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# **Relevance of Natural Farming in Present Scenario of Bihar, India: A Review**

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### **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

Agriculture is holistic approach of science. It is convergence of field crops, horticultural crops, forestry, animal science, poultry, microbiology, soil science etc. If we pick one subject it will be injustice to the science of cultivation. The Father of modern-day natural farming is Masanobu Fukuoka. This is also known as Fukuoka Method. Do-nothing farming or Natural way of farming is an ecological farming approach established by Masanobu Fukuoka (1913-2008). Natural farming, also known as '*Prakritik Kheti*' is a climate resilient tool that can save humans and Agro-ecological system, Asha Rani et al. [1] advocated the natural farming in India. Krishi Vigyan Kendra, Sabour Bhagalpur, Bihar has started natural farming practices from 2018. We have organised awareness programme in 12 villages among 2000 farmers. KVK Sabour adopted a Village in Raipura, Goradih, where we have made a benchmark survey animal particularly Deshi cow. Bihar is an Agriculture based state. Focus of this survey was how many Deshi cow was existing their and what was the utility of cow dung and cow urine. Most of them are using cow-dung as fuel for making food and cow

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urine was drained out. We have organised off campus and on campus training programme for Raipura villagers, demonstrated the technology to make 'Jivamrit, Bijamrit, Ghanjivamrit etc.' The result of this awareness is that they have started the collection of cow urine and using cow dung to make 'Ghanjivamrit, Jivamrit' and different products. The purpose of this work was to conduct a simple survey and review the relevance of natural farming in the present day when the cattle number is in decline. Findings indicated natural farming to be impossible without desi cow, as every component is related to the species.

*Keywords: Agricultural; agro-ecological awareness; climate resilient.*

## 1. INTRODUCTION

### 1.1 What is Natural Farming?

Natural farming is a concept that is holistic approach towards agriculture. Everything used to cultivate should be natural, no tillage operation, cover the land round the year with different crops to control the weed. *Zero budget kheti, Prakritik kheti, Peramparagat kheti* are birds of same feather.

To understand natural farming, we have to understand agriculture and its components. Agriculture is science and arts of cultivating different crops like agronomical crops, horticultural crops, rearing different animals and birds. All components are interlinked. For example, if a farmer is growing any field crop, he needs compost and other basic requirements.

### 1.2 Why do We Need Natural Farming?

Farming is being practiced since the ancient era or civilisation. In this journey of development or progress, scientists have made lots of changes in cultivation practices. During these changing times, scientists were facing the problem of how to increase the yield because government has pressure to feed the people. No doubt, they have achieved this target by Green Revolution, White Revolution, Blue Revolution etc to fulfil the demands of mankind. This developmental stage badly influenced the soil health, human health, soil condition, water level etc. Level of pollution reached its peak and lead to cancer patients in Punjab seeking treatment in TMH, Mumbai. To stop this health hazard, we have to adopt natural farming/Prakriti kheti/Traditional farming. Not only health hazards, it also protects soil health, reduces cost of cultivation. Satpatha Brabramanya says "Sarvade vatya vai Krishi" (Vedic Heritage, Ministry of Culture, Govt. of India). ICAR has started natural farming

curriculum in BSc (Ag) programme. Every Krishi Vigyan Kendra near Ganga has to conduct 25 awareness programmes, conduct long term training programme along with demonstration, Ranjit Kumar et.al (2020).

### 1.3 Objective of Natural Farming

Restoring Soil Health

Maintenance of Diversity

Animal welfare

Efficient use of Natural/local resources

Ecological fairness and balance.

## 2. MATERIALS AND METHODS

Natural Farming is not a new term and neither an innovation in agriculture. It is a very old and ancient practice but with the development and target to feed the population, we have demeaned the traditional farming and importance of cow in agriculture. The resulting factor is the situation that we see in the present - health hazards, poor soil condition and different types of imbalances in Agro-ecological system. Bihar is an agricultural state and major enterprises are indulged in agriculture. In the ancient period, it was compulsory to rear cow not only for milk, but for cow dung as well. For successful Natural Farming, Deshi cow rearing is very important because Natural Farming is not just cultivation of crops but also a cultivation of micro-organism, friendly earthworm. In our adopted village Raipura in Goradih, first of all, we have made a survey of natural resources like number of Deshi cow, number of neem tree, guava tree, custard apple, karange tree, mango tree, how much area is under haldi and ginger cultivation. Villagers of Raipura are acquainted with importance of natural resources or. We have conducted awareness programmes with 1000 farmers and

two on-campus training for 60 farmers. After training, we provided different materials like drum, gur, besan, etc for demonstration of 'Jivamrit, Bijamrit' etc.

#### **Natural farming has following principles:**

Principle of improved natural resources efficiency  
Principle of self-sustainability/no dependency  
Principle of resilience  
Principle of social equity.

These are principles of Natural Farming which involved around society and Agro-ecosystem. Farmers use different tools provided by different institute like making of 'Ghanjivamrit, Jivamrit, Beejamrit, Neemastra, Brahmastra, etc. These helped farmers in recycling the natural products that are used as cow dung cake and ultimately burnt them. Benefits perceived by farmers who have adopted Natural Farming are:

Reduction in cost of cultivation

Freedom from chemicals

Better taste and quality of produce

Premium product price

No exposure to pesticide.

On the other hand, farmers who are not practicing NF are afraid of nonavailability of ready products, fear of poor yield, high cost of cost cultivation that reduces cost benefit ratio and not owning the Deshi cow. To understand the natural farming and traditional farming we have make a comparative study of those farmers who are doing natural farming, chemical farming and integrated farming. we have focused on quality, quantity, status of the soil regarding considered following points under study:

1. Vegetative parameters
2. Production
3. Quality of produce
4. Occurrence of earthworms
5. Microbial status of the soil
6. economics

### **3. RESULTS AND DISCUSSION**

Bihar is an agricultural state. So, NF is very important in Bihar where there is a great threat of

ground water pollution by arsenic through Gangetic water particularly due to cultivation in Diarah area and heavy use of insecticide and pesticide. Kallol Bhattacharya et al. [2] & Ashok Ghosh [3] advocated the same about the nuisance value of arsenic. Natural farming is the need of Bihar [4-18]. The Govt of Bihar has started Jaivik Corridor to check the excessive use of pesticide and insecticide in Gangetic plane. But due to some reason it has not been successful. To implement Natural Farming, there should be a Holistic approach. There should be convergence of animal husbandry, horticulture, soil scientist, agronomist and soil microbiologist. Every specialist has a very defined area of research and most importantly, it should be started at the area of 2000sq meter at farmers' field with a resourceful farmer who should have the capacity to bear loss, if any chance. It is very difficult to work with a small farmer, marginalised farmer or a farmer who is cultivating on leased land. The most important hurdle of Natural Farming is that most of the farmer have Holstein Friesian breed of cow that are heavy yielder of milk. This is very difficult task for hand to mouth farmer. They need assured income; they have no risk bearing ability [9-15]. It is possible if the government provides subsidy on Deshi cow with full package like crop seeds, continuous visit, guidance of scientist, crop insurance etc. Of course, farmers will get benefits of Natural farming in long term like sustainability, low-cost, high-priced produce etc. Moreover, scientific evidences need to be generated before scaling out in different agroclimatic regions with different crop combinations for its long-term sustainability [16-20]. Deshi Cow has a very important role in natural farming arth eart the study of crop with synergistic role is very important in integration of the efarmer involved with natural farming. Details of study is given below:

Of course, Natural Farming has low cost of production, sustainability and is eco-friendly. To save environment, to save human health and for soil conditioning too, Natural Farming is the priority of every citizen who are indulging in agriculture and want to conserve nature. Table 1 showed that there is state in between natural farming and traditional farming that is integration of two . Slowly we will deplete the dependency on mineral fertilizer and other chemicals. this will give the space to the farmers to understand the natural farming in better way [21-24].

**Table 1. Natural farming method**

Methods	Vegetative parameters	Production	Quality	Occurrence of tatus earthworms	Microbial status of the soil	Economics
Traditional farming	Normal growth showing nitrogen deficiency	Not optimum	Not at par	Almost nil	Nil	Expensive and bc ratio was low
Natural farming	Showing more vigorous plants	Not optimum	At par	Increase the population by 40%	Bacillus arvabhatal and other species, <i>pseudomonas</i> spp also enhances	BC ratio was high
Integrated natural and chemical farming	Vigour of plants was best out of three	At par	At par	Increase in population by 20%	Microbes was enhances but less than natural farming	BC ratio was high

#### 4. CONCLUSION

Natural farming is low cost production system at sustainable mode, savior of environment, human health and health of soil. Natural farming is not a scheme but it is movement require holistic approach of every citizen every country of the world. First we start natural farming through cow save cowdung, urine and incorporate it in soil. Impact will be positive on yield, expences on cultivation and soil health. Then keep single deshi cow whos cowdung and urine make farmer able to cultivate six acres of land naturally. Natural farming is approach, is a sensetization of revival of old traditional farming from ancient time, pre green revolution era.

#### DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

#### COMPETING INTERESTS

Author has declared that no competing interests exist.

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