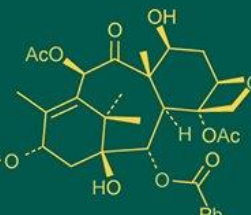
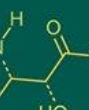
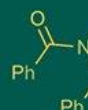


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## Natural farming and its perceptions

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### Abstract

Natural farming is a holistic, environmentally sustainable, and commercially feasible organic agricultural system that protects the soil's reproductive and regenerative abilities. According to modern agricultural principles, we should concentrate on improving production with the fewest number of inputs. Natural farming is an inexpensive agriculture practice that is closely tied to nature. It is based on four principles: no cultivation, no weeding with tillage or herbicides, no use of synthetic fertilisers, and no dependence on chemicals. As the world's population grows, so does the need for nutritious, organic foods. However, because of the use of chemical inputs in intensive farming, soil erodes fast, and dangerous microorganisms, as well as poisonous hazardous chemicals, build in soil media. As a result, plants absorb these harmful compounds, and when we consume this grain, this material enters our bodies and activates our metabolic pathways. These necessitate the emergence of chemical-free diversified agriculture-based farming practices with a greater emphasis on affordable native resources and management practices as a generic term "Natural Farming" in which the use of externally purchased inputs is avoided or minimised and the use of native resources with agro-ecological principles, people participation, and common resource management is largely focused for the benefit of farmers and communities. This strategy promotes multi-cropping and diversification of micro/macro flora. Thus, the low-cost, ecologically friendly farming approach must be used countrywide in order to maintain environmental harmony, minimise fertilizer consumption, and assist the farmers by increasing crop yields and profit margins. However, these are preliminary results, and further study is needed to establish the benefits for all crops across all environmental circumstances.

**Keywords:** Natural farming, components, beejamrit, jeevamrit

### Introduction

Natural Farming promotes climate-friendly agriculture by encouraging agro-ecological methods tailored to local conditions. These practices reduce reliance on chemical fertilizers and pesticides while strengthening natural ecosystems. The approach improves soil health and moisture through on-farm generation of organic matter—such as multi-cropping and biomass mulching—and enhances biodiversity by attracting beneficial insects, birds, and microorganisms that support natural pest control and pollination. As soil quality improves, farms become more resilient to extreme climate events.

Masanobu Fukuoka, a Japanese farmer and philosopher, is widely regarded as the pioneer of modern natural farming. His approach—known as *The Fukuoka Method*, *The Natural Way of Farming*, or *Do-Nothing Farming*—was popularized through his 1975 book *The One-Straw Revolution*. Farmers themselves identified the overuse of chemical inputs and continuous monocropping as major causes of agricultural decline. In India, the Bajaj Foundation responded by promoting Subhash Palekar Natural Farming (SPNF), a climate-resilient farming system developed by Subhash Palekar, who is recognized as the Father of Natural Farming in India and was awarded the Padma Shri in 2016.

### Objectives of Natural Farming

- Conserve natural flora and fauna
- Restore soil fertility and biological activity
- Maintain crop diversity
- Use natural resources (air, water, sunlight) efficiently
- Encourage beneficial soil organisms for nutrient cycling and pest management

- Promote local livestock breeds
- Rely on locally available natural inputs
- Lower cultivation costs
- Improve farmers' economic returns

Natural Farming is a chemical-free, diversified farming system integrating crops, trees, and livestock with ecological balance. In India, it is promoted under the Paramparagat Krishi Vikas Yojana (PKVY) through the Bharatiya Prakritik Krishi Paddhati Programme (BPKP). BPKP emphasizes traditional practices requiring minimal external inputs and focuses on farm-level biomass recycling, mulching, cow dung–urine formulations, periodic soil aeration, and avoiding synthetic chemicals. According to the High-Level Panel of Experts (HLPE), natural farming can reduce farmers' dependency on purchased inputs and lower their debt burden.

### Key Components of Natural Farming

1. Beejamrit
2. Ghanjeevamrit & Jeevamrit
3. Mulching (Achhadan)
4. Whapasa (balanced soil aeration and moisture)
5. Natural plant protection

### Importance of Natural Farming

- Conservation of beneficial soil microorganisms
- Maintenance of soil fertility
- Environmental protection
- Reduced cultivation costs
- Improved human health
- Enhanced soil water-holding capacity
- Prevention of soil erosion
- Higher overall farm income
- Zero use of chemical fertilizers and pesticides

Natural Farming is a comprehensive system covering all aspects from tillage to crop selection and input management. The following summarizes its general guidelines.

#### 1. Crop and Variety Selection

Natural farming encourages multiple crops grown together—cereals, legumes, fruits, vegetables, and trap/indicator crops (e.g., marigold, okra, sunflower). Monocropping is discouraged. Indigenous varieties are preferred, though improved varieties may also be used.

#### 2. Tillage and Sowing

Minimal or zero tillage is recommended. Shallow tillage (10–15 cm) may be used during kharif and rabi; deep tillage should be avoided. Sowing can be done manually or mechanically, ideally with shallow-seed drills.

#### 3. Summer/Fallow Cropping

##### 3a. Pre-Monsoon Dry Sowing (PMDS) for rainfed areas

PMDS involves sowing a mix of 8–15 crops before monsoon to improve soil conditions. Mulching captures dew moisture, helping seeds germinate and plants survive dry conditions. The crops later function as green manure, fodder, or minor income sources.

##### 3b. Multi-variate Cropping (irrigated areas)

Instead of leaving land fallow, diverse crops—including green manures—are grown without tilling. At least nine

crop species are broadcast at about 25% of their usual seed rates. This maintains soil cover, enhances microbial activity, and reduces soil-borne diseases.

#### 4. Poly/Intercropping

Intercropping is promoted in all seasons. Legumes are preferred, and trap and indicator crops are grown along field bunds. In rice, which is difficult to mulch, natural farming recommends legumes and trap crops on bunds, Azolla mulching, and intercropping with *Sesbania* species to improve nitrogen availability and control weeds.

#### 5. Natural Nutrient Management

Natural farming relies on on-farm microbial formulations:

##### 5a. Beejamrit

A microbial seed treatment made from cow dung, cow urine, virgin soil, calcium chloride, and water. It protects seeds from pathogens, accelerates germination, and supports early root development.

##### 5b. Ghanjeevamrit

A solid microbial inoculant prepared using cow dung, jaggery, pulse flour, soil, and sometimes Jeevamrit. Depending on the method, it can be stored for months and applied at 800–1000 kg per acre.

##### 5c. Jeevamrit

A liquid fermented mixture of cow dung, cow urine, jaggery, pulse flour, water, and local soil. It boosts soil microbial activity and is applied through irrigation or foliar spray.

#### 6. Achhadan (Mulching)

Natural farming encourages soil, straw, and live mulching to suppress weeds, conserve moisture, and support nutrient cycling. Typically, 5–7 tonnes of mulch are needed per hectare, except in rice, where *Azolla* is used.

#### 7. Whapasa

Whapasa refers to soil containing equal proportions of air and water vapor. This condition improves water-use efficiency and reduces irrigation needs. Natural farming emphasizes alternate-furrow irrigation at midday to maintain aeration and root health.

#### 8. Botanical Preparations for Pest Control

Botanical extracts such as Agniastra, Brahmastra, Neemastra, and Dashparni Ark are prepared using cow urine, neem, chilies, garlic, tobacco, and other local plants. These natural pesticides are sprayed prophylactically every 15–30 days.

#### Paraphrased: 9. Botanical Preparations for Disease Management (Expanded Version)

Natural Farming relies heavily on plant-based formulations and cow-derived products to manage crop diseases without using synthetic fungicides or chemicals. These preparations strengthen plant immunity, suppress fungal and bacterial pathogens, and protect crops during vulnerable growth stages. The major botanical concoctions used for disease control are described below.

### 9a. Sonthastra

Sonthastra is a traditional formulation primarily used to suppress fungal infections in crops. It requires three main ingredients: dry ginger powder (about 200 g), five liters of milk obtained from indigenous cows, and roughly 200 liters of water.

To prepare it, dry ginger is crushed into a fine powder and boiled with two liters of water until the liquid reduces to approximately one liter. In a separate container, the indigenous cow milk is heated once and then allowed to cool, after which the cream is removed for household use. Both the ginger extract and the cooled milk are strained through a clean cloth to eliminate impurities.

These purified liquids are then mixed thoroughly into 200 liters of water and sprayed over one acre of crops. The combination of ginger's natural antimicrobial properties and the nutrients in cow milk creates an effective treatment against fungal pathogens, helping to strengthen plant surfaces and reduce disease incidence.

### 9b. Khatti Lassi (Sour Buttermilk)

Khatti lassi, or sour buttermilk that has been fermented for 3–5 days, is another widely used natural remedy for disease control. The preparation involves mixing 5 liters of this fermented buttermilk with about 100 liters of water. A small copper piece—kept submerged in the sour lassi for several days—is also added, along with 50 g of turmeric powder.

This mixture is sprayed uniformly over the crops. Sour buttermilk contains beneficial microorganisms and organic acids that help suppress fungal growth, while turmeric adds strong antifungal and antibacterial properties. The copper piece enhances the disease-fighting ability of the solution due to copper's natural antimicrobial activity. This mixture is found to be effective not only against fungal diseases but also in reducing the spread of certain viral infections in plants.

### 9c. Cow Urine

Cow urine, especially from indigenous breeds, is considered a strong natural disinfectant in farming systems. For disease management, 30–40 liters of cow urine is mixed with irrigation water during pre-sowing to reduce seed-borne and soil-borne pathogens. Additionally, spraying a 10–20% cow urine solution on crops helps control various canopy diseases, including early-stage fungal and bacterial infections.

In orchard crops, pits filled with soil and cow dung or Ghanjeevamrit are treated with a 10% cow urine solution before planting seedlings. After planting, periodic applications of 10–20% diluted cow urine act as a protective shield, preventing root, stem, and leaf diseases. Its antimicrobial compounds and beneficial microorganisms strengthen plant immunity and reduce the likelihood of disease outbreaks.

### 9d. Saptdhanyankur Ark

Saptdhanyankur Ark is a specialized preparation used mainly to enhance grain quality and prevent premature dropping of flowers and fruits. It involves sprouting seeds from seven crops: sesame, moong, urad, cowpea, moth, gram, and wheat (100 g each).

The preparation process begins by soaking sesame seeds overnight. The next day, all seven seed types are soaked overnight together. On the third day, the soaked seeds are

drained, wrapped in a porous cotton cloth, and hung indoors to promote sprouting. The water used for soaking is kept aside.

Once sprouted, the seeds are ground into a chutney-like paste. This paste is mixed into a solution containing 200 liters of water, 10 liters of cow urine, and the reserved seed-soaking water. The mixture is stirred vigorously and left covered for two hours before filtering.

Saptdhanyankur Ark must be used within 48 hours of preparation. It is applied during sensitive stages such as the milky stage in grains, the initial formation of fruit pods, and the budding phase in flowering crops. This formulation enriches the crop with natural growth-promoting substances, increases grain shine and weight, and reduces flower and fruit drop, thereby improving overall yield quality.

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