

Zero Budget Natural Farming

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Introduction

Zero Budget Natural Farming (ZBNF) is the practice of growing crops without the employment of any external inputs, such as pesticides and fertilizers. The phrase "Zero Budget" refers to all or any crops with zero production costs. The farmers' revenue is increased as a result of ZBNF's guidance towards sustainable farming methods that help to take care of soil fertility, assure chemical-free agriculture, and ensure cheap cost of production (zero cost). ZBNF is an agro-ecological farming approach that promotes growing crops in harmony with nature.

The toolkit of ZBNF was developed by its guru Subhash Palekar in the 1990's. ZBNF has two major components i.e., agronomic and structural. ZBNF is all about improving soil fertility including nutrient recycling, diversification, and beneficial biological interaction, among others (Palekar 2006).

Uniqueness of ZBNF:

- No chemical inputs
- Use of local varieties
- Mixed and multiple-cropping
- Microbial treatments for seed and soil
- Agriculture towards sustainability

Four main Elements of ZBNF:



Fig1: Four major element of ZBNF

Palekar believes that the soil already has all the nutrients essential for plant growth, and thus there is no need to added external inputs; instead, the nutrients which are present in soil have to be “unlocked “and made available for plant sand this idea is called Annapurna by Palekar.

1.Bijamrita -Utilizing local cow dung (trash) and urine for seed treatment. Composition of Bijamrita is given in table 1. As native cow species are more adapted to our region’s climatic conditions and easier for farmers to keep up. The seeds are treated with formulations made using their dung and urine. Bijamrita is used for seed treatment.

Table 1: Composition of Bijamrita

Sr.no.	Component	Quantity
1.	Water	20 litres
2.	Native Cow urine	5 litres
3.	Native Cow dung	5 kg
4.	Soil from the field	1 handful
5.	Lime	50 gm

2. Jiwamrita/Jeevamrutha-A resource utilized to revive the fertility and nutritional value of soil is cow dung. One gram of cow dung may contain up to 500 billion helpful microorganisms. These bacteria aid in the breakdown of soil-based biomass and turn it into readily usable nutrients for crops. Cow dung and cow urine are used to make Jiwamrita. It is considered as a component of the plants' diet. It is a fermented solution made from cow dung, urine, uncontaminated soil, jaggeryand pulse flour. When applied to soil, this fermented solution acts as a catalyst to encourage the activity of microorganisms and enhance availability of soil nutrients.

Table 2: Composition of Jeevamrutha.

Sr.no.	Component	Quantity
1.	Water	200litres
2.	Native Cow urine	5-10litres
3.	Native Cow dung	10 kg
4.	Soil from the field	1 full hand
5.	Jaggery	2 kg
6.	Any pulse flour	2 kg

3. Mulching-Mulching is the practice of adding organic or crop waste or cover crops to the top soil. On decomposition, the materials used for mulching results in humus, which not only improves soil nutritional status but also conserves top soil, boosts soil water retention, reduces evaporation loss, and promotes soil fauna. It also inhibits weed growth.

4. Waapasa (Soil Aeration)-For plants to grow and thrive, the soil must have adequate aeration. The ZBNF idea is against the use of vermicompost because it transfers the most prevalent composting worm, the European Red Wiggler, to Indian soil.

Palekar also prescribes a number of natural fungicides and pesticides made from indigenous ingredients like neem leaves, sour buttermilk, garlic, tobacco, chilies, etc. Critical principle of ZBNF is increasing functional diversity. He also gives a number of crop combinations which increase functional bio-diversity.

Management of pest in ZBNF:

There are three methods for pest management in ZBNF i.e, Agniastra, Bramhastra and Neemastra. As the name of three methods indicates these three astras are made from local inputs like cow dung and urine, neem leaves, chilli, tobacco etc. Preparation of these methods are given below-

1. **Agniastra**- Palekar in his study gives the following preparation of agniastra -Take 10Litre of desi cow urine and add 1kg tobacco. Also add 5kg neem leaves and 500 gm garlic and chilli each. Boil the solution 5 times continuously and filter using cloth and then ferment for 2 hours.
2. **Bramhastra**- take 10L of cow urine and add 3kg neem leaves. Add 2kg each (guava, papaya, dathura leaves, lantana camera, pomegranate and custard apple). Boil the solution for 5 times and filter it using cloth. Bramastra is ready after 24 hours of fermentation.
3. **Neemastra**-Take 100L water and add 5L cow urine and dung each. Then add 5kg neem pulp. Ferment for 24hours and stir solution twice a day. After that filter the solution and spray against sucking pest.

Benefits of ZBNF:

- ✓ ZBNF require 50–60 % less water than non-ZBNF.
- ✓ Less electricity for all the selected crops.
- ✓ ZBNF reduces methane emissions significantly through waapasa process
- ✓ Practice of mulching avoid residue burning of crops.

- ✓ The cost of cultivation is lower in ZBNF.

Constraints:

Before the ZBNF Model is widely promoted throughout the nation, an agricultural expert claimed that many site studies are required to scientifically evaluate its long-term impact and feasibility. So, it is necessary to conduct a proper scientific confirmation of ZBNF's effectiveness.

References:

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