ZERO BUDGET NATURAL FARMING: A VISION TOWARDS SUSTAINABLE FUTURE

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INTRODUCTION

Environmentally focused solutions have raised sustainable intensification and agro-ecology. The advent of Green Revolution to increase yield and profit have resulted into intensive, high-input agriculture, consequently, environmental degradation and negative health impacts. Thus, there is a need of alternative approaches to agricultural production that could align more closely to the UN Sustainable Development Goals (SDGs). NITI Ayog (Government of India), also realizing the dwindling productivity and profitability of the small and marginal farmer's is in constant search of an alternative farming systems that could lower the inputs and costs and alleviate profitability.

ZBNF – ZERO BUDGET NATURAL FARMING

The word "zero budget" mean "no credit or no expenses", i.e., without any credit or spending any money on purchased agricultural inputs. Padma Shri Mr. Subhash Palekar 1st time adapted the ZBNF system in India during 1990s. He concentrated on low input use technologies in agriculture obtained from available on-farm resources those are beneficial for soil health.

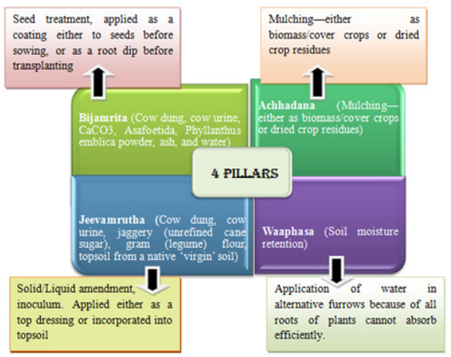
Natural farming vs. ZBNF vs. organic farming

Natural farming	Zero budget natural farming	Organic farming
M Fukuoka (Japan)	Mr. Subhash Palekar (India)	Albert Howard (England)
Natural farming is a method of chemical-free agriculture drawing from traditional Indian practices.	'Zero Budget' refers to lower use of purchased inputs, and reduced involvement of agribusiness, reducing debt incurred by farmers	Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, genetically modified organisms and livestock food additives.
It is also known as do nothing farming because the farmer is considered as a facilitator and the real work can be done by nature. No-tillage, no chemical fertilizer, no pesticides in this farming.	It includes low input use technologies in agriculture that should be on-farm resources available within farmland and that should not harmful to soil health.	It requires basic agricultural practices like ploughing, tilting, mixing of manures, physical weed management, etc. to be performed.
Certification is not required	Certification is not required but practices are restricted to four pillars	Certification is mandatory

BENEFITS

- **Zero cost:** The cost of production is zero as farmers avoid buying inputs in any form, besides no fertilizers and pesticides are applied.
- **Water efficient:** It consumes only 10% of water over conventional methods.
- **Higher yield:** Higher significant yield are obtained in different cash as well as food crops.
- **Drought tolerant:** ZBNF farms are able to withstand a long term drought and flood situations.
- **Profitable:** Planting more crops and border crops on the same piece of land provide extra dividend and nutrient sources.

COMPONENTS OF ZBNF



CHALLENGES FACED IN ITS ADOPTION

1. **Indigenous breed:** Manures are to be collected from local desi cows and imported Jersey or Holstein cannot be used, thus its availability is a concern.
2. **Lags in marketing:** Weakened agricultural market infrastructure, since there is no value of natural products.
3. **No scientific validation:** Microbial compositions, efficacy and impact of jeevamrutha, bijamrita, bramhastra, dashaparni kashaya not scientifically tested and there is no scientific data on it.
4. **High feed demands:** Hybrid varieties are not permitted; with continuously increasing global population food is scarce to all populations. Even by using chemicals, we are not reaching our food production target, without hybrids, it is impossible to reach the target.
5. **Plant protection:** Pest management is difficult- different crop-specific weeds, diseases, insects are damaging to crop drastically, and by using natural products its control is not satisfactory at farmer's level.
6. **Lacks regulation:** Appropriate policy framework is missing, as there is no specific standards set for regulation.

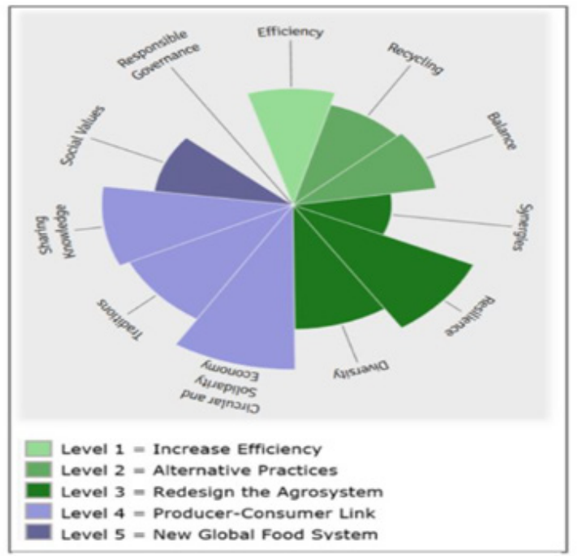


Fig: Assessment of ZBNF based on FAO elements of Agroecology and Gliessman's five levels of food system change

OPPORTUNITIES TO ADOPT ZBNF

Green revolution has uplifted the use of high yielding varieties, chemical fertilizers and pesticides deteriorating soil health and population of beneficial microbes. These all created a negative impact on the environment and human health. Concerning this with increasing globalization, there is a need for environmental sustainability, maintaining the environment to the future generation. Natural farming gives better opportunities to solve these problems by:

1. Conserving nature- It improves microbial content and water retention capacity in soils which enables drought prone areas to provide consistent yields.

2. Health risk management- Reduces health risks from chemicals and reduces the drudgery of women who have easier access to clean water and feed for livestock as well as reducing illnesses caused by chemicals in food, especially among children.

3. Carbon sequestration- One tonne of residue burning produces 400 kg of carbon (Bhuvaneshwari et al., 2019), if the residues are retained or incorporated into soil it will supply carbon to the soil and help to produce more yield.

4. Social impact- Due to low cultivation costs and stable yields, it enables farmers to have consistent quantities of crops to sell in the market so their livelihoods secured.

5. Net economic impact- Reduced costs of cultivation, higher yields, lower, gained income from intercrops and a slightly higher selling price improves economy.

CONCLUSION

Overall concerning about ZBNF, there is reduced use of water and electricity, improved farmers health, maintenance of local ecosystems and biodiversity, without leaving any toxic residue in the environment. Thus, the social status of farmers can be improved without compromising on mother Earth.