

Natural Farming – Prospects for Securing Livelihood of Farming Community

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Introduction

Green Revolution has truly revolutionised Indian condition from food deficit to food surplus nation. It has been found from impact assessment that in the long run the use of exhaustive inputs like high yielding varieties, chemical fertilizers etc has caused negative impact on soil health and environment. With the increasing awareness about health and environment hazards, people become conscious and there was found to be a paradigm shift to Green wave. Green wave is a trend in which there is shift in consumer choices and preferences to organic and eco-friendly products. With this emerging concept, Government of India has launched Natural farming under the umbrella scheme of Paramparag at KrishiVikasYojana to boost the income and livelihood security of farming community.

There are various organic farming models like Natural Farming, Rishi Farming, Vedic Farming, Cow Farming, Homa Farming, Zero Budget Natural Farming (ZBNF) etc. have been included and flexibility is given to state governments to adopt any model of Organic Farming including ZBNF depending on farmer's choice. In June 2018, Andhra Pradesh Government rolled out an plan to become India's first state to practice 100 % natural farming by 2024 by converting state's 60 lakh farmers to ZBNF method.

Natural farming: Concept and Meaning

Natural Farming is a chemical-free alias traditional farming method. It is considered as agroecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity. It aims to reduce farmers' costs by eliminating external inputs and using in-situ resources to rejuvenate soils, whilst simultaneously increasing incomes, and restoring ecosystem health by means of diverse multilayered cropping systems.

Origin of Natural farming

Natural farming is an ecological farming approach established by Masanobu Fukuoka(1913–2008). A Japanese farmer and philosopher, introduced in his 1975 book The

One-Straw Revolution. It is also referred to as "The Fukuoka Method", "the natural way of farming" or "do nothingfarming". The title refers not to lack of effort, but to the avoidance of manufactured inputs and equipment. Natural farming philosophy is working with nature to Produce healthy food, to keep ourselves healthy, and to keep the land healthy.

Commonalities between Organic Farming and Natural Farming

- Natural and organic both are chemical free, less hazardous and eco-friendly farming methods.
- Both the systems discourage farmers from using any exhaustive chemical fertilizers, pesticides on plants and other agricultural practices.
- Both farming methods encourage farmers to use local/traditional/indigenous breeds of seeds and native varieties of vegetables, grains, pulses and other crops.
- Organic and natural farming methods facilitate sustainable agriculture.

Principles of Natural Farming

- Produce safe and nutritious food that ensures good health.
- Be economically and spiritually beneficial to both producers and consumers.
- Be sustainable and easily practiced.
- Conserve and protect the environment.
- Produce sufficient food of high quality for an expanding world population.
- No chemical fertilizers because adding chemical fertilizers help in the development of the plant but not of the soil, which continues to deteriorate.
- No, till farming as plowing the soil alters the natural environment of the soil and promotes the development of weeds.
- No weeding by tillage or herbicides because weeds are not eliminated however, can be suppressed by spreading straw over freshly sown land and growing ground cover.

No dependence on chemical pesticides – nature's balancing act prevent any one species from gaining the upper hand.

Origin of Zero Budget Natural Farming in India

Small farmers felt seeds, inputs, and markets were inaccessible and expensive for them. They were caught in a vicious cycle of debt, because of the high production costs, high interest rates for credit, the volatile market prices of crops, the rising costs of fuel, energy and private seeds. Debt is a problem for farmers. 'zero budget' farming promises to end the

reliance on loans by drastically cutting production costs. The word 'budget' refers to credit and expenses, thus the phrase 'Zero Budget' means without using any credit, and without spending any money on purchased inputs. 'Natural farming' means farming with Nature and without chemicals. Zero Budget Natural Farming (ZBNF) means raising crops without using any fertilizers and pesticides or any other external materials. The word Zero Budget refers to the zero cost of production of all crops. ZBNF guides the farmers towards sustainable farming practices thus helps in retaining soil fertility, to ensure a chemical free agriculture and ensure low cost of production(zero cost) and thereby enhancing the farmers income. In short, ZBNF, is a farming method that believes in growing crops in tune with nature. The concept was promoted by an agriculturist ,Padmashri. SubhashPalekar, in the mid-1990s as an alternative to the Green Revolution's methods driven by chemical fertilizers and pesticides and intensive irrigation.

Four main pillars of ZBNF



Jiwamrita/Jeevamrutha

Cow dung is a natural source used to revive the fertility and nutrient value of soil. One gram of cow dung may have between 300 to 500crore beneficial micro-organisms. These micro-organisms assists in decomposing the biomass present in the soil and convert it into available/ready-to-use nutrients for crop. Jiwamrita is prepared using Cow dung and cow

urine. It is used as an input for the plants. It is a fermented microbial culture obtained from cow dung, urine, jaggery, pulse flour and uncontaminated soil. This fermented microbial culture when applied to soil, adds nutrients to the soil besides acting as a catalytic agent to promote the activity of microorganisms and earthworms in the soil. One indigenous cow is sufficient for 30 acres of land.

Benefits: This culture will be applied in soil instead of chemical fertilizers. This culture stimulates microbial activity in the soil and enhances nutrient availability for the plants, protects the crops against soil pathogens and increases carbon content of the soil.

BeejamruthaSeed Treatment using local cow-dung and cow urine

The seeds, seedlings and planting materials are treated with formulations prepared using cow dung and cow urine from native cow species as they have higher adaptability to our local climatic conditions and easy to maintain by the small and marginal farmers. It is effective in protecting young roots from fungus as well as from soil-borne and seedborne diseases. It is composed of local cow dung, a powerful natural fungicide, and cow urine, a strong anti-bacterial liquid, lime and soil. While Bijamrita is used for seed treatment, extracts of neem leaves and pulp, tobacco and green chillies are used for insect and pest management.

Benefits: The seeds sown in the field may be affected by fungus and other seed born/soil born diseases. The seed treatment using “Bijamrita“ protects the seeds from diseases.

Mulching:

Mulching is the process of covering the top soil with crop wastes/organic waste or with cover crops. It protects topsoil during cultivation and tilling. It promotes aeration and water retention in the soil.

Benefits: Mulching materials decompose and produce humus which conserves top soil, increases water retention capacity of the soil, decreases evaporation loss, encourages soil fauna besides enriching soil nutrient status and controlling weed growth.

Waaphasa (Soil Aeration).

Good aeration is required in the soil for plant growth and development. ZBNF concept opposes the use of vermi compost as it introduces the most common composting worm the European Red Wiggler to Indian soil, which absorbs toxic metals and poisons ground water and soil.

Benefits: Due to the application of Jiwamrita and mulching, the aeration of the soil increases, thus improves humus content, water availability, water holding capacity and soil structure which is most suitable for crop growth especially during drought periods

Other important principles of ZBNF

- **Intercropping**– Because of this, ZBNF gets its “Zero Budget” name. small costs incurred in cropping is compensated by the additional income, making farming a close to zero budget activity. Crop and tree associations work well for the south Asian context.
- **Contour bunds**– contours bunds promote maximum efficiency for different crops. • Local species of earthworms: Revival of local deep soil earthworms through increased organic matter is most recommended than vermicompost.
- **Cow dung**- Dung from the *Bosindicus* (humped cow) is most beneficial and has the highest concentrations of micro-organisms as compared to European cow breeds such as Holstein. The entire ZBNF method is centred on the Indian cow

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Constraints:

- Agricultural scientist suggested that multi location studies are needed to scientifically validate the long term impact and viability of ZBNF Model before it is promoted country wide in a large scale.
- Large scale adoption of ZBNF may have serious impact on farmers income and food security. Hence a proper scientific validation regarding success of ZBNF has to be done.
- ZBNF is a slow process to have fruitful impact on sustainability.



Way Forward through Government initiatives:

Few state Governments in our country started supporting this concept. Madhya Pradesh Government has recently announced several plans to assist 3000 farmers to adopt ZBNF. NITI Aayog is also one of the foremost promoters of ZBNF method. The Andhra Pradesh Government experience is also being monitored closely to judge the need for further public funding support for ZBNF. The Indian Council of Agricultural Research is also studying the ZBNF method practiced by basmati and wheat farmers in some parts of India, evaluating the impact on productivity, economics and soil health including soil organic carbon and soil fertility. If found to be successful, an Institutional Mechanism is to be created to promote the technology across the farming community.

Conclusion

Though it is the need of the hour to move towards chemical free farming and no doubt ZBNF, an environmentally sustainable farming method is the right way to achieve that, enough studies to be conducted to conclusively prove that ZBNF is an excellent solution to improve the farmers income and to achieve food security of the country. For many years our farmers are involved in natural farming but slowly move towards latest technologies which resulted in improving our country's food security position as well as improvement in farmer's income. Therefore, necessary trials to be conducted for a reasonable period before implementing methods, which are unproven scientifically. Zero budget farming model brings down farm expenditure to a greater extent and ends dependence on farm loans. It also reduces dependence on purchased inputs as it encourages use of own seeds and locally available natural fertilizers and farming is done in synchronization with nature.