

Principle and components of Natural farming



Dr. R. KRISHNAN, Ph.D.

**PI-ICAR-AINPOF-TNAU and Professor and Head
Nammazhvar Organic Farming Research Centre, TNAU, Coimbatore**

DEFINITION

“Natural farming is a chemical-free traditional farming method. It is considered as an agroecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity”. – NITI Aayog

Adopts the neo-Gandhian values of self-reliance, autonomy and promotes growing crops in harmony with nature.



NATURAL FARMING

Has two major axes,

1. Agronomic is about improving soil fertility through a number of agroecological principles, including diversification, nutrient recycling, increasing beneficial biological interactions and opposes use of external inputs or synthetic fertilizers.

NATURAL FARMING

Has two major axes, the other is structural.

2. It is about de-linking farmers from external inputs and credit markets to create autonomy by not purchasing anything from external source

Natural farming alias ZBNF

- Does not literally mean that, rather implies the need for external financing is zero, and that any costs incurred can be offset by a diversified source of income which comes *via* farm diversification rather than dependence on one monoculture
- We need a forward-looking sustainable model in agriculture and not a revivalistic model that talks about farming practices centuries ago
- The focus should be on reducing agro-chemicals, water use and energy utilization."

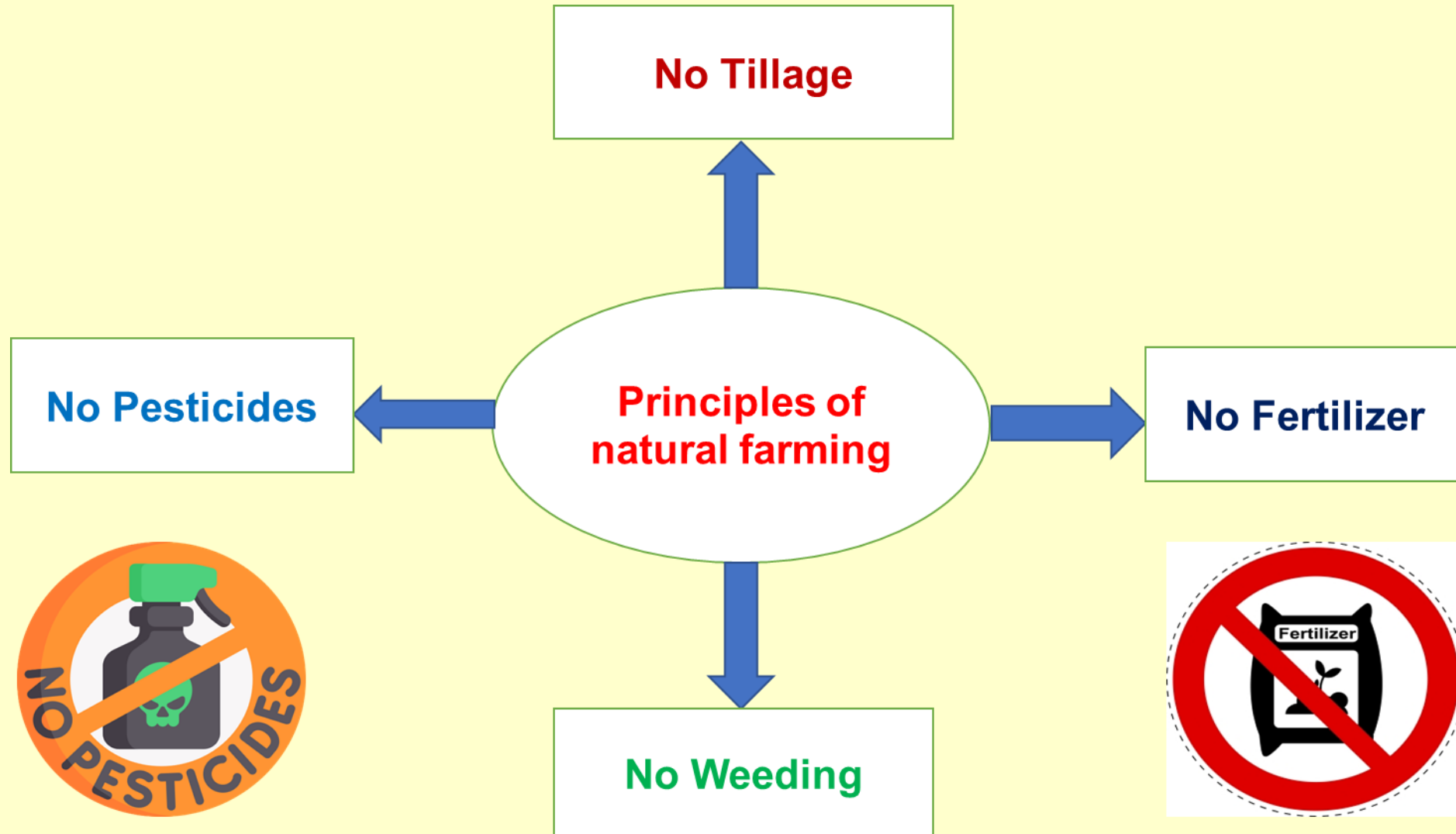
Natural Farming

- Also referred to as "do-nothing farming,"
- Origin is insights of Masanobu Fukuoka, the principle is collaborating with natural forces rather than opposing them.
- The ultimate goal is to foster agricultural systems that are both sustainable and in equilibrium with nature.

The uniqueness of NF

- 1) An approach towards sustainability;
- 2) Expense-free farming;
- 3) Farming with minimum electricity and water consumption;
- 4) Producing quality and poison free food stuff;
- 5) Reducing external labour requirement;
- 6) Techniques of multi cultivation for higher net income under bio-entrepreneurship.

Principles of Natural farming



Principles of Natural Farming

- No external inputs
- Minimal disturbance of soil
- Use indigenous seed
- Mixed cropping
- Integration of trees into the farm
- Soil and moisture conservation
- Integrate animals in to farming
- Increase organic residues on the soil
- Pest-management through botanical extracts
- No synthetic fertilizers, pesticides, herbicides & GMO

Similarities Between Organic and Natural Farming

- Both are chemical-free and, to a large extent, poison-free.
- Farmers are encouraged to use local seeds and native cultivars of vegetables, cereals, legumes, as well as other crops in both farming methods.
- Nonchemical and homemade pest control solutions are promoted by organic and natural farming methods.

Differences between Organic and Natural Farming

- Organic manures, such as compost, vermicompost, and cow dung manure, are applied to farmlands in organic farming.
- No additional manures and nutrients are put into the soil or given to the plants.
- Natural farming encourages the breakdown of organic matter by microorganisms and earthworms right in the field, gradually adding nutrients to the soil over time.
- Ploughing, mixing manure, weeding, and other fundamental agro activities are still required in organic farming.
- No ploughing, no soil tilting, no fertilizers, and no weeding in natural farming, precisely as it would be in natural ecosystems.
- Natural agriculture is an extremely low-cost farming method that completely molds with local wildlife. Organic farming is still costlier due to the necessity of bulk manures, and it has an ecological footprint on the surrounding.

Advantages of natural farming

- Natural farming reduces the initial cost of farmers and hence increased income.
- The soil ecosystem improves.
- Cow dung adds soil nutrients value and available locally.
- Micro-organisms in cow dung decompose the organic matter in soil and make soil healthy for the plants.
- It required less electricity and water.
- It improves the productivity of the soil.
- It decreases the disease attack risk on the crop.

Disadvantages in natural farming

- This farming method used only in some parts of India.
- This type of farming being debated, and there is not much scientific research under evaluation.
- It is sustenance farming



Challenges of Natural Farming (ZBNF)

- Convincing the Scientific Community
- Adoption by Large-size Farm Holding
- Doubtful in Case of High-input Mono Cropping Region
- Lack of Mechanization
- Continuous Improvement in Crop Yield



Pillars of natural farming

- 1) Bijamrita/beejamrutha
- 2) Jivamrita/jeevamrutha
- 3) Acchadana-mulching
- 4) Whapasa-moisture

Role of four pillars

Jivamrita: A fermented microbial culture derived from cow dung and urine, jaggery, pulse flour, and soil	Stimulate microbial activity to make nutrients bioavailable; protect against pathogens.
Bijamrita: a microbial coating for seeds, based on cow dung, urine, and lime	Protects young roots from fungus and seed borne or soil borne diseases
Acchadana- mulching: Covering the top soil with cover crops and crop residues	Produces humus, conserves top soil, increases water retention, encourages soil fauna, prevents weeds
Whapahasa: Soil aeration, a result of jivamrita and acchadana- represents the changes in water management brought about by improved soil structure and humus content	Increase water availability, water use efficiency, increase resilience to drought

Natural Farming's principles encompass

- Zero external inputs
- Year-round soil cover with crops (living root)
- Minimal soil disturbance
- Use of bio-stimulants as catalysts
- Native seeds for mixed farming
- Mixed cropping

Natural Farming's principles encompass

- Incorporating trees into the farm
- Water and moisture conservation
- Integration of animals in farming
- Greater organic debris in soil
- Utilizing plant extracts for pest control
- No artificial pesticides, herbicides, or fertilizers

Components of Natural farming

1. Organic pesticides & herbicides
2. Organic compost & foliar fertilizers
3. Biological pest control using beneficial microorganisms
4. Biochar utilization
5. Creation of a nearly 100% natural environment

Evolution in Natural Farming

Practices evolved with time are

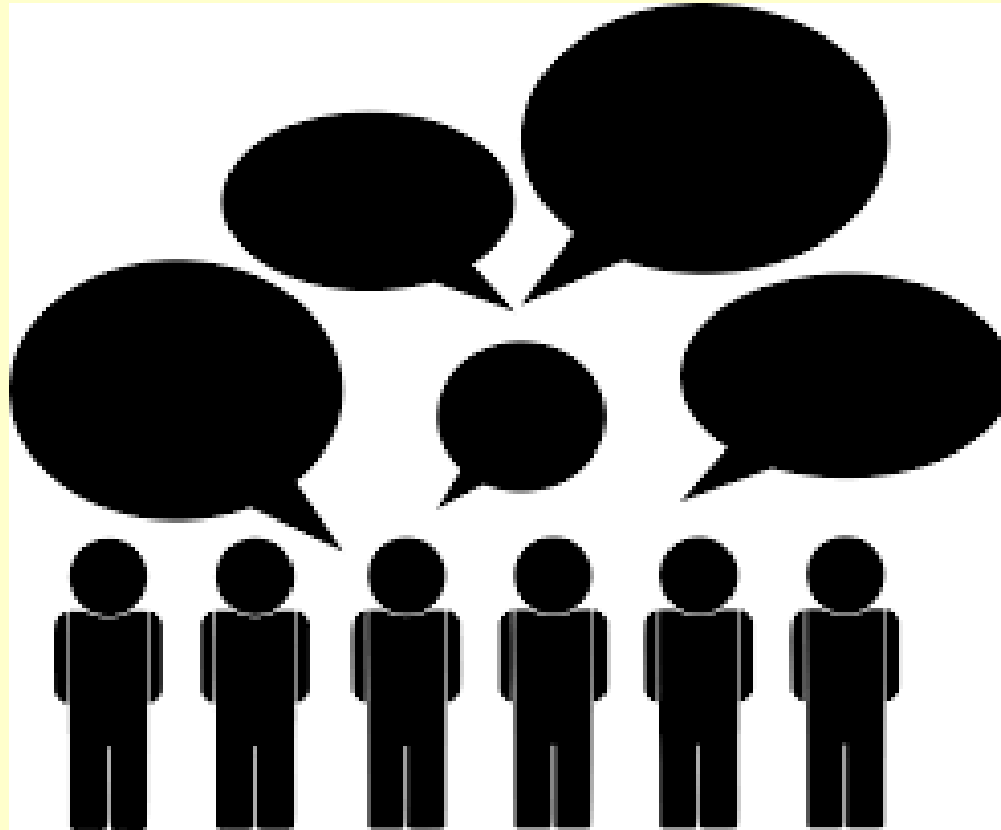
- Pre Monsoon Dry Sowing (a method of multi-species green manuring),
- Green manuring and applying Farm Yard Manure (FYM), Vermi-compost, etc.
- Along with the desi-cow based components of Natural Farming.

In some areas farmer groups have come forward and are preparing desi cow derived inputs for Natural Farming and making it available to other end using farmers who don't own livestock.

Goal

The ultimate goal of agroecological design is to integrate components so that overall biological efficiency is improved, biodiversity is preserved, and the agroecosystem productivity and its self- sustaining capacity is maintained.

Time for interaction



Thank you

