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Zero Budget Natural Farming- Going back to the Roots of Natural Farming

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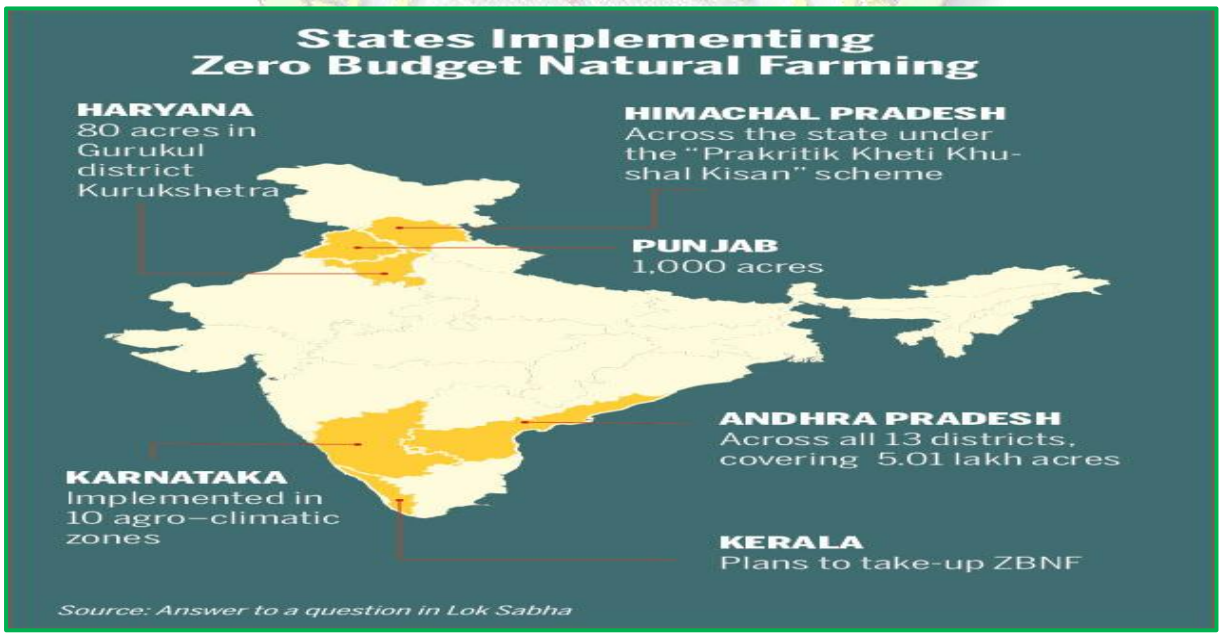
Zero Budget Natural Farming: After seeing the negative impacts of chemical farming, farmers have begun to practice Zero Budget Natural Farming (ZBNF), also known as Zero Budget Spiritual Farming (ZBSF). ZBNF (Zero Budget Natural Farming) is a collection of farming methods as well as a grassroots peasant movement that has grown across India. It has achieved widespread popularity in southern India, particularly in Karnataka, where it was first developed (Kumar. N, 2012). It is now swiftly and actively spreading throughout India. According to a conservative estimate, there are roughly 100,000 farmer families in Karnataka. While ZBNF leaders say that the numbers might be in the millions at the national level. Without any formal movement organization, salaried employees, or even a bank account, this has been accomplished. The peasant farmer members of ZBNF, who are the movement's key protagonists, are inspired to volunteer. As the name implies, zero budget natural farming is a technique of farming in which the cost of producing and harvesting the plants is zero. This means that farmers won't have to spend money on fertilizer's and pesticides to keep their crops healthy. Traditional agricultural approaches based on naturally existing biological processes are combined with locally available natural biodegradable materials soaked with scientific understanding of ecology and modern technology. Shri Subhash Palekar brought this thought to light, for which he was awarded the Padma Shri in 2016. (Anon., 2016).



Over six years of dedicated research, Palekar revealed that:

1. Only the manure of indigenous Indian cows is helpful at replenishing the barren soil. Jersey and Holstein cow dung is less effective. If local cow dung is scarce, bullock or buffalo dung might be substituted.
2. The dung and urine of the black-colored Kapila cow are thought to have amazing properties.
3. Make sure the dung is as fresh as possible and the urine is as stale as possible to get the most out of the cow dung and urine.
4. Every month, an acre of land requires 10 kg of local cow dung. Because an average cow produces 11 kilograms of dung every day, one cow's manure can fertilize 30 acres of land per month.
5. As additions, urine, jaggery, and dicot flour can be used.
6. The less milk a cow produces, the more useful its manure is for soil regeneration (Babu, 2008). "In nature, ZBNF is self-sustaining and symbiotic." Palekar, Subash (Palekar, 2014)

Four Pillars of ZBNF

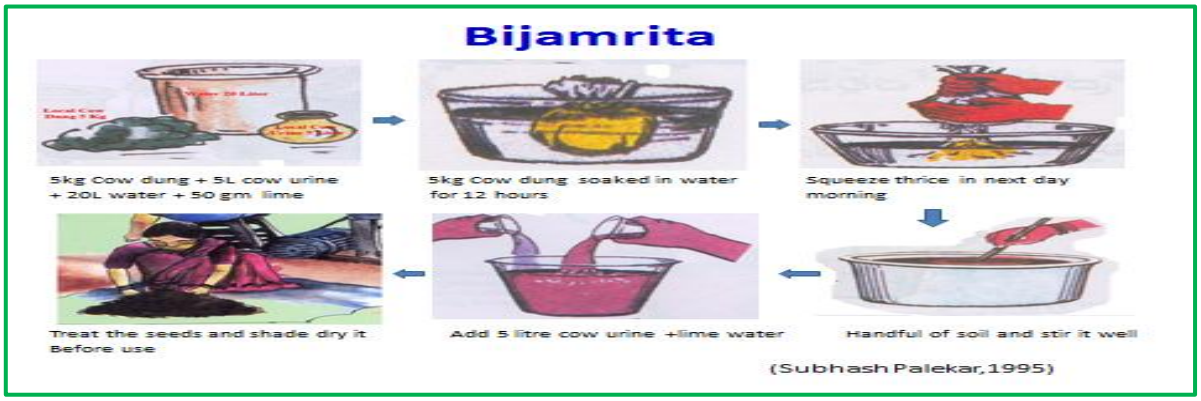
1. **Jivamrita/jeevamrutha:** Jivamrutha is a microbial culture that has been fermented. It provides nutrients, but more importantly, it acts as a catalytic agent, promoting the activity of soil microorganisms and increasing earthworm activity. During the 48-hour fermentation process, aerobic and anaerobic bacteria present in cow dung and urine multiply as they eat up organic ingredients (like pulse flour). Inoculate of native species of bacteria and organisms is added to the preparation with a handful of undisturbed soil. Jeevamrutha also aids in the prevention of bacterial and fungal plant diseases. According to Palekar, Jeevamrutha is only required for the first three years of the transition, after which the system will be self-sustaining.

Preparation of jeevamrutha: In a barrel, combine 200 litres of water, 10 kilograms of fresh local cow dung, 5 to 10 litres of old cow urine, 2 kilograms of jaggery (a local variety of brown sugar), 2 kilograms of pulse flour, and a pinch of soil from the farm's bund. Stir the solution thoroughly and leave it to ferment in the shade for 48 hours. Jeevamrutha is now available for use. For one acre of land, 200 litres of jeevamruta is sufficient.

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

2. Bijamrita/Beejamrutha: Seeds, seedlings, and other planting materials are treated with bijamrita. Bijamrita protects young roots from fungus, as well as soil-borne and seed-borne illnesses that typically damage plants following the monsoon season. It has the same elements as jeevamrutha: local cow dung, which is a potent natural fungicide, and cow urine, which is a strong antibacterial liquid, lime, and soil.

Bijamrita As a seed treatment, apply as follows: Add Bijamrita to any crop's seeds and coat them by hand, then dry them thoroughly before sowing. Simply immerse leguminous seeds in water and let it dry.



3.Acchadana - Mulching. According to Palekar, there are three types of mulching:

a. Soil Mulch: This keeps topsoil safe during farming and prevents tilling from destroying it. It improves soil aeration and water retention. Palekar advises against deep ploughing.

b. Straw Mulch: Straw material is typically dried biomass waste from past crops, but as Palekar points out, it can also be made up of the dead material of any living creature (plants, animals, etc). Palekar's approach to soil fertility is straightforward: offer dry organic material that will degrade and generate humus as a result of the soil biota's activity, which is triggered by microbial cultures.

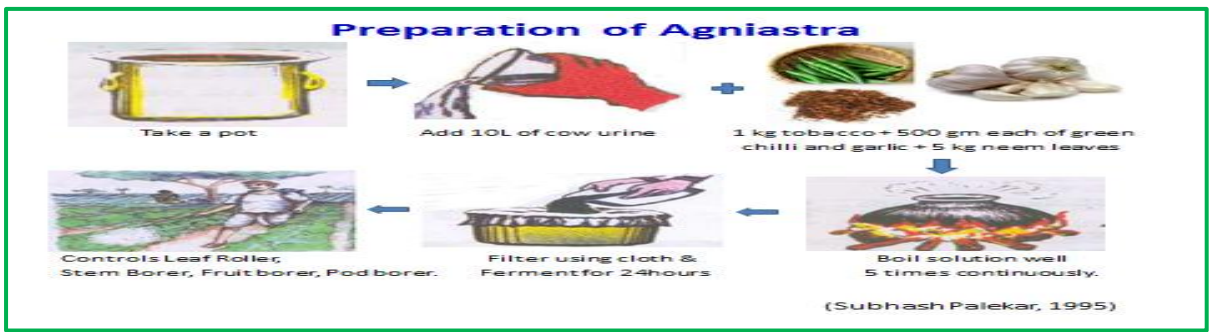
c. Live Mulch (symbiotic intercrops and mixed crops): Palekar believes that developing various cropping patterns of monocotyledons (monocots; Monocotyledons seedlings have one seed leaf) and dicotyledons (dicots; Dicotyledons seedlings have two seed leaves) cultivated in the same field is critical for providing all needed elements to the soil and crops. Legumes, for example, are nitrogen-fixing plants that belong to the dicot group. Other elements such as potash, phosphate, and Sulphur are supplied by monocots such as rice and wheat.

4. Whapasa - moisture: Palekar refutes the notion that plant roots require a lot of water, hence reducing the overuse of irrigation in green revolution agriculture. Water vapour, he claims, is what roots require. Whapasa is the situation in which both air and water molecules are present in the soil, and he recommends limiting irrigation and just irrigating in alternate furrows during noon. Farmers in ZBNF report a significant decrease in the requirement for irrigation.

For Pest Management

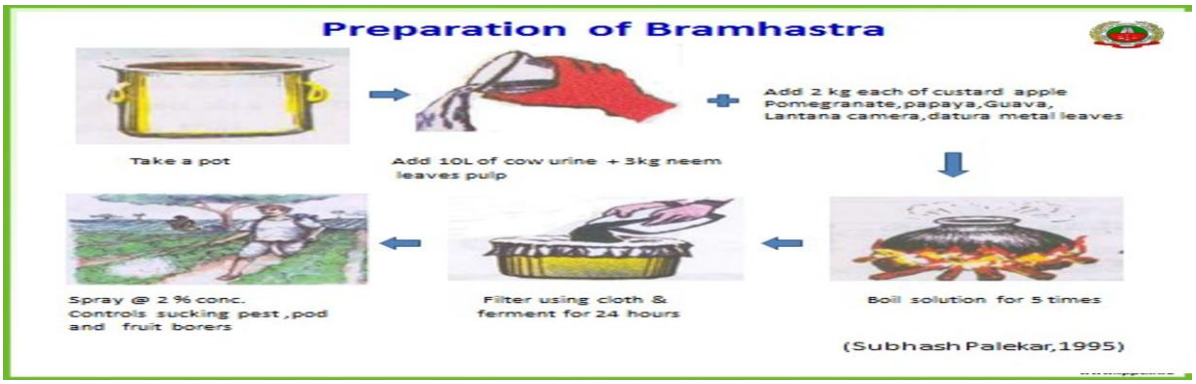
1.Agriastra: It is composed of 10 litre Local Cow Urine and 1 Kg Tobacco, 500gm of Green Chili, 500 Gram Local Garlic, 5 Kg Neem leaves pulp (crushed in urine). For spraying, 2l Brahmastra is taken in 100 l water.

Controls: It is effective against the pests like Leaf Roller, Stem Borer, Fruit borer, Pod borer.



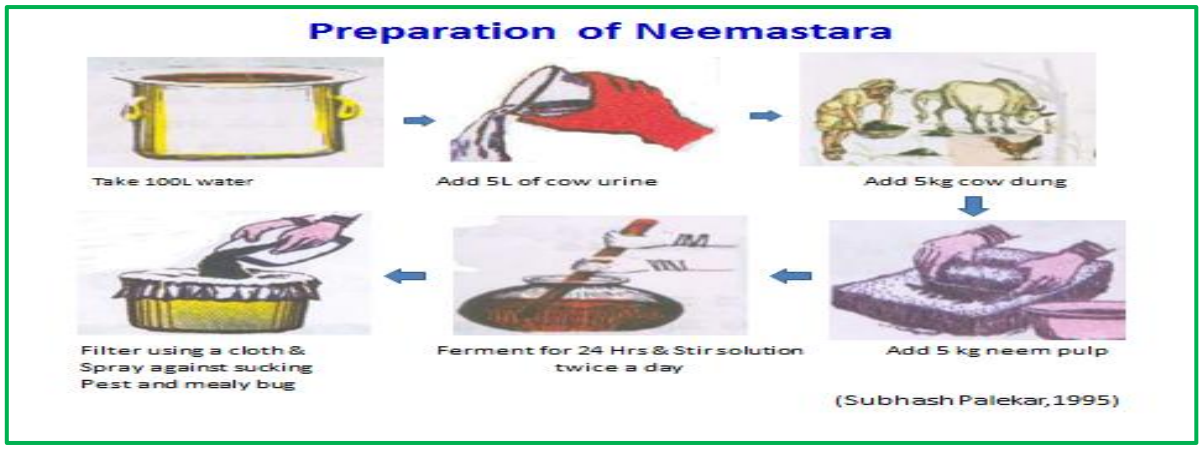
2. Brahmastra: It is prepared by neem leaves, custard apple leaves, lantern camellia leaves, guava leaves, pomegranate leaves, papaya leaves and white dhatura leaves crushed and boiled in urine.

Controls: It is used to control all of the sucking pests, pod borer, fruit borer etc



3. Neemastra: It is made up of local cow urine (5l), cow dung (5kg) and neem leaves and neem pulp (5kg) fermented for 24 hrs.

Controls: It is used for sucking pests & Mealy Bug



Palekar received the Padma Shri, India's fourth highest civilian award, in 2016. This was a significant victory for the ZBNF movement. However, we have yet to see government action in terms of concrete policy support.

Success Stories

1. Mr.Annadurai, a paddy farmer from Musuri Trichy, who used ZBNF on a 2-acre plot of land yielded 2 tonnes per acre and gained confidence to extend to a 10-acre plot. (Spritiualfarming.blogspot.in,2008)
2. Farmers in Idukki who have found Zero Budget natural farming to be successful have indicated that their production has not been affected and that they have received better prices even amid the seasonal surplus. Mr. Kudankavil claims that if you follow Mr. Palekar's directions, you will achieve the desired result. (Farmers in Idukki find zero budget farming successful-The Hindu,2010)
3. Mr.T.Suryanarayana Raju, an East Godavari district zero-budget farmer who grows oil palm and paddy. He was able to minimize his cultivation costs by Rs.12,000/acre by getting a decent output of 10 t of oil palm and 2 t of rice per acre. After paying all expenditures, his 20-acre oil palm and 5-acre paddy yielded a net profit of 15 lakhs. (Rashtrya Krishi VikasYojana, 2011)