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Natural Farming in Indian Context

Shaheen Naz, Beerendra Singh, Suman Kalyani*, Ranvir Kumar, Prem Chand Kumar and Anand Kumar Jain

Bihar Agricultural University
Sabour (Bhagalpur) - 813210
Bihar

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*Corresponding Author
Suman Kalyani*

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INTRODUCTION

Natural Farming is not a technique but a view or a way of seeing ourselves as a part of nature rather than separating ourselves from it. It is also known as "the Fukuoka Method"- the natural way of Farming or "do-nothing farming." The title does not refer to a lack of effort but to avoidance of manufactured inputs and equipment. Natural Farming is related to fertility farming, organic farming, sustainable agriculture, agroecology, agroforestry, eco-agriculture, and permaculture, but they are different. However, when it comes to definition, Natural Farming may be defined as farming without chemicals which relies on the various farming system based on agroecology that integrates crops, trees, and livestock. Natural Farming allows the optimum use of functional biodiversity, which encourages the use of on-farm inputs prepared by the farmers. The indigenous breed of cow (Desi cow) plays a vital role in the natural farming system. In this process, other cattle dung and urine can also be used to prepare concoctions that build on natural or ecological processes in or around farms.

Concept & Scenario: Natural Farming is a chemical-free farming system rooted in Indian tradition enriched with modern understanding of ecology, resource recycling and on-farm resource optimization. It is considered as agro ecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity. It is largely based on on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations; maintaining soil aeration and exclusion of all synthetic chemical inputs. Natural farming is expected to reduce dependency on purchased inputs. It is considered as a cost- effective farming practice with scope for increasing employment and rural development.

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Many states are already fallowing natural farming and have developed successful models. State of Andhra Pradesh, Karnataka, Himachal Pradesh, Gujarat, Uttar Pradesh and Kerala are among the leading states. Currently, the acceptance and adoption of natural farming systems are at early stages and gradually gaining acceptance among the farming community.

How Natural farming is practiced: It is a diversified farming system that integrates crops, trees, and livestock, allowing the optimum use of functional biodiversity. If natural farming is done effectively, it can improve farmers' income and enable them to reap many benefits, such as restore soil fertility and environmental health mitigate and reduce greenhouse gas emissions. Natural Farming builds on natural or ecological processes in or around farms.

In natural Farming, chemical or organic fertilizers are not added to the soil. The decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface , which gradually adds nutrition to the soil. In natural Farming, plowing, tilting of soil, and weeding are not done. A healthy soil microbiome helps to retain and enhance soil organic matter. Such concoctions are necessary to improve the fertility of the soil.

According to natural farming principles, plants get 98% of nutrients from the air, water, and sunlight, and the remaining 2% can be fulfilled by good quality soil with plenty of friendly microorganisms. The soil is covered with organic mulch, which creates humus and encourages the growth of friendly microorganisms. Farm-made bio-cultures named 'Jeevamrit, Beejamrit, Ghanjeevamrit' are added to the soil instead of any fertilizers to improve the soil's microflora. Jeevamrit and Beejamrit are derived from very little cow dung and urine from the desi cow breed. This system requires only cow dung and cow urine (Gomutra) of Indian-breed cows. Desi cows are believed to be the purest as far as the microbial content of cow dung, and urine goes. In natural Farming, the decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface itself, which gradually adds nutrition to the soil. Natural, farm-made pesticides like Dashparni ark, Neem Astra, Agni Astra, and Brahmastra control pests and diseases. Weeds are considered essential and used as living or dead mulch layers.

Lastly, multi-cropping is encouraged over the single-crop method.

Benefits of Natural Farming:

Natural Farming solves various problems, such as food insecurity, farmers' distress, health problems arising from pesticide and fertilizer residue in food and water, global warming, climate change, and natural calamities.

Improve Yield: Farmers practicing Natural Farming reported similar yields to those following conventional Farming. In several cases, higher yields per harvest were reported.

Ensures Better Health: Natural Farming does not use synthetic chemicals. Thus, the process does not involve health risks. The food has higher nutrition density and therefore offers better health benefits.

Environment Conservation: Natural Farming ensures better soil biology, improved agrobiodiversity, and judicious water use with much smaller carbon and nitrogen footprints.

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

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 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 essential role in Natural Farming and helps restore the

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

Pillars of ZBNF

The four pillars of ZBNF are:

- Jivamrita/jeevamrutha
- Bijamrita/beejamrutha
- Acchadana - mulching
- Whapasa – moisture

Jivamrita/Jeevamrutha

This is a fermented microbial culture that provides nutrients, acts as a catalytic agent that promotes the activity of microorganisms in the soil, increases earthworm activity, and helps prevent fungal and bacterial plant diseases. The fermentation process spans for 48 hours, during which the aerobic and anaerobic bacteria present in the cow dung and urine multiply as they consume organic ingredients. According to Palekar, Jeevamrutha is only needed for the first three years of the transition, after which the system gets self-sustaining. *Tip to Farmers – all that farmers need to do is to apply the jeevamrutha crops twice a month in the irrigation water or as 10% foliar spray.*

Bijamrita/Beejamrutha

A treatment used for seeds, seedlings or any planting material, Bijamrita helps in protecting young roots from fungus, as well as from soil-borne and seed-borne diseases that commonly affect plants post the period of monsoon. *Tip to Farmers – Bijamrita may be added to the seeds of any crop. It must be coated, mixed by hand, dried well and utilized for sowing.*

Acchadana – Mulching

Palekhar suggests the following types of mulching:

- Soil Mulch – protects topsoil while cultivation and does not destroy it by tilling. Moreover, it promotes aeration and water retention in the soil. Palekar has advocated the avoidance of deep ploughing.
- Straw Mulch – straw material hints at the dried biomass waste of previous crops. This, as Palekar suggests, can be composed of the dead material of any living beings such as plants, animals, etc.
- Live Mulch (symbiotic intercrops and mixed crops) – As suggested by Palekar, it is pivotal to develop multiple cropping patterns of monocotyledons and dicotyledons grown in the same field so as to supply the essential elements to the soil and crops.

Whapasa – Moisture

Palekar opposes the common belief that the plant roots need a lot of water. In this respect, he counters the over-reliance on irrigation in green revolution farming. He strongly opines that the roots need water vapour. This he says as Whapasa is the condition in which the soil contains both air and water molecules. He encourages the reduction of irrigation and emphasizes its usage only during noon.

Table 1: Ingredients and method of preparation of SPNF inputs:

Sr. No	Input	Ingredients	Method of preparation
1.	Beejamrit	Cow dung – 5 kg Cow urine – 5 l Lime –Water – 20 l Handful of soi 50 g	Soaked cow dung for 12 hours Squeezed in the water tub Added lime, soil, water and cow urine and stirred well
2.	Jeevamrit	Cow urine – 10 l Cow dung – 10 kg Gram flour – 2 kg Jaggery – 2 kg Water – 200 l Handful of soil	In 200 l water, added 10 l cow urine,10 kg cow dung,2 kg jaggery,2 kg gram flour Mixed all above materials with stirrer Stirred 2 times daily in the clockwise direction and kept it for 48 hours under the shade
3.	Ghanjeevamrit	Cow urine – 10 l Cow dung – 100 kg Gram flour – 100 g Jaggery – 100 g	Took 100 kg cow dung, 10 l cow urine, 100 g jaggery, 100 g gram flour. Mixed all the contents, made balls with hand and dried under shade

CONCLUSION

Natural farming holds significant potential for transforming Indian agriculture by promoting sustainability, climate resilience, and food security. Addressing the challenges and leveraging the opportunities associated with natural farming through strategic planning, research, and farmer-friendly policies can ensure a more prosperous and environmentally sound future for Indian agriculture.