm at prescribed schedules, while the Beejamrutham is used in the pelletized seed coating.

These improve plant and seedling growth, protect them from pests and ensure drought tolerance.







365-Days Green Cover (365-DGC)

The 365-DGC with PMDS keeps farmland covered with crops throughout the year. The shade provided by the different types of crops and their root networks together improve soil fertility.

Features
- 25–30 crop varieties grown all through the year, as per season
- No fallow periods
- Provides continuous live mulch

Outcomes
- Increased soil organic carbon, humus, porosity
- Better groundwater recharge
- Rich soil microbial life
- Year-round food and income

A-Grade Model

The A-Grade Model developed by the APCNF team helps farmers to grow multiple crops on one acre, using 365-DGC.

Main Features
- PMDS before monsoon
- Multi-cropping in Kharif and Rabi seasons
- Each main crop is paired with 4–5 others per season, plus 20–25 biodiversity crops on mulched land for pest control
- Relay vegetable crops sown post-harvest, with one sown as soon as the other is harvested
- Cropping intensity up to 3 times



Benefits
- 3–5 times higher and regular income for small, marginal farmers
- Nutritious food year-round – Navadanya – millets, oilseeds, pulses, vegetables, tubers, leafy greens, gourds, flowers
- Reduced farming costs
- Improved climate resilience



ATM (Any Time Money) Model

A model designed for small and tenant farmers working on 0.20-acre (800 sq meters) plots.

Highlights

- Grows vegetables and fruits on tiny plots
- Relay sowing, frequent harvesting throughout the year
- Income starts within two weeks

Impact

- Monthly income of ₹5,000–10,000 from 0.20 acres for marginal, landless tenant farmers from dryland regions
- Improved nutrition for families
- Better resilience against droughts and floods

Drought-Proof Farming Model

APCNF introduced a 'no-plough' model during an year of severe El Niño conditions.

Method

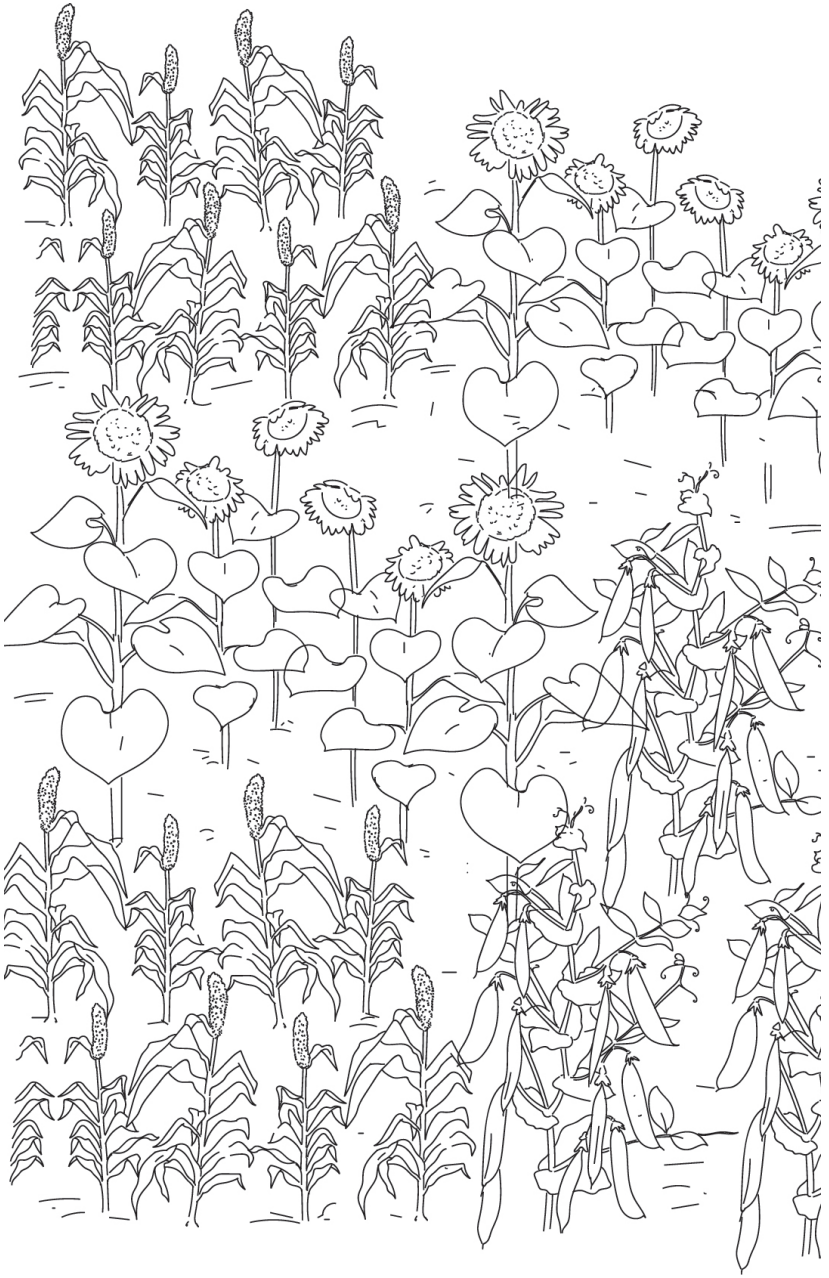
- Pelleted seeds are sown in circular patches
- Cereals, pulses, and oilseeds (5-7 types) are grown together
- Requires minimal soil disturbance

Advantages

- Revives degraded, uncultivated land in regions where farming has been abandoned
- Conserves moisture, improves soil in cultivated patch
- Supports farming in dry climates
- Helps escape food and nutrition-scarcity trap







Cover Crops & Soil Health

All the models and techniques developed by APCNF hinge on the presence of year-round cover of multi-layered crops that protect and nourish the soil.

Role of Cover Crops

- Increase soil carbon, organic matter
- Improve soil porosity, water infiltration and recharge of ground water
- Reduce soil compaction, oxidation of organic matter, nutrients from decaying organic matter
- Constant presence of live root and fungal-networks ensure assured nutrients to soil ecosystem

Ecological Benefits

- Suppress weeds
- Attract beneficial insects, organisms and others, which bring birds and other predators
- Retain soil moisture and nutrients
- Improve nutrient cycling



Traditional Crops & Poly-Cropping

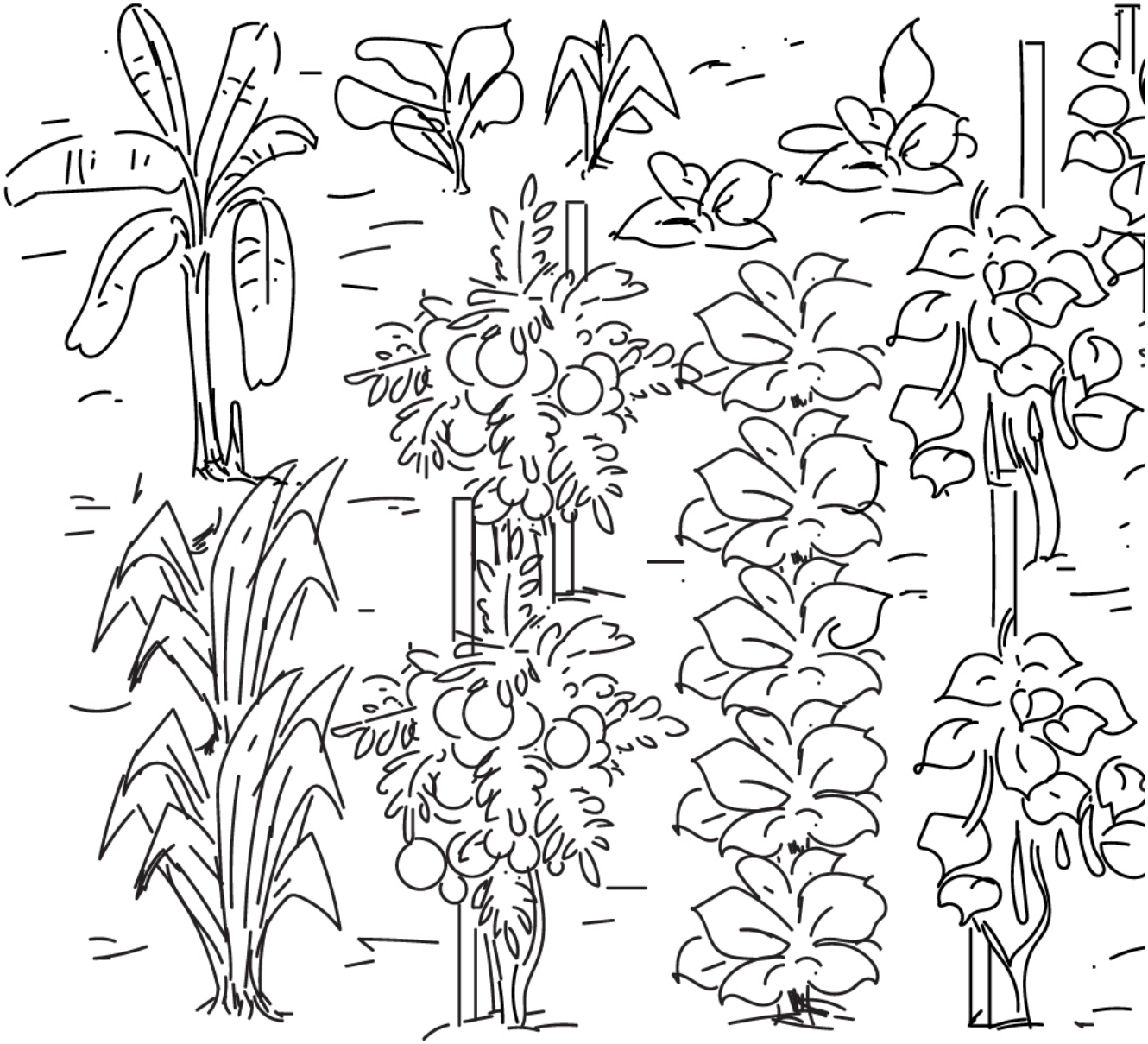
APCNF promotes traditional, nutrient-rich local crop varieties that are grown together.

Poly-Cropping Benefits

- Multiple crops grown together
- Natural pest control, deter one pest from decimating mono-crops
- Better land-use efficiency
- Reduced crop failure risks

Crop Diversity Supports

- Varied soil microbes, organisms and other biota
- Pollinators of different types
- Climate resilience
- Household nutrition through the year





Integrated, Climate-Resilient Farming

APCNF combines natural farming with:

- Trees, livestock
- Farm ponds
- No tilling and chemicals, living mulch
- Multi-cropping, relay cropping
- Nutrient recycling

Use of Local Resources

Natural Farming encourages: local seeds, native cow-based inputs, farm-made fertilizers, farm-made and natural pest control

Benefits
- Lower expenses
- Self-reliance
- Less dependence on markets

The farm, and local natural environment itself provides many solutions.

Water Saving Practices

Save every drop.

Practices: Mulching, continuous plant or crop cover, minimal irrigation use, farm ponds, rainwater harvesting, soil moisture conservation through different cultivation techniques

Results: Lower irrigation costs, better drought protection

Livestock are Important

Indigenous cows, smaller-livestock, poultry, fish-ponds are central to Natural Farming.



Animals provide: Dung, urine, waste or pond-sludge as compost material, biogas

Animals and crops support each other.

Results
- Reduced erosion
- Better use of local resources, waste-recycling or reuse
- Improved moisture retention
- Better resilience to erratic weather- drought, aridity and even withstand flooding after cyclones
- Lower cultivation costs
- Stable, year-long farmer income and household food security



Impact of Natural Farming

Natural Farming can aid through:

- Year-long access to safe, nutritious food for the farming family and consumers
- Reduced cultivation costs and chemical exposure
- Improved soil organic matter with better moisture-water retention
- Enhanced biodiversity and increased climate resilience

Observed Benefits in Many Natural Farms

- Improved soil fertility, porosity and organic matter
- Lower irrigation demand, water use
- Reduced input expenditure, or debt
- Stable yields, comparable to chemical farming, over time
- Stronger community participation

Simple Practices:

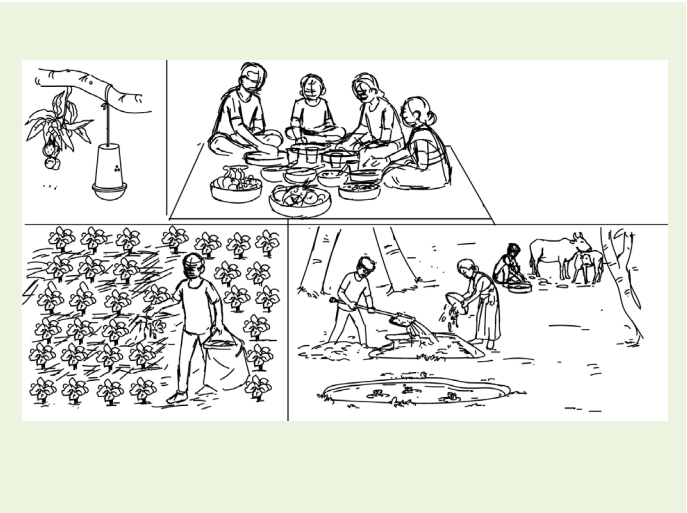
- Composting and mulching
- Preparing Jeevamrutham, Ghanamrutham, Beejamrutham and other bio-stimulants with local resources
- Mixed cropping, inter-cropping with green cover throughout the year
- Use of trap-crops, beneficial insects, birds and other natural ways to deter or eliminate pests

Small steps create big change.

Natural Farming & Health

Healthy farming supports: Farmers, Families, Consumers, The Environment for All

Less Chemicals = Cleaner, Safer Water + Healthier Soil + Safer Food + Healthier Families, Communities + Safe, Protected Environment and Lifeforms



Remember These Rules

- Use Natural Inputs-No Chemicals at All!
- Feed the Soil and Cover it with Mulch or Natural Cover
- Grow Many Crops Together
- Integrate Cropping with Trees, Livestock, Fish Ponds
- Use Nature to Fight Pests and Disease

Nature rewards healthy farming with good health and many lifelong rewards.



Less Chemicals = Cleaner, Safer Water + Healthier Soil + Safer Food + Healthier Families, Communities + Safe, Protected Environment and Lifeforms

Message for Extension Workers, Government Departments

- Identify Natural Farming agencies, departments, individuals for awareness and training
- Support and strengthen community institutions
- Develop and roll-out awareness campaigns using local resources, mentors, experts
- Schedule and strengthen farmer training
- Build communities of practitioners and local resource persons
- Highlight work of local practitioners, make them ambassadors of change
- Promote gradual transition
- Help farmers:
  - Start small.
  - Learn step by step.
  - Observe crops and interaction with nature carefully.
  - Share knowledge with others.
- Encourage local innovation in production, storage and local sales
- Identify markets and encourage consumer access to safer foods
- Document local success stories on different platforms
- Build on success using community resources, ambassadors to spread the word over different platforms

Natural Farming is not only an agricultural practice. It contributes to:

- Rural livelihoods
- Household and public health and nutrition
- Food security and climate resilience
- Soil conservation
- Water security
- Environmental protection from harmful chemicals

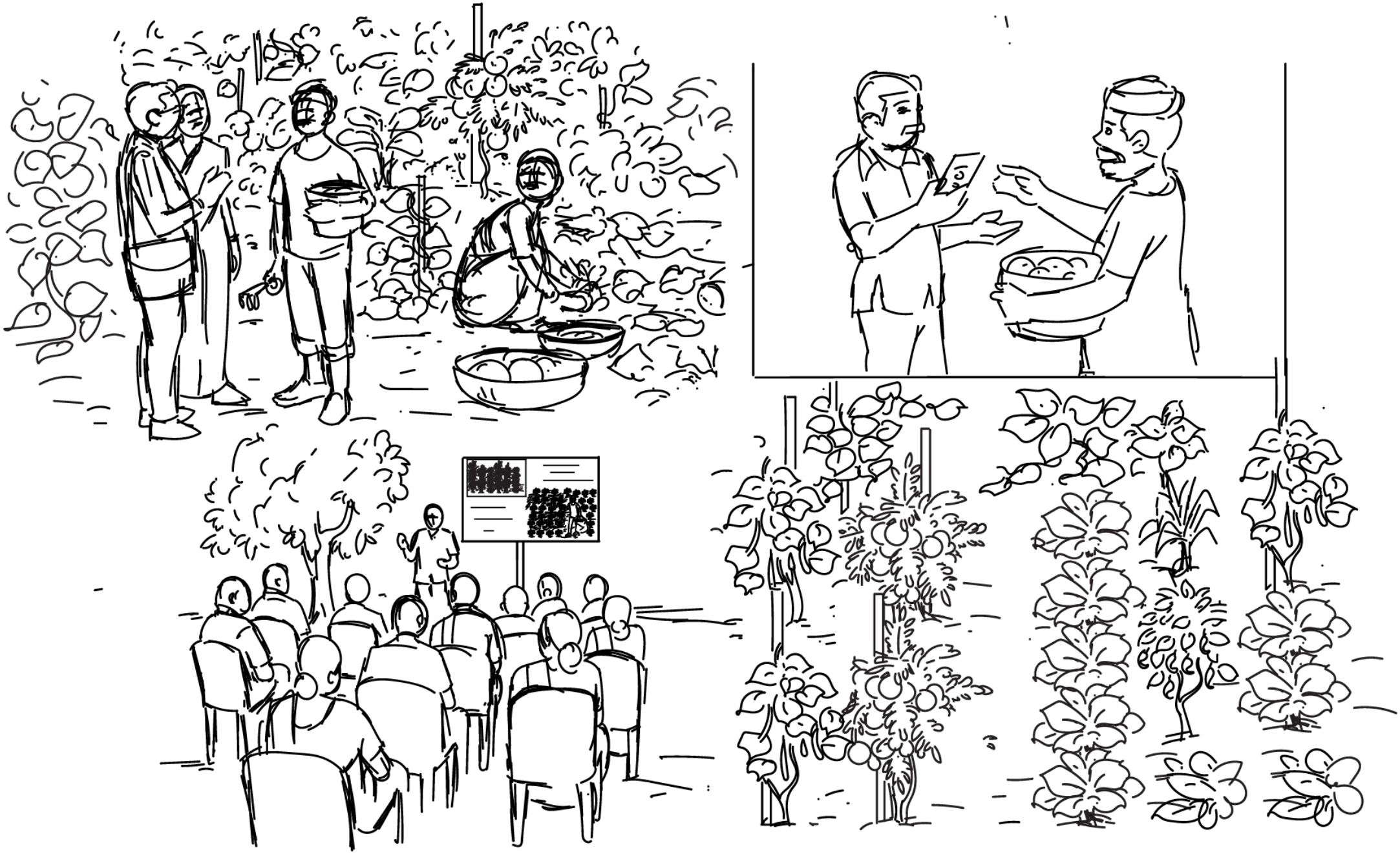
Healthy farming for every home.



Closing Points

- Natural Farming demonstrates that scientific natural farming can restore ecosystems, strengthen climate resilience, and improve livelihoods, health and nutrition for farming families.
- Sustainable farming requires cooperation between farmers, communities, and government institutions.
- Long-term sustainability depends on continuous training, local adaptation and farmer support systems.
- Natural Farming is not only about crops. It is about protecting land, water, health, and future generations.

"Healthy Soil, Healthy Food, Healthy Farming Families and Communities"



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