

Natural Farming: A Game Changer in Agriculture

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Introduction

Agriculture is at the heart of all the great debates related to the environment, water, biodiversity, war on hunger, all issues that will determine the future of our planet. However, the perception of agriculture by the media, politicians and the public at large conceals numerous misconception that are the result of continuing misinformation and a lack of communication on the part of farmers on how their profession and practices have evolved. Intensive agriculture is wrongly perceived as synonymous with productive and pollution, and extensive agriculture is meant to protect the soil when in fact it leads to soil depletion through overgrazing, deforestation, and expanding deserts. This is why extensive agriculture is often considered as sustainable as opposed to intensive agriculture that is thought responsible for pollution and diminishing of our future resources. Sustainability creates and maintains the ideal conditions between man and the environment; it is a profession that places man closest

with nature and it needs to be well tuned with the surrounding environment. According to FAO, agriculture development that conserves land, water, plant and animal genetic resources is environmentally non-degrading, technically appropriate, economically viable, and socially acceptable; it leads to agricultural sustainability. Natural Farming is a chemical-free alias traditional farming method. It is considered as agro ecology based diversified



farming system which integrates crops, trees and livestock with functional biodiversity.



Transforming agriculture

Initiatives to green agriculture in developed countries have been prompted by both market attractiveness and state support activities. Organic farming, Biodynamic farming, low input agriculture, permaculture, sustainable agriculture, and integrated farming practices (integrated pest management and

nutrient management) are some of the practices advocated by proponents in both developed and developing countries. All of these practices have evolved as alternatives to chemical use in agriculture in response to the growing global demand for green agriculture products (Sharma, 2012). Most of the time, increasing population exacerbates land use changes as a result of socioeconomic developments. These changes are primarily the result of a lack of resource management strategies in agriculture and livestock.

In order to accelerate their capacity for transformation, both industrialised and developing nations must intensify agriculture research and development (R & D). Farmers have enhanced their productivity by planting better varieties and taking advantage of additional water, agrochemical inputs, fossil fuel energy, and capital investment thanks to the Green Revolution's principles. They have improved upon earlier, more "extensive" production strategies that were characterised by low inputs per unit area and associated low outputs by investing more in order to produce more. Therefore, it is imperative that the agriculture system be changed from the "Green Revolution" to the "Evergreen Revolution" (Tirado, 2009)

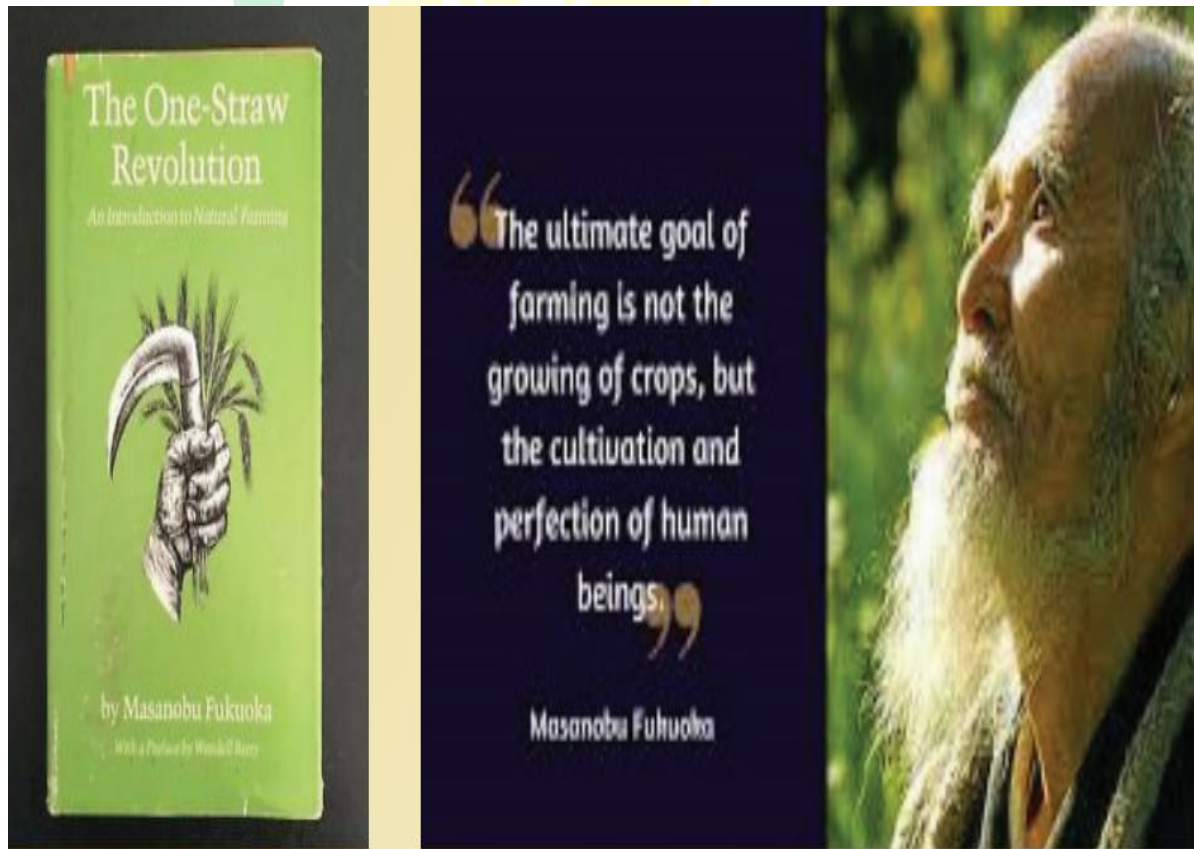
Table 1. Global priority analysis of agriculture driven impacts on environments

(Source: MANAGE, 2020)

Environmental issues related with agriculture	International Reports						
	Millennium Ecosystem, 2005	UNEP, Environmental Food crises, 2009	UNEP Global environmental outlook, 2012	WWF 2050 criteria, 2012	FAO statistical yearbook, 2013	MIT joint program, 2018	IPCC summary for policymakers, 2018
Water depletion	✓	✓	✓		✓	✓	✓
Climate change	✓		✓	✓	✓		✓
Air pollution	✓		✓		✓		✓
Biodiversity and habitat loss	✓	✓	✓	✓	✓		✓
Water pollution	✓	✓	✓		✓	✓	✓
Soil degradation			✓	✓	✓	✓	✓
Pesticides and chemical fertilizers				✓			✓
GMO s		✓					
Pesticides and agricultural wastes						✓	✓

Origin and importance of natural farming

Natural farming, often known as traditional farming, uses no chemicals. It is regarded as an agro ecology-based, varied farming system that incorporates plants, animals, and trees as well as functional biodiversity. Natural farming is not a method; rather, it is a perspective that acknowledges our interconnectedness with nature rather than our separation or superiority over it. The Fukuoka Method, natural farming, and do-nothing farming are other names for it. The title alludes to avoiding manufactured equipment and inputs rather than to a lack of effort. Natural farming should be distinguished from biodynamic farming, which is related to organic farming, sustainable agriculture, agro ecology, agro forestry, ecoagriculture, and permaculture. A Japanese scientist named Fukuoka created the so-called "do-nothing" strategy, rejecting both modern a chemical-free alternative to traditional farming, natural farming draws on decades of agricultural knowledge. Fukuoka wrote a book titled "The One Straw Revolution: An Introduction to Natural Farming" in which he advocates for everyone to utilise sensible and sustainable practises; to stop using pesticides, fertiliser, tillage, and maybe most importantly, unnecessary effort.



The main features of natural farming system are:

- Physical work and labor can be highly reduced as compared to other agricultural systems.
- Yields similar to chemical agriculture is possible.
- There is an increase in soil fertility year after year.
- Water requirement is minimized



Social Welfare

The substitution of chemical inputs in natural farming generally results in higher demand for labour in comparison with conventional agriculture and therefore, should contribute to rural employment and help keep in business small farms which would otherwise not be able to cope with intensification and global competition.



Economic Wellbeing

Nature based farming represents real opportunities on several levels, contributing to rural economies through sustainable development such as ecological tourism to Natural farms is a tool to help small farmers to earn additional income and in this way support the transition from conventional farming to natural farming.



Ecological Aspects

Natural inputs provides a better root system and ability to interact with beneficial soil microorganisms, ability to suppress weeds, contributing to soil, crop and seed health, good product quality, high yield level and high yield stability.

Fig 1. Attributes of Natural Farming

Natural farming aims to maximise production factors (labour, soil, equipment) while minimising the use of artificial inputs (fertiliser, herbicides, and pesticides) in order to maximise production potential and provide a plentiful supply of food that is of the highest possible quality at the most competitive price. The golden rule is to increase the amount of

organic matter in the soil since this promotes microbial activity, which enhances soil fertility. Crop diversity preservation, no-till farming, watershed management, and effective water use are key elements of natural farming.

Zero Budget Natural Farming

The word "Zero Budget" refers to the zero net cost of all agricultural production (inter crops, border crops, multi crops). Cow dung and cow urine are locally accessible inputs used for seed treatments and other inoculations. Thus, ZBNF farmers can boost their incomes more easily because their input costs are lower. ZBNF crops support soil fertility retention while also being resistant to climate change. Bijamrit (seed treatment using cow dung and cow urine), Jiwamrit (applying inoculation of local cow dung and cow urine), Mulching (activities to ensure a favourable microclimate in the soil), and Waaphasaa are the four main principles of zero budget natural farming (Soil aeration)

Similarities between natural farming and organic farming:

- Chemical-free and largely toxin-free farming practises are both used in natural and organic farming.
- Both methods forbid using any kind of chemical fertilisers or pesticides on plants or in any other aspect of farming.
- Farmers are encouraged to use native types of vegetables, cereals, pulses, and other crops, as well as indigenous breeds of seeds, by using both agricultural techniques.
- Non-chemical and natural pest management techniques are supported by organic and natural farming practises.



Satya Devi, one of the pioneers of ZBNF in Himachal Pradesh (Source: Viklap Sangam, 2021)

Key differences between natural farming and organic farming:

In organic farming, farmlands are used and supplemented with organic fertilisers and manures such as compost, vermicompost, cow dung manure, etc. from outside sources.

- In organic farming, the soil is not amended with either chemical or organic fertilisers. In actuality, neither the soil nor the plants receive nor receive any foreign fertilisers.
- In natural farming, earthworms and bacteria are encouraged to break down organic matter immediately on the soil surface, which gradually improves the soil's nutrient content over time.
- Standard agricultural procedures including weeding, tilling, mixing manures, and ploughing still need to be done in organic farming.
- Natural farming mimics how natural ecosystems function by avoiding weeding, fertiliser use, soil tilling, and ploughing.
- Organic farming is still expensive due to the requirement of bulk manures, and it has an ecological impact on surrounding environments; whereas, natural agriculture is an extremely low-cost farming method, completely molding with local biodiversity.
- There are many working models of natural farming all over the world, the zero budget natural farming (ZBNF) is the most popular model in India. This comprehensive, natural, and spiritual farming system is developed by Padma Shri Subhash Palekar.

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