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Zero Budgeting in Diversified Hill Agro-Ecosystems

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Introduction

Agriculture faces many challenges, making it more and more difficult to achieve its primary objective - feeding the world – each year. Population growth and changes in diet associated with rising incomes drive greater demand for food and other agricultural products, while global food systems are increasingly threatened by land degradation, climate change, and other stressors. Land degradation adversely affects the ecological integrity and productivity of about 2 billon ha, or 23 percent of landscapes under human use and up to 40 percent of the world's agricultural land are seriously degraded. India with 2.4% land area supports more than 17% of the world population In India, the agriculture sector has been dominated for the past over 40 years by Green Revolution. Green Revolution has influenced the economy by increasing agricultural production and productivity.Now a days 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debt.A revolutionary impact of green revolution/modern agricultural techniques is that it has broken away the old and outdated traditional practices**.** Agricultural production has increased more than tripled between 1960 and 2015, owing in part to productivity enhancing Green Revolution technologies and a significant expansion in the use of land, water and other natural resources for agricultural purposes. The same period witnessed a remarkable process of industrialization and globalization of food and agriculture. Critics of Green Revolution also point out that it was confined to few crops like wheat, paddy and maize and few areas of the country particularly Punjab, Haryana and western Uttar Pradesh. Achieving food security under the regime of climate change will require a holistic system approach, incorporating the principles of natural farming or conservation agriculture (CA), organic farming and judicious crop rotation. Zero budget natural farming (ZBNF) offers workable options to eradicate poverty and hunger while improving the environmental performance of agriculture, but requires transformative,

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simultaneous interventions along the whole food chain, from production to consumption. It also requires unprecedented, large-scale behaviour change by consumers as well as producers of food.

Zero Budget Natural Farming

As per the Economic Survey 2018-19, 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 (GOI, 2019). Therefore, ZBNF aims to sustain agricultural production with eco-friendly processes in tune with nature in order to produce agricultural produce free of synthetic chemicals by eliminating the use of synthetic chemical inputs and promoting good agronomic practices.

ZBNF originated in Maharashtra in the early 2000s, pioneered by **Mr. Subhash Palekar**, an agriculturalist, through his on-farm experiments. Later this alternative method of farming is knownas Zero Budget Spiritual Farming. Four integral aspects of ZBNF (or four wheels of ZBNF) are identified as (Palekar, 2005; 2006):

- ✓ **Jivamirta** (a soil inoculant): acts as a catalytic agent that enlivens the soil, increasing microbial activity and organic matter. It also helps in preventing fungal and bacterial growth and in increasing earthworm activity.
- ✓ **Bijamirta** (a seed treatment): protects seedlings from seed borne diseases.
- ✓ **Acchadana** (mulching): enhances decomposition and humus formation through activity of the soil biota activated.
- ✓ **Whapasa** (soil aeration/moisture): It is the condition in which there are both air and water molecules present in the soil.

Palekar's Vision

- ❖ This model eliminates the cost of fertilizers, pesticides and seeds and greatly reduces the incentive to borrow, one of the chief causes for farmer suicides in the country. Hence its evocative title "ZERO BUDGET NATURAL FARMING".

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- ❖ He believes in a method of cultivation which makes the already existing nutrients in the soil such as phosphate, potash, zinc and calcium available in absorbable form by the plants.

Some Unique Quality Of ZBNF

- In the Zero Budget Natural Farming nothing has to be purchased from the outside. All things required for the growth of the plant are available around the root zone of the plants.
- 98 to 98.5% nutrients are taken from air, water & solar energy.
- Remaining 1.5% nutrients taken from the soil are also available free of cost as it is taken from the prosperous soil which is enriched with these nutrients.

Insect And Pest Management

1) **Agniastra-** This primarily is the mixture of Chilli, Garlic, Neem and cow urine (all available in house or locally) and used to control the insects (leaf roller, stem borer, fruit borer, pod borer).
2) **Bramhastra-** mixture of several locally available plants like Neem, Guava, Custard Apple, Pomogranate etc. with cow urine and is used to spray over the leaves of the plant.
3) **Neemastra-** mixture of cow dung, urine, neem etc. are used against leaf sucking insects and mealy bugs.

Goverment Incentives

- ✓ In the context of the government's commitment to double farmer's income by 2022, GoI is promoting natural farming in country through dedicated schemes of Paramparagat Krishi Vikas Yojana (PKVY) and through Rashtriya Krishi Vikas Yojana (RKVY).
- ✓ NITI AYOG in a survey found out that the zero-budget technique has resulted in an increase in the yields of crops like cotton by 11 per cent, paddy by 12 per cent, groundnut 23 per cent, and chilli 34 per cent at less than half the cost of cultivation in the year 2016-17.

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- ✓ It has attained wide success in southern India, especially in Karnataka where it first evolved.

Future prospects of Study

An appraisal of the 'Zero Budget Natural Farming' so far clearly points to its eminent feasibility for different agro climatic conditions, for different crops and different category of farmers. It has found favour with the farming community because it perfectly blends with their life style which is dependent on land, vegetation and livestock. However, as regards its ability to provide sustainable returns year after year, it needs to be monitored over a period of time. Paleker's zero budget natural farming has undoubtedly made an indelible mark on farming in India. More than 40 lacks farmers across the country have benefited greatly from this technique and slowly this number will increase tremendously in coming years.

Conclusion

"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 ofsoil by mulching, Jeevamrtham application and properaeration. Soil is Annapurna (rich in nutrients) and it doesn't require anything from outside. I resolved to do Zero budget Natural Farming."

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.

References

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