

## Importance and Pillars of Natural Farming

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### Summary: -

Natural farming is a chemical-free, low-input, and climate-resilient agricultural system that eliminates synthetic fertilizers, pesticides, and other agrochemicals. It relies on locally available resources, especially livestock-based inputs such as cow dung and cow urine, along with jaggery, pulse flour, mulch, and crop diversity. The approach focuses on improving soil biology, enhancing organic matter, promoting biodiversity, and strengthening ecological balance within the farm ecosystem.

### Introduction:

Natural farming is built on four main pillars Beejamrutha, Jeevamrutha, Acchadana and Whapasa. The system offers multiple benefits, including improved crop productivity, better soil health, reduced production costs, enhanced farmer income, and environmental conservation. It minimizes water use, reduces carbon footprint, lowers pollution, and increases resilience against pests and diseases.

**Ensures better health :** As Natural Farming does not use any synthetic chemicals, health risks and hazards are eliminated. The food has higher nutrition density and therefore offers better health benefits.

**Environment conservation :** Natural Farming ensures better soil biology, improved agrobiodiversity and a more judicious usage of water with much smaller carbon and nitrogen footprints.

### Importance of Natural Farming

**Improve yield :** It increases production, productivity and sustainability of crop due to application of organic matter which increases microbial activity in the soil and provides all essential nutrients.

**Increased farmers income :** Natural Farming aims to make farming viable and aspirational by increasing net incomes of farmers on account of cost reduction, reduced risks, similar yields, incomes from intercropping.

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**Employment generation :** Natural farming generates employment on account of natural farming input enterprises, value addition, marketing in local areas, etc. The surplus from natural farming is invested in the village itself.

**Reduced water consumption :** By working with diverse crops that help each other and cover the soil to prevent unnecessary water loss through evaporation, Natural Farming optimizes the amount of 'crop per drop'.

**Minimized cost of production :** Natural farming aims to drastically cut down production costs by encouraging farmers to prepare essential biological inputs using on-farm, natural and home-grown resources.

**Eliminates application of synthetic chemical inputs :** The overuse of synthetic fertilizers, especially urea, pesticides, herbicides, weedicides etc. alters soil biology and soil structure, with subsequent loss of soil organic carbon and fertility.

**Rejuvenates soil health :** The most immediate impact of Natural Farming is on the biology of soil on microbes and other living organisms such as earthworms. Soil health depends entirely on the living organisms in it.

**Livestock sustainability :** The integration of livestock in the farming system plays an important role in natural farming and helps in restoring the ecosystem. Ecofriendly

bio-inputs, such as Jeevamrit and Beejamrit, are prepared from cow dung and urine, and other natural products.

**Reduced carbon footprint :** By avoiding synthetic fertilizers and heavy machinery, and through carbon sequestration in the soil, natural farming contributes to lower greenhouse gas emissions.

**Biodiversity enhancement :** Diverse cropping systems and the absence of harmful chemicals create a haven for various flora and fauna, fostering a balanced ecosystem.

**Healthier produce :** Without synthetic chemicals, food is free from potentially harmful residues, and some studies suggest naturally grown produce may have a richer nutrient profile.

**Reduced pollution :** By avoiding synthetic fertilizers and pesticides, natural farming eliminates a significant source of soil and water pollution.

**Resilience to pests and diseases :** Biodiverse ecosystems are less susceptible to large-scale infestations and diseases, reducing crop loss.

**Preservation of Natural Resources :** Natural farming practices preserve vital resources like topsoil, clean water, and air, ensuring they're available for future generations.

## Main Pillars of Natural Farming

1. Jeevamrutha/ Jivamrita

2. Beejamrutha/ Beejamruta
3. Acchadan/ mulching
4. Whapasa/ moisture

## 1. Beejamrutha

The name “Beejamrutha” comes from the Sanskrit words “Bheej” (seed) and “Amrutha” (nectar), its ability to revitalize and nourish seeds. It involves preparing a nutrient-rich mixture applied to seeds before sowing. Bijamrita is a natural seed treatment solution for crops, prepared by soaking seeds in a mixture of cow dung, water, lime and cow urine. After soaking, the seeds are dried and then sown.

Beejamrutha contains general microflora and beneficial biochemical groups such as free-living nitrogen fixers, phosphorus solubilizers, bacteria producing plant growth-promoting substances, and bacteria with biological deterrent activities. The presence of such beneficial microbial biomass and nutrient content results in improved seed germination, seedling length, and seed vigor. Beejamrutha protects seedlings from seed or soil-borne diseases and young roots from fungus. It has been found to generate auxins (IAA) and gibberellins (GA3), which promote plant growth.

### Material Used

Water (20 kg), cow dung (5 kg), cow urine (5 litre), lime (50 g) and & small quantity of soil.

### Method of Preparation

- Take 5 kg local cow dung in a cloth and bound it by tape.
- Hang this in the 20 Litre water up to 12 hours.
- Take one litre water and add 50 gm lime in it and let it stabilize for a night
- Then next morning, squeeze this bundle of the cow dung in that water thrice continuously, so that all essence of cow dung will accumulate in that water.
- Then add a handful of soil in that water solution and stir it well.
- Then add 5 litre desi cow urine in that solution & add lime water and stir it well.
- Bijamrita is then used to treat the seeds which are done by spreading it over the seeds, mixing these seeds by hands, drying it well and use for sowing.

## 2. Jeevamrutha

It is a fermented microbial culture, where “Jeeva” means a living organism and “Amrutham” signifies an elixir of life, indicating its ability to enhance the life of any living organism. It is a beneficial organic bio-stimulant made by fermenting well-rotted cow dung, cow urine, jaggery, and water for around 48 hours. This nutrient-rich liquid fertilizer enhances soil fertility, stimulates microbial activity, and aids plant nutrient absorption,

contributing to sustainable agriculture by reducing the need for synthetic inputs. It increases microbial load and growth hormones, which enhance soil biomass and sustain the availability and uptake of nutrients, leading to better crop growth and yield.

### Material Used

Cow dung (10 kg), cow urine (10 litres), jaggery (2 kg), pulse flour (2 kg), water (200 litres)

### Method of Preparation

- Add 10 kg cow dung and 10 litres cow urine.
- Add 2 kg jaggery.
- Add 2 kg of pulse flour and a handful of soil from the bund.
- Put water to make 200 litres volume in a barrel.
- Stir the solution well and let it ferment in shade for 48 hours.

### Ghan-jeevamrutha

Jeevamrutha can also be applied in solid form, known as “Ghanjeevamrutha”. It is prepared using 100 kg of air-dried cow dung, 1 kg of jaggery, 1 kg of pulse flour, 3 liters of cow urine and/or 2 liters of Jeevamrutha, and 250 grams of soil from undisturbed bunds or forests. These ingredients are mixed well and kept in the shade for 48 hours, turned 3-4 times a day. After 10 days, Ghanjeevamrutha can be used in fields at a recommended dose of 250 kg per hectare and is effective for up to 6

months when stored in a cool, dry place. The combination of FYM (Farmyard Manure) 10t per hectare and Ghanjeevamrutha at 250 kg per hectare increases the yield, nutrient content, available nutrients, nutrient uptake and nodulation.

### 3. Acchadana / Mulching

Mulching effectively changes the growing environment of crops by capturing and utilizing rainfall, reducing the risk of crop failure, increasing soil organic matter content, reducing soil moisture evaporation, and improving soil temperature. Three types of mulching are suggested under ZBNF:

➤ **Soil mulch** : Protects topsoil during cultivation without tilling, promoting aeration and water retention. Deep ploughing should be avoided.

➤ **Straw mulch** : Uses dried biomass waste from previous crops. Any type of dry organic material will decompose and form humus through microbial activity. Straw mulching creates a physical barrier between the soil surface and the atmosphere, significantly reducing soil moisture evaporation and soil erosion, regulating soil temperature, and promoting plant growth. It directly affects the soil microenvironment, enhancing sustainability.

➤ **Live mulch** : Involves multiple cropping patterns of monocotyledons

and dicotyledons grown together to supply essential elements to the soil and crops. Dicot plants, like pulses, fix nitrogen, while monocots, such as rice and wheat, supply elements like potash, phosphate and sulfur .

### Whapasa / Aeration

It is the presence of a mixture of 50% air and 50% water vapor in the spaces between soil particles. According to Palekar, plant roots need water in the form of vapors rather than liquid. Whapasa creates a microclimate in the soil, allowing soil organisms and roots to thrive with sufficient air and essential moisture. This microclimate increases water availability, enhances water-use efficiency, and builds resilience against drought. Most soil microorganisms and root hairs, which absorb water and nutrients, are active in the top 10-15 cm of the soil layer.

### CONCLUSION

Natural farming represents a sustainable and eco-friendly alternative to conventional chemical-based agriculture. By emphasizing soil health, biodiversity, livestock integration, and locally prepared bio-inputs, it restores the natural balance of farming ecosystems. The system not only improves crop productivity and reduces cultivation costs but also ensures healthier food, environmental protection, and climate resilience. Natural farming strengthens soil biology and enhances

resource efficiency and it contributes to farmers' economic stability, environmental conservation, and the preservation of natural resources for future generations.

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