

Low Cost Natural Farming :-A Step Towards Atmanirbhar Bharat

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Abstract

In India, the agriculture sector has been dominated for the past over 40 years by Green Revolution. Now a day's 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 farmers goes under debt. Hence, the only way to deal with this ever rising problem is Low Cost Natural Farming (LCNF). The word 'cost' refers to credit and expenses, and the word 'low' refers to minimum thus the phrase 'low cost' means with the use of minimum to minimum or nil credit, and without spending any extra money on purchased inputs. Low Cost Natural Farming use mulching, soil protection techniques, crop rotation, green manures and natural pesticides. There are most popular four pillars of LCNF i.e. *Jeevamrut*, *Beejamrut*, *Acchadan* and *Whapasa*. Natural product made from farm resources utilized for nutrition, food safety, food security and plant protection purpose, which helps the farmers to find other alternative method of natural farming especially for their self-reliance (Atmanirbhar).

Introduction

Green Revolution transformed the country from a food-deficit state to self-sufficiency during early 1970s. Now 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 costly seeds. While the country has been planning to revamp its agricultural production system including research and development to meet this formidable challenge, the economic survey of 2018-19 made keen appeal for adoption of Low Cost Natural Farming (LCNF) in a big way to double farmer's income and the Hon'ble Prime minister subsequently endorsed it.

What is Atmanirbhar Bharat Mission?

Atmanirbhar means 'self-reliant' (self-reliant India or self-sufficient India). On May 12, 2020, Hon'ble Prime Minister Narendra Modi announced in his address to the nation an economic package of Rs 20 trillion to tide over the coronavirus crisis (Covid-19) under the Atmanirbhar Bharat Abhiyan. He said making the country self-reliant was the only way to make 21st century belong to the India. Slogans initiated under Atmanirbhar Bharat include 'vocal for local', 'local for global' and 'make for world'.



Atmanirbhar Krishi and Atmanirbhar Kisan

Atmanirbhar Krishi and Atmanirbhar Kisan are important to achieve the goal of atmanirbhar Bharat – hon Prime Minister Shri Narendra Modi, in his address to the Nation on the 74th Independence Day, New delhi. Despite lockdowns due to Covid-19 pandemic, only agricultural sector has performed better with 2.9% growth rate during 2019-20, as against 2.7% during 2018-19.

- Promoting integrated farming along with natural and organic farming is vital for Atmanirbhar Bharat Abhiyan - Shri Narendra Singh Tomar in Virtual 26th Meeting of ICAR Zonal Committee 30th June, 2020, Krishi Bhawan, New Delhi.
- Natural Farming is only one way to get immunity against covid-19 and make atmanirbhar kisan in atmanirbhar bharat - Shri Acharya devvrat (Guj governer).

Low Cost Natural Farming (LCNF)

Low Cost Natural Farming, as the name implies, is a method of farming where the cost of growing and harvesting plants is minimum to minimum or nil. This means that farmers need not purchase fertilizers and pesticides in order to ensure the healthy growth of crops. All inputs are to be locally resourced from the farm or around the village.

Low Cost Natural Farming is one such low-input, climate-resilient farming that inspires farmers to use low-cost and locally sourced and available inputs, eliminating the use of artificial/chemical fertilizers and industrial pesticides.

Need of the Day?

- Substantial losses from pests, diseases and weeds persist, despite billions of lbs. of pesticides are used annually.
- Sustainability in agriculture is one of the major concerns of humanity as on today.
- To find farming systems which works in harmony with nature rather against it.

LCNF - A Big Concept !!

- An approach towards sustainability
- Expense-free farming
- Producing quality and poison-free food
- Agriculture without external input
- Reducing external Labour requirement
- Farming in tune with nature
- Techniques of multi-crop cultivation for higher net income
- Farming with minimum electricity and water consumption
- Saving the farmers from suiciding themselves and leaving behind their families as beggars

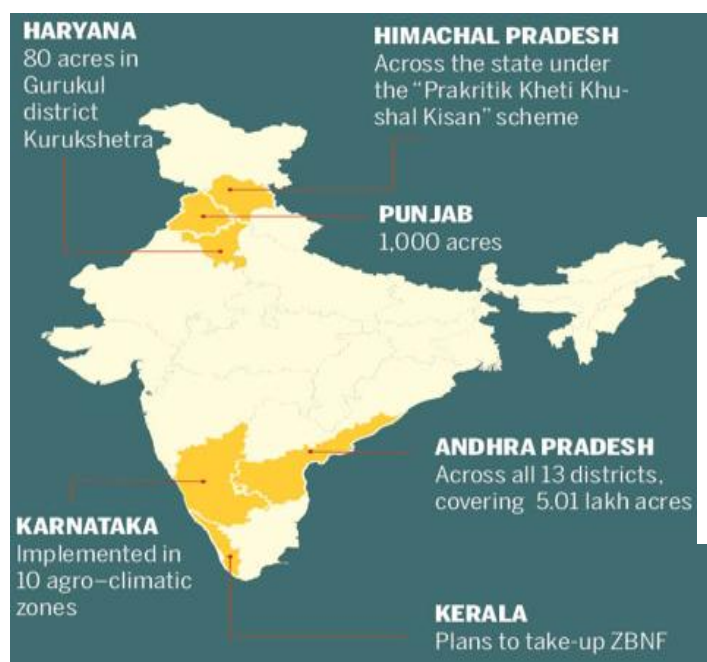


Salient Features of LCNF

- Protecting soil fertility and soil health
- Maintaining the level of organic matter
- Encouraging biological activity in soils
- Providing nutrients through the microbial action
- Using legumes to fulfill the nitrogen requirements of the soil.
- Recycling organic matter like crop residues and manures
- Managing diseases, pests and weeds using techniques like natural predators, organic manuring, crop rotation, maintaining diversity, growing resistant varieties, etc.
- Effective livestock management by paying special attention to their nutrient requirements, housing, breeding, rearing, etc.

LCNF in India

- Low Cost Natural Farming (LCNF) is a set of farming methods, and a grassroots peasant movement, which has spread to various states in India. It has attained wide success in southern India especially.



Major Institutions that Support LCNF in India

1. Isha sadhguru foundation.
2. The art of living foundation.
3. Karnataka Rajya Raitha Sangha.
4. Sony India private limited.

Implementing States of Low Cost Natural Farming

1. Haryana – 80 acres in Gurukul, Kurukshetra
2. Punjab – 1000 acres
3. Karnataka – 10 Agro climate zones
4. Andhra Pradesh – 5.01 lakh acres
5. Himachal Pradesh – Across the state

Features of Low Cost Natural Farming

According to Low Cost Natural Farming principles, crops get 98% of their supply of nutrients from the water, sunlight, and air. Moreover, the remaining 2% can be fulfilled by good quality with lots of favourable microorganisms.

1. **Soil microclimate:** The soil always covers an organic mulch, which forms humus and encourages good microorganisms.
2. **Desi Cow:** The farming system requires cow urine and cow dung obtained by only Indian breed cows. One gram of desi cow dung contains 300 to 500 crores of beneficial effective microbes.

How in LCNF we need no fertilizers?

- **Bhumi Annapurna:** Means soil is rich with all nutrients for plants to grow.
- We should take only those we use and leave the rest from the crops to soil it.
- Stop completely removing crop and burning down the crop remains.
- A **Jeevamrut 200 liter per acre per month** is enough as a culture to convert the soil.

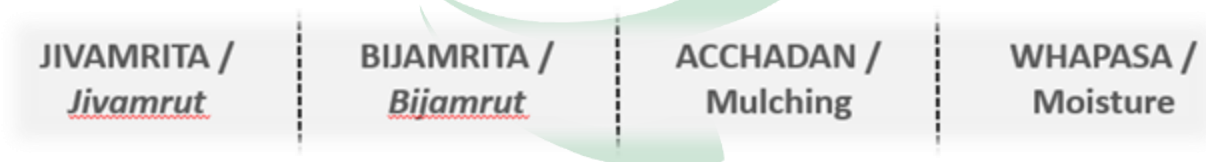
Why no need for weeding in LCNF?

- Mulching in the field will stop the growth of weeds.
- Inter crops will replace the growth of weeds.
- Weeds are used for enriching the soil components.
- Plants do not compete for the food. They coexist and live in symbiosis.

Why we do not need pesticides and anti-infectants in LCNF?

- Pests and infections will not come to infect a healthy crop.
- Even if infected, the healthy plant can have immunity to withstand their effect.
- Natural pest controls in the form of complementary crops and *Asthras* will help.
- Use of *desi* seeds strengthen the crops.

Four Pillars of LCNF:



1. Jeevamrut:

Jeevamrut is an organic manure. This is fermented microbial culture, which is prepared by natural resources. Jeevamrut helps to increase the microbial activity in the soil. The 48 hrs. Fermentation process multiplies aerobic and anaerobic bacteria present in the cow dung and urine, as they eat organic ingredients and a handful of undistributed soil acts as inoculate of native species of microbes and organisms. It can be applied through irrigation

water or foliar spray. While transiting from conventional input-intensive agriculture, the application of *Jeevamrut* to the soils and plants is required only for the first three years because after that the system becomes self-sustaining.

2. *Beejamrut*:

This is an organic manure which is prepared from locally available natural resources for the propose of treatment for seeds, seedlings or any planting material. It reduces the possibility of seed infestation by pests and protects young roots from fungus, soil-borne diseases, and seed-borne diseases that generally affect the plants after monsoon. In the ingredients, the dung and urine from the indigenous breed cow act as a powerful fungicide, and anti-bacterial agent, respectively.

3. *Acchadana*/Mulching:

There are three types of mulching.

- **Soil mulching:** It protects topsoil by avoiding tilling. It facilitates aeration, and promotes water retention.
- **Straw/Biomass mulching:** Application of dry organic matter (dead material of any living being) along with *Jeevamrut* will lead to decomposition and humus formation that will improve soil fertility.
- **Live mulching:** This suggests inter-cropping or mixed-cropping by combining monocots (those seedlings with one seed leaf like rice and wheat) with dicots (those seedlings with two seed leaves like legumes) in the same plot of land. This will create a symbiotic relationship because monocots will supply elements like potash, phosphate, and sulphur while dicots will work towards nitrogen fixation.

4. *Whapasa* / Moisture:

It is the condition where there are both air molecules and water molecules present in the soil. There by helping in reducing irrigation requirement. Mixture of 50% air and 50% water vapours in the cavities between two soil particles.

Different *Asthras* for pest management in LCNF:

- 1) *Agniastra*- This 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) **Brahmastra**- Mixture of several locally available plants like neem, guava, custard apple, pomegranate etc. with cow urine and it is used to spray over the leaves of the plants. It is used to control all of the sucking pests, pod borer, fruit borer etc.
- 3) **Neemastra**- Mixture of cow dung, urine, neem etc. and used against leaf sucking insects and mealy bugs.

Table-1: Cow based low cost natural farming practice for poor and small land holding farmers.

Pesticides / Fungicides	Use
<i>Neemastra</i>	To control sucking pests and small insects
<i>Agniastra</i>	To control borers, caterpillars
<i>Brahmastra</i>	To control leaves eating larvae
Fermented buttermilk	To avoid and control all type of spots on leaves and fruits etc.
Asafoetida decoction	To avoid and control bacterial diseases and best used for paddy sheath blight.

Government Schemes and Initiatives to Support LCNF

- ✓ In the context of the government's commitment to double farmers' 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 AYOOG 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.
- ✓ Addressing the United Nations conference on desertification (COP-14), our honorable Prime minister told the global community that India is focusing on Zero Budget Natural Farming (ZBNF).
- ✓ Finance Minister Nirmala Sitharaman has often mentioned how ZBNF will double farmers' income by going "**back to basics**" in her budget speech.
- ✓ AP Government has decided to approach 60 lakh (6 million) farming households to adopt "**Climate Resilient Zero Budget Natural Farming (CRBZBNF)**" as a



farming practice that believes in natural growth of crops without supplying any other external inputs.

Drawbacks of Low Cost Natural Farming:

- ✓ There is no special market to sell
- ✓ Takes long conversion period
- ✓ It is practiced in fewer parts of India
- ✓ Slow to achieve results
- ✓ Difficult to convince customer that their produce is nutritious and pesticide free in order to command premium price and Finding consumer to sell at premium price is difficult
- ✓ The farming type is still under debate and not much scientific research is done still under evaluation.

Conclusion

Low Cost Natural Farming (LCNF) has its own benefits and drawbacks, although if properly executed it will become a secure part of Indian agriculture. Government should take the initiative to build the bridge of knowledge between the farmers and his system of farming. First government should address the crisis like rising labour cost in this, and by providing better produce price to the farmers. It should be tested on a wider scale and on all soil types. Hence, implementing this at larger scale and in a better way will help the nation to progress towards achieving the Goal of Atmanirbhar Bharat. Natural product made from farm resources utilized for nutrition and plant protection purpose, which helps the farmers to find other alternative method of natural farming especially for their self-reliance (Atmanirbhar). This all if looked into a better way will help overcome the various drawbacks of LCNF.

Feedback from LCNF farmers:

- “In LCNF our expenses are very low. It does not 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”.

-- LCNF farmer, Belgaum, India



- “I made a profit of Rs 2 lakh in 6-8 months. My family members also came on board after seeing the success of the model farm, but I confesses that LCNF gave a hard time, in the beginning but over a period, the yield, customers and my income increased”

-- Vanrajsinh, LCNF farmer, Bhavnagar, India

