

REVIEW PAPER

An Overview : Zero Budget Natural Farming

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ABSTRACT

Using conventional techniques in agriculture is like cancer to our soil and health, as well. It does not only make the soil barren but eventually, the farmer goes under debt. Hence, the only way to deal with this ever rising problem is Zero Budget Natural Farming (ZBNF). 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. Subhash Palekar, the discoverer of ZBNF, gave many theories, principles and methods of ZBNF. Zero budget farmers use mulching, soil protection techniques, natural pesticides and fertilizers. The principal methods of ZBNF include crop rotation, green manures and compost, biological pest control, and mechanical cultivation. There are, most popular, 4 pillars of ZBNF i.e. Jivamrita, Bijamrita, Achhadana and Whapasa, which we will discuss later.

Key words ZBNF, Natural farming, 4 pillars of ZBNF, Pest management formulae, Agniashtra, Brahmastra, Neemastra, Krishi Ka Rishi,

“When health is absent, wisdom cannot reveal itself, art cannot manifest, strength cannot fight, wealth becomes useless and intelligence cannot be applied”

The above quote is self-explanatory that health comes foremost in our lives but today the issue regarding general health of humans is far more than terrible. Our daily lifestyle has worked as a fuel for the fire that is burning our body with diseases we could not possibly imagine a century ago. But far from that, the food we intake to fuel our lives has become a slow poison. Latest reports from WHO points that more than 50% of eatables have chemicals which are carcinogenic in nature (Prasad, 2016).

This lifts a serious concern in the industry of Agriculture. The pesticides used to enhance the crop growth are known to mutate the human chromosomes but still they are used rapidly in more than enough quantities just to liquidate revenue.

But what can a low-level farmer do? In these times of high-inflation he too has to break bread at the end of the day. Only in India around 200k farmers have committed suicide in 2016 due to the high debts they had to bore in order to afford the costly and deadly crop growth enhancers.

Question is that, what is the solution?

After witnessing the harmful effects of chemical farming, newly introduced agriculture technique among farmers is, Zero Budget Natural farming (ZBNF), also known as, Zero Budget Spiritual Farming (ZBSF). It has attained

wide success in southern India, especially Karnataka where it was firstly evolved (Kumar. N, 2012). Now, it is spreading all over India, so rapidly and dynamically. Zero Budget Natural Farming, as the name implies, is a method of farming where the cost of growing and harvesting the plants is zero. This means that farmers need not to purchase fertilizers and pesticides in order to ensure the healthy growth of the crops. The method dictates locally obtainable natural biodegradable materials saturated with scientific knowledge of ecology and modern technology with traditional farming practices based on naturally occurring biological processes. This concept was pulled into the light by *Shri Subhash Palekar*, for which he was honored with *Padma Shri* in 2016 (Anon., 2016).

He first cried on 2nd February, 1949 in *Belora*, a small village in the district of *Amravati, Maharashtra*, India. He grabbed a B.Sc. in Agriculture from Nagpur. Being dedicated towards the betterment of his village farm, after graduation, he experimented and revealed that continuous use of chemicals made the farm field barren. So, he decided to find an optimal solution. In, 1986-88 *Palekar* researched on forest vegetation, and discovered that the natural system that work in forests have the potential to develop and nurture them, while maintaining many healthy ecosystems. And after a huge effort in the field work, he finally gave the formulae of ZBNF. He also wrote many books such as, *The Philosophy of Spiritual Farming, Five Layer Palekar Models* etc.

Over six years of dedicated research, *Palekar* revealed that:

1. Only, the dung from local, Indian cows is effective in the re-enrichment of the barren soil. Dung from Jersey and Holstein cows is not as effective. If one is falling short of dung from local cows, one may even use the dung from bullocks or buffaloes.
2. Dung and urine of the black colored Kapila cow is believed to be miraculous.
3. To get the most out of the cow dung and urine, ensure that the dung is as fresh as possible and that the urine is as stale as possible.
4. An acre of land requires 10 kilograms of local cow dung per month. Since the average cow gives 11 kilograms of dung a day, dung from one cow can help fertilize 30 acres of land per month.
5. Urine, jaggery and dicot flour can be used as additives.
6. The lesser milk the cow gives, the more beneficial its dung is towards reviving the soil (Babu, 2008).

“ZBNF is self-nourishing and symbiotic in nature.”-
Subash Palekar (Palekar, 2014)

Privatized seeds, inputs, and markets are inaccessible and expensive for peasants. Indian farmers increasingly

Table 1. Basic Pillars of ZBNF

S.No	Methods	Preparation	Benefits
1.	Jivamrita/ <i>Jeevamrutha</i>	It is composed of the cow-dung (20 kg), urine (5-10 l), jaggery (20 kg) and dicot flour (2 kg) and is applied to the crops with each Irrigation cycle OR directly to the crops.	It provides nutrients, but most importantly, acts as a catalytic agent that promotes the activity of microorganisms in the soil, as well as increases earthworm activity. <i>Jeevamrutha</i> also helps to prevent fungal and bacterial plant diseases. that <i>Jeevamrutha</i> is only needed for the first 3 years of the transition, after which the system becomes self-sustaining.
2.	<i>Bijamrita</i>	It is basically made up of water (20l), cow dung (5kg), urine (5l), lime (50gm) and just a handful of soil.	<i>Bijamrita</i> is a seed treatment, equipped in protecting young roots from fungus as well as from soil-borne and seed-borne diseases.
3.	<i>Acchadana-Mulching</i>	It could be done by soil mulch, straw mulch or live mulch	It conserves soil moisture, by reducing evaporation.
4.	<i>Whapasa</i> moisture	– The irrigation should be reduced and irrigation should be practiced only at noon, in alternate furrows.	<i>Palekar</i> challenges the idea that plant roots need a lot of water, in-fact, what roots need is water vapour, and therefore, <i>Whapasa</i> is the condition where there exist both air molecules and water molecules present in the soil.

find themselves 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 fossil fuel based inputs, and private seeds. Therefore, they choose suicide. Debt is like a leech for farmers of all sizes in India. Under such conditions, 'zero budget natural farming promises to end a reliance on loans and drastically cuts production costs, ending the debt cycle for desperate farmers (Mural, 2016). The word 'budget' is referred to as the 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, which conserves biodiversity and nurtures the balance. It not only, decreases soil erosion but also makes the soil breathe again. It enriches the soil with nutrients. Further, it protects us from the harmful chemicals, as well as the curses such as cancer, diabetes and many others, by not using any slow-poisoning pesticides, herbicides or fertilizers which with time incorporates into the human body, that is, biomagnification.

MATERIALS AND METHODS

ZBNF has basically 4 pillars (Palekar, 2014) as mentioned in Table 1.

Other important principles are intercropping, furrow method of cropping, contour and bunds system and using local species of earthworm. *Palekar* (Palekar, 2014) also gave the formulae for pest management, which he named, the *Agniastra*, the *Brahmastra* and the *Neemastra*. (Table 2.)

BENEFITS

Besides, helping farmers to get rid of debt, this technique improves soil fertility, yield and quality of product obtained. Earthworm decomposes the plants and animals, which enriches the soil with humus. It also improves the soil aeration and water holding capacity by making micro and macro pores in the soil. Pest management method used in this, not only helps to get rid from pest damage but also, protect us from the hilarious side effects of chemical methods , such as magnification, pollution, carcinogenic

Table 2. Name, Composition and Controls of Pest Management

S.No	Name of pest Management formulae	Composition	Controls
1.	<i>Agriastra</i>	It is composed of 10 litre Local Cow Urine and 1 Kg Tobacco, 500gm of Green Chili, 500 Gram Local Garlic, 5 Kg Neem leaves pulp (crushed in urine). For spraying, 2l <i>Brahmastra</i> is taken in 100 l water.	It is effective against the pests like Leaf Roller, Stem Borer, Fruit borer, Pod borer
2.	<i>Brahmastra</i>	It is prepared by neem leaves, custard apple leaves, lantern camellialeaves, guava leaves, pomegranate leaves, papaya leaves and white <i>dhatu</i> leaves crushed and boiled in urine.	It is used to control all of the sucking pests, pod borer, fruit borer etc
3.	<i>Neemastra</i> ,	It is made up of local cow urine (5l), cow dung (5kg) and neem leaves and neem pulp (5kg) fermented for 24 hrs.	It is used for sucking pests & Mealy Bug

elements, and food poisoning. Unlike, chemical fertilizers, it does not causes soil and water pollution and their erosion. Crop rotation and intercropping protect the soil from exhaustion of moisture and nutrients. While, mulching slow down the evaporation and maintains adequate moisture in the soil. It provide favourable environment to the micro organism present in the soil. By the word, quality of product, it means free from un-noticeable disease causing elements, which is a serious concern, now-a-days. In short, ZBNF is undoubtedly, economically, socially, biologically and physiologically a profound technique.

CONCLUSION

A survey carried out by LVC (La Via Campesina) (Anon., 2013) suggests that ZBNF works not just in agronomic terms, but also brings about a variety of social and economic benefits. A majority of respondents reported that by adopting ZBNF, over time they saw improvements in yield, soil conservation, seed diversity, and quality of produce, household food autonomy, income, and health. Most experienced reduced farm expenses and a reduced need for credit, one of the major problems plaguing Indian farmers.

“I am very much inspired by the teaching of *Subhash Palekar* that agriculture can be done without any cost. I understood that Green Revolution model of agriculture is not in benefit of the farmer and Farmer has to take care of soil by mulching, Jeevamrtham application and proper aeration. Soil is Annapurna (rich in nutrients) and it doesn't require anything from outside. I resolved to do Zero budget Natural Farming.”

-*Bangaru Pothalaia*, a Farmer, Thopudurthi village.
(Anon., 2013)

“In ZBNF our expenses are very low. It doesn't matter what the yield is, I still make a profit because my costs are negligible. Plus, I've added intercrops to this, so I get income

from many crops, not just one. Yield is not an important concept for us.”

- ZBNF farmer, Belgaum (Anon., 2013)

(Palekar, 2015)B. N. Krishna, Mysore, Shrimati Janakamma, (Anon., 2012)GT Satish and many such farmers, Due to the successful result of ZBNF, entitled Subhash Palekar as “Krishi Ka Rishi”. (Anon., 2013)

In Conclusion, Savings on the cost of seeds, fertilizers and plants protection chemicals has been substantial. The new system has freed the farmers from the debt trap and has instilled in them a renewed sense of confidence to make farming an economically viable venture.

Palekar's Zero Budget Natural Farming has undoubtedly made an indelible mark on farming in India. More than 40 lakh farmers across the country have benefitted greatly from this technique and surely this number will increase tremendously in coming years.

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