Zero Budget Spiritual Farming (ZBSF)

Priya Kaur[1*], Aparajita Das[2], Puneet Pathak[3], Anup Kalra[4]

Ayurvet Research Foundation
4th Floor, Sagar Plaza, Distt Centre, Laxmi Nagar, Vikas Marg, Delhi-110092, India
*Corresponding Author

Received:- 11 April 2023/ Revised:- 20 April 2023/ Accepted:- 24 April 2023/ Published: 30-04-2023

Abstract— *According to the most recent WHO reports, more than 50% of foods contain natural carcinogens [11]. This allays a grave worry in the agricultural sector. Despite of the fact that pesticides used to boost agricultural Development, are known to modify human chromosomes, they are still utilized rapidly and in excessive amounts only to generate income. But at the end of the day, it becomes mandatory for a novice farmer to share a meal with his family members in these times of rising inflation. Only in India, 200k farmers committed suicide in 2016 as a result of the heavy debt loads, they were forced to take on to pay for the pricey and lethal crop growth enhancers. After witnessing the detrimental consequences of chemical farming, recently a very effective agricultural practice is getting quite trendy among the farmers known as Zero Budget Natural Farming (ZBNF), also known as Zero Budget Spiritual Farming. In Southern India, especially in Karnataka, where it was initially developed, it has achieved widespread success [7]. It is currently expanding so rapidly and actively across India.*

Keywords— Natural Farming, Palekar Model, Bijamrita, Jeevamrit, Zero Budget Natural Farming.

I. INTRODUCTION

The philosophy of natural farming is working in close proximity with nature to produce nutritious food, keep ourselves well, and maintain the health of the land. Everything in nature has a use and a function within the larger system of life. This practice is also known as "do nothing farming" because the farmer is merely seen as a facilitator for Nature, who does the actual labor. This farming technique involves no tillage and cultivation without the use of pesticides, inorganic fertilisers, and herbicides. In this case, compared to other farming techniques, actual physical work and labour have been observed to decrease by up to 80%. Avoiding the use of organic amendments like FYM and vermicompost is something that makes natural farming very different from organic farming. Fukuoka pioneered natural farming in Japan by experimenting with nature and by using natural methods of crop multiplication. Without soil erosion, he produced yields comparable to those obtained with chemical farming [1,6,9]. The key to natural farming is reducing the external inputs that harm the natural soil composition on the farm. Initially, he had to produce natural insecticides like pyrethrum, which comes from chrysanthemum roots, and sprayed them on his veggies to stave off pests like cabbage worm and cabbage moths because there wasn't a habitat for many of the insects.

The name "Zero Budget Natural Farming" refers to a farming technique where the cost of cultivating and harvesting the plants is zero. As a result, farmers are freed from the expense of purchasing fertilizers and pesticides to maintain the healthy growth of their crops. The technique calls for using readily available, locally produced, naturally biodegradable materials combined with cutting-edge technology and traditional farming techniques based on biological processes that occur naturally. Shri Subhash Palekar brought this idea to light, for which he was awarded the Padma Shri in 2016. [2]. He was born on February 2, 1949, at Belora, a small village in the Amravati district of Maharashtra, India. He graduated from Nagpur with a B.Sc. degree in Agriculture. After graduating, he experimented because he was committed towards improving the farms in his village and found that regular use of chemicals had left the farm area arid. So, he made the decision to seek out the best answer. The natural systems that operate in forests, have the capacity to develop and nourish them while sustaining many healthy ecosystems, according to Palekar's1986–88 research on forest vegetation. And after putting in a lot of work in the field, he finally provided the ZBNF equations. Additionally, he published other works, including “The Philosophy of Spiritual Farming and Five Layer Palekar Models”.

II. PALEKAR'S SIX YEARS OF THOROUGH INVESTIGATION REVEALED THAT:

1. Only the local Indian cows' excrement can successfully re-enrich the depleted soil. It is less effective to use the dung from Jersey and Holstein cows, as the indigenous Indian cows contain higher amount of calcium, phosphorus, zinc and copper in comparison to the cross-breeds [7]. We can even use the dung from bullocks or buffaloes if the local cows' dung runs out.
2. The black-colored Kapila cow's dung and urine are found to be magical, as some reports say that Kapila is considered to be the best cow breed for "zero-budget farming", as this breed can survive on jungle forage and very less additional fodder also produces high quality dung and urine.
3. We also need to make sure that the cow dung is as fresh as possible and urine as stale as possible to get the maximum use out of them. Since fresh cow dung contains 86% of water content, which helps the soil to remain moist throughout its growing period and stale urine contains more population of multiplied beneficial microbes.
4. Ten kilogrammes of local cow dung must be applied monthly to an acre of soil, provided that the typical cow excretes 11 kg of dung every day, one cow's manure can help fertilize 30 acres.
5. Additives that can be used along with cowdung are urine, jaggery, and dicot flour that can improve the microbial activity in the cow dung.
6. The lesser milk, the cow produces, the more helpful its dung is for revitalizing the soil [3]. Since, lactating cows being in a stressful situation cannot produce high quality, nutrient and microbes rich cow dung.

Our organization, Ayurvet Research Foundation, which is a non-profit organization, is already running a 3-year project funded by DBT (Dept. of Biotechnology, Govt. of India) under the program, "SUTRA- PIC (Scientific Utilization through Research Augmentation Prime Products from Indigenous Cows)" based on production of vermicompost developed by the excreta of indigenous cow "Sahiwal Breed". Also, another 2-year project on multilayer farming funded by NABARD, utilizes natural components such as Beejamrit, Jeevamrit and Acchadana to protect the crops against fungal/bacterial/soil borne disease, insect pests, nematodes etc. which aligns with the principles of Palekar model (zero budget spiritual farming). ZBNF is symbiotic in nature and self-nourishing [10]. Peasants cannot access privatized markets, seeds, or inputs because these are too expensive. Indian farmers increasingly find themselves trapped in a debt cycle as a result of their high cost of production, high interest rates on credit, fluctuating agricultural market prices, rising input costs dependent on fossil fuels, and the usage of proprietary seeds. So, they end-up committing suicide. For Indian farmers of all sizes, debt is like a parasite. To avoid such tough circumstances, "zero budget natural farming" promises to eliminate the need for loans and significantly reduce production expenses, breaking the debt cycle for helpless farmers [8]. The following are the four key pillars of ZBNF:

2.1 Jeevamrit: Composition-

TABLE 1

Sl. No.	Ingredients	Quantity
1	Water	200 litres
2	Desi cow dung	10 kg
3	Desi cow urine	5-10 litres
4	Jaggery	2 kg
5	Floor of any pulse	2 kg
6	Handful of soil from farm or forest	-

Jeevamrutha serves as a catalytic agent that encourages earthworm activity and soil microbial activity. It aids in the prevention of bacterial and fungal plant diseases. For making the system self-sustaining, Jeevamrutha is the only thing required, during the first three years of the transition.

2.2 Bijamrita:

Bijamrita is a seed treatment that can shield tender roots from fungus as well as from soil-borne and seed-borne diseases.

TABLE 2

Composition:

Sl. No.	Ingredients	Quantity
1	Water	20 litres
2	Desi cow dung	5 kg
3	Desi cow urine	5 litres
4	One handful of soil/dirt from surface of the field	-
5	Lime	50 gm

2.3 Acchadana (Mulching):

This can be done using live, straw, or soil mulch. It reduces evaporation, preserving soil moisture.

2.4 Whapasa (Moisture):

Irrigation should be done in alternate furrows only at noon and with less frequent irrigation. Palekar refutes the notion that plant roots require a lot of water, arguing that they actually, require water vapour instead. As a result, whapasa is the situation in which both air molecules and water molecules are present in the soil.

In addition to the aforementioned four pillars, intercropping, furrow method of cropping, contouring or bunds system, and the use of native earthworm species are some other crucial natural farming principles. Additionally, Palekar in 2014 provided the pest management equations, which he named as Agniastra, Brahmastra, and Neemastra. Under plant protection, to control insects and diseases, the farmers can prepare home-made pesticides on their own and use it on the crops.

TABLE 3
FUNGICIDE-I

Sl. No.	Ingredients	Quantity
1	Five days fermented butter milk	5 litres
2	Water	50 litres

TABLE 4
FUNGICIDE-II

Sl. No.	Ingredients	Quantity
1	Desi cow milk	5 litres
2	Black pepper powder	200 gm
3,	Water	200 litres

TABLE 5
INSECTICIDE- I

Sl. No.	Ingredients	Quantity
1	Powder of neem seeds/ leaves	20 kg
2,	Water	200 litres

TABLE 6
INSECTICIDE- II

Sl. No.	Ingredients	Quantity
1	Cow dung	5 kg
2	Cow urine	10 litres
3,	Neem leaves	10 kg
4	Water	200 litres

This mixture is specifically effective against sucking pests such as aphids, jassids, mealy bugs and white flies.

TABLE 7
INSECTICIDE – III

Sl. No.	Ingredients	Quantity
1	Neem leaves	10 kg
2	Tobacco powder	3 kg
3,	Garlic paste	3 kg
4	Green Chilli paste	4 kg

The above ingredients should be soaked in cow urine for 10 days. About 3 litres of this mixture is mixed with 100 litres of water and sprayed on crops. In addition to assisting farmers in paying-off debt, this method raises soil fertility, yield, and product quality [10]. Earthworms break down the plants and animals, which adds humus to the soil. By creating tiny and large-scale pores in the soil, it also increases the soil's ability to hold water and to breathe. The pest management technique utilized here not only prevents pest damage but also guards against the humorous side effects of chemicals, such as magnification, pollution, carcinogenic elements, and food poisoning. It does not contribute to soil and water contamination or their erosion, in contrast to chemical fertilizers. Intercropping and crop rotation prevent the soil from becoming depleted of moisture and nutrients. While mulching slows water evaporation and keeps the soil adequately moist. It offers the soil's microorganisms a hospitable environment. The term "quality of product" refers to the absence of undetectable disease-causing substances, which is of great concern today. In conclusion, ZBNF is unquestionably a significant technique from an economic, social, biological, and physiological standpoint.

III. CASE STUDY- (BY THE NEW INDIAN EXPRESS NEWSPAPER ON 22ND JULY, 2021)

A 50-year-old farmer named Mr. Bannur Krishnappa, in a village in Karnataka has proved that "nothingness" can bloom into beautiful forests and farms. He used the natural farming method on his five acres of land to grow everything from teak and mango to coffee, turmeric, ginger, paddy, and sugarcane. He learned about natural farming technique in 2005 when he met a Maharashtrian farmer named Subhash Palekar. On a single acre of land, he began experimenting with natural farming in 2005. After being under the supervision of Mr. Palekar for one year, he entirely moved over to natural farming in the next two years. This resulted in a five-layered, forested-farm spread across an area of five acres, with vegetation of various heights (tall, medium, short, shrubs, and creepers) growing alongside one another and receiving enough sunshine in each canopy. In Krishnappa's opinion, ZBNF can address economic non-viability of agriculture and the debt and despair that stem from it. Farmers these days are quitting agriculture, but if they practise inter-cropping through ZBNF, there will be no losses and they can overcome agriculture-related problems which can also prevent farmer suicides.

IV. CONCLUSION

The injudicious use of chemical pesticides and fertilizers can endanger the ecosystem and soil. Numerous studies have demonstrated the negative impacts of changes in soil characteristics, soil contamination, ground water pollution, and declines in soil microflora, among other things. Studies have shown that natural farming, with least amounts of external inputs and by adding supplements like Jeevamrutha, improves soil fertility by boosting the amount of accessible nutrients and soil microflora.

This approach promotes diversity in micro and macro flora as well as multiple cropping. Production and labor costs are kept to a minimum.

As a result, many may consider it to be sustainable and eco-friendly. However, these studies are still in the early stages, and more research must be done to confirm the advantages for all crops and the effectiveness of native insecticides like Neemastram, Brahmastram, etc., and how long it will take to enrich the contam- inated soil. In conclusion, there have been significant cost savings on seeds, fertilizers, and plant protection chemicals. The new system has released the farmers from their debt trap and given them newfound confidence to turn farming into a financially viable endeavour. There is little doubt that Palekar's Zero Budget Natural Farming has permanently changed Indian agriculture. This method has substantially benefited more than 40 lakh farmers around the nation, and this number will undoubtedly rise dramatically in the upcoming years.

REFERENCES

[1] Andow, D. A.; Hidaka, K. (1998) Yield loss in conventional and natural rice farming systems. Agriculture Ecosystems and Environment. 74: 137–155, 70: 151-158.

[2] Anonymous. (2016). Venkaiah Naidu congratulates farmer on winning Padma Shri. Indian Express.

[3] Babu, R. Yogananda. (2008). Faculty (Agriculture), ANSSIRD, Mysore. “Action research report on Subhash Palekar’s zero budget natural farming”.

[4] Bishnoi, R. and Bhati, A. (2017). An Overview: Zero Budget Natural Farming. Trends in Biosciences, ISSN 0974-8431, 10(46) 9314-9316.

[5] Devarinti, S. R. (2016). Natural Farming: Eco-Friendly and Sustainable?. Agrotechnology. 5: 147. doi: 10.4172/2168-9881.1000147

[6] Fukuoka, M. (1978). The one straw revolution. Rodale Press, Emmaus, PA, USA.

[7] Kumar, G.A.; Vishal, M. (2007). Organic and mineral composition of Gomeya (cow dung) from Desi and cross bred cows- a comparative study. International Journal of Cow Science. 3:17-19

[8] Kumar, N. (2012). Subash Palekar’s zero budget no-till rice farming.

[9] Murall, S. (2016). Natural farming can rescue farmers. THE HINDU.

[10] Neera, P.; Katano, M., Hasegawa, T. (1992). Rice culture under Nature Farming in Japan. Faculty of Agriculture of Kyushu Tokai University.11: 67-74.

[11] Palekar, S. (2014). http://www.palekarzerobudgetspiritualfarming.org/

[12] Prasad, S. (2016). Campaign to Reduce Use of Chemical Fertilizers Pesticides. The Hindu.