



# Zero Budget Natural Farming in India

## Introduction

Zero Budget Natural Farming (ZBNF), which is a set of farming methods, and also a grassroots peasant movement, has spread to various states in India. It has attained wide success in southern India, especially the southern Indian state of Karnataka where it first evolved. A rough estimation for just Karnataka puts the figure there at around 100,000 farmer families<sup>1</sup>, while at the national level, ZBNF leaders claim that numbers could run into millions. This has been achieved without any formal movement organization, paid staff or even a bank account. ZBNF inspires a spirit of volunteerism among its peasant farmer members, who are the main protagonists of the movement.

The *neoliberalization* of the Indian economy led to a deep agrarian crisis that is making small scale farming an unviable vocation. Privatized seeds, inputs, and markets are inaccessible and expensive for peasants. Indian farmers increasingly 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. More than a quarter of a million farmers have committed suicide in India in the last two decades. Various studies have linked farmer's suicides to debt. Debt is a problem for farmers of all sizes in India. Under such conditions, 'zero budget' farming promises to end a reliance on loans and drastically cut production costs, ending the debt cycle for desperate farmers. 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.



Figure 1. Participants from around Asia observing a ZBNF farm in Karnataka during a ZBNF field/training program organized by LVC in 2011

The movement in Karnataka state was born out of collaboration between Mr Subhash Palekar, who put together the ZBNF practices, and the state farmers association Karnataka Rajya Raitha Sangha (KRRS), a member of La Via Campesina (LVC). Many members of KRRS are also members of the ZBNF movement, which is a broader entity and includes many other farmers. Still, KRRS was instrumental in mobilizing farmers at the grassroots level and organized many massive ZBNF training camps with the help of other allies. One might say that the organizational fabric of KRRS was like the culture medium upon which the ZBNF movement grew. These are the key activities organized by the ZBNF movement at the state level. ZBNF extends well beyond KRRS and includes many other allies and members, but KRRS is a key ally at the state level.

ZBNF farmers are mainly of rural origin, with a small minority of urban people who have recently moved to the countryside. Most of the farmers come from the middle peasantry – they own land, and are economically independent. According to a survey carried out by LVC, 100% of ZBNF farmers owned land, and a majority had access to some form of irrigation, and owned at least one cow.

<sup>1</sup> Unpublished manuscript



At the state level, the ZBNF movement has a loose network of volunteer coordinators – drawn from the pool leaders of KRRS, local community leaders, progressive political party representatives, various independents, and Subhash Palekar, who is often referred to by farmers as the “guru” of the movement.

At the local level, the movement has a self-organized dynamic and runs in an informal way. Most practicing ZBNF farmers are informally connected to each other and carry out both organized and spontaneous farmer-to-farmer exchange activities. Leaders tend to emerge naturally from the grassroots, and all activities are carried out on a voluntary basis. Each district has its own style of organization, and carries out its own activities in an autonomous fashion, and does not depend on any central control.

The main centrally organized activity at the state level are the training camps, taught by Palekar. The training camps last up to 5 days, with about 8 hours of classes each day. Attendance ranges from 300 to 5000 farmers. Arrangements are usually made for housing and meals. The attendance fee is very affordable – about 4 USD for an entire camp. Those that cannot afford to pay are usually allowed to come for free and others are asked to pay for them. Volunteers carry out all logistical work, like cooking and cleaning. These massive logistical feats are typically organized by volunteer effort and support from allies. The training workshop usually covers a wide range of issues from philosophy, to ecology, ZBNF practices, to successful farmer experiences.

Allies play a strong role in the movement at both the state and the local level. Allies include some Hindu religious institutions called “mathas,” that often provide accommodation, food and space for training camps, local businesses, supportive local politicians, media, organic shops, urban people who carry out media and promotion online among many others.

## Description of the Agroecology system

The basic “toolkit” of ZBNF methods was put together by Palekar. He is a former agricultural scientist, disillusioned by the ill effects of the green revolution on his own family farm, who drew from extensive research to recover traditional Indian farming practices, carried out during the early 1990’s (see Palekar’s website: <http://bit.ly/1Pk3a8p>).

Palekar has published a series of books – more than 60 in various Indian languages, where he explains the ZBNF practices in great detail (<http://palekarzerobudgetspiritualfarming.org/home.aspx>). Here we briefly list out some of the main practices of ZBNF.



Figure 2. Nandini Jairam of KRRS/LVC demonstrating the preparation of jivamruta

### The four pillars of ZBNF

- 1. Jivamrita/jeevamrutha** is a fermented microbial culture. 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; During the 48 hour fermentation process, the aerobic and anaerobic bacteria present in the cow dung and urine multiply as they eat up organic ingredients (like pulse flour). A handful of undisturbed soil is also added to the preparation, as inoculate of native species of microbes and organisms. Jeevamrutha also helps to prevent fungal and bacterial plant diseases. Palekar suggests that Jeevamrutha is only needed for the first 3 years of the transition, after which the system becomes self-sustaining.



### **How to prepare jeevamrutha:**

Put 200 liters of water in a barrel; Add 10 Kg fresh local cow dung and 5 to 10 liters aged cow urine; Add 2 Kg of Jaggery (a local type of brown sugar), 2 Kg of pulse flour and a handful of soil from the bund of the farm. Stir the solution well and let it ferment for 48 hours in the shade. Now jeevamrutha is ready for application. 200 liters of jeevamrutha is sufficient for one acre of land.

### **Jeevamrutha Application**

Apply the jeevamrutha to the crops twice a month in the irrigation water or as a 10% foliar spray.

2. **Bijamrita/beejamrutha** is a treatment used for seeds, seedlings or any planting material. Bijamrita is effective in protecting young roots from fungus as well as from soil-borne and seed-borne diseases that commonly affect plants after the monsoon period. It is composed of similar ingredients as jeevamrutha - local cow dung, a powerful natural fungicide, and cow urine, a strong anti-bacterial liquid, lime, soil.

### **Bijamrita Application as a seed treatment**

Add Bijamrita to the seeds of any crop: coat them, mixing by hand; dry them well and use them for sowing. For leguminous seeds, just dip them quickly and let them dry.

3. **Acchadana - Mulching.** According to Palekar, there are three types of mulching:
  - a. **Soil Mulch:** This protects topsoil during cultivation and does not destroy it by tilling. It promotes aeration and water retention in the soil. Palekar suggests avoiding deep ploughing.
  - b. **Straw Mulch:** Straw material usually refers to the dried biomass waste of previous crops, but as Palekar suggests, it can be composed of the dead material of any living being (plants, animals, etc). Palekar's approach to soil fertility is very simple – provide dry organic material which will decompose and form humus through the activity of the soil biota which is activated by microbial cultures.
  - c. **Live Mulch (symbiotic intercrops and mixed crops):** According to Palekar, it is essential to develop multiple cropping patterns of monocotyledons (monocots; Monocotyledons seedlings have one seed leaf) and dicotyledons (dicots; Dicotyledons seedlings have two seed leaves) grown in the same field, to supply all essential elements to the soil and crops. For instance, legumes are of the dicot group and are nitrogen-fixing plants. Monocots such as rice and wheat supply other elements like potash, phosphate and sulphur.
4. **Whapasa - moisture:** Palekar challenges the idea that plant roots need a lot of water, thus countering the over reliance on irrigation in green revolution farming. According to him, what roots need is water vapor. *Whapasa* is the condition where there are both air molecules and water molecules present in the soil, and he encourages reducing irrigation, irrigating only at noon, in alternate furrows ZBNF farmers report a significant decline in need for irrigation in ZBNF.

### **Other important principles of ZBNF and points to note**

1. **Intercropping** – This is primarily how ZBNF gets its “Zero Budget” name. It doesn't mean that the farmer is going to have no costs at all, but rather that any costs will be compensated for by income from intercrops, making farming a close to zero budget activity. Palekar explains in detail the crop and tree associations that work well for the south Asian context.



- 2. Contours and bunds** – To preserve rain water, Palekar explains in detail how to make the contours and bunds, which promote maximum efficacy for different crops.
- 3. Local species of earthworms.** Palekar opposes the use of vermicompost. He claims that the revival of local deep soil earthworms through increased organic matter is most recommended.
- 4. Cow dung-** According to Palekar, dung from the *Bos indicus* (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, which historically has been part of Indian rural life.



Figure 3. Intercropping

### Political space

A handful state governments in India have supported a few training camps, and while this is welcome, it amounts to very little support. One state- Andhra Pradesh, has recently announced plans to support 3000 farmers to adopt ZBNF via state support<sup>2</sup>. There are no other official policies to promote ZBNF. A particular challenge is marketing. Many farmers sell their natural produce as if were chemically grown, to private traders or at government wholesale yards, with no price differential. Other farmers rely on their own local marketing networks, such as to some organic shops and individual customers, but policy support in this area is crucial.

Palekar was recently awarded India's fourth highest civilian award, the Padma Shri, in 2016. This was an important recognition for the ZBNF movement. However, in terms of tangible policy support, we are yet to see government action.

### Outcomes of the practices

A survey carried out by LVC 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, 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.

### Message from farmer to farmers

*“I had 5-6 loans during my chemical farming days- a loan for my daughter’s marriage, others for seedlings, stems, and fertilizers. Now my farm expenses are so low, and everything I get is an income for the family. I owe nothing to anyone.”*

— ZBNF farmer, Bijapur

*“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.”*

— ZBFN farmer, Belgaum

<sup>2</sup> Sarma, Prasada. 2016. “Campaign to Reduce Use of Chemical Fertilizers, Pesticides.” *The Hindu*, May 28. <http://bit.ly/1tpq0rT>.