

NATURAL FARMING PRACTICES

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INTRODUCTION:

For generations, agriculture has been the backbone of the Indian economy and plays a major role in economic growth. There are growing worries about the sustainability of the current input-intensive farm system which have been the result of the development of alternative agricultural practices. The search for ecologically sustainable and agriculture friendly alternative farming methods is becoming increasingly popular in the agricultural sector. Zero Budget Natural Farming (ZBNF) is a relatively new farming approach that is being implemented all over the country. It is one method to address this ever increasing problem and has a beneficial influence directly or indirectly on sustainability (Tripathi and Tauseef,2018). Natural farming is a form of chemical-free agriculture that emphasizes traditional Indian techniques based on agroecology. It preserves the soil polluted by chemical compounds. Indian farmers are in a debt cycle due to high production costs, high interest rates, fluctuating agricultural market prices and private seeds. In the previous two decades, almost one-quarter of a million farmers in India committed suicide. Debt is a big concern for farmers of all sizes. Natural Farming promises to remove loan reliance and considerably cut production costs under these conditions by ending the debt cycle for distressed farmers. The goal was to decrease production costs to nearly zero and restore to the pre-green revolution agricultural system, which proposes a complete removal of synthetic chemical-based inputs and encourages the use of locally generated inputs such as cow dung, cow urine, jaggery, green chilies, and so on. It is a special type of agriculture which does not require any financial investment to acquire basic inputs such as seeds, fertilizers, and plant protection chemicals from the market. However, natural farming has increased positive outcomes throughout their early phases and is accepted in good faith by farmers. Farmers have even reported a substantial decrease in labour and production costs (De varinti, 2016).

Table 1. Example of various crops combinations under Natural Farming.

| Particulars | Kharif | Rabi |
|-------------------------|---------------------------|---------------------------------|
| Vegetables | Tomato+Beans+Cucumber | Cauliflower+Pea+Radish |
| | Tomato+Beans | Cauliflower+Pea+Fenugreek |
| | Tomato+Beans+Capsicum | Cauliflower+Pea+Coriander |
| | Tomato+Beans+Chilli | Cauliflower+Pea+Spinach |
| | Tomato+Beans+Bottle Gourd | Cauliflower+Pea+Potato |
| | Tomato+Bean+Okra | Cauliflower+Pea+Onion |
| | Tomato+Beans+Brinjal | Onion+Pea+Fenugreek |
| | Capsicum+ Beans | Cauliflower+Pea |
| | | Cabbage+Pea+Fenugreek |
| Vegetables- Cereals | Tomato+Maize+Beans | Potato+Wheat+Pea |
| | Capsicum+Maize+Beans | Cauliflower+ Wheat+Pea |
| | Bottle Gourd+Maize+Beans | Collocasia+Wheat+Pea |
| | Tomato+Maize+Beans | |
| Vegetables-Pulses | Tomato+Soyabean | Cauliflower-Chickpea |
| | Tomato+Soyabean+Cucumber | Cauliflower+Kidney Beans+Potato |
| | Tomato+Soyabean+Chilli | Cauliflower+Chickpea+Coriander |
| | Okra+Beans | Cauliflower+Chickpea+Fenugreek |
| Cereals-Pulses | Maize+Soyabean | Wheat+Chickpea |
| | | Wheat+Chickpea+Mustard |
| | | Wheat+Chickpea+Pea |
| Vegetables-Oil seeds | ----- | Cauliflower+Mustard+Fenugreek |
| | ----- | Cauliflower+Mustard+Cabbage |
| | ----- | Cauliflower+Mustard+Coriander |
| | ----- | Cauliflower+Mustard+Radish |
| | ----- | Cauliflower+Mustard |

Pillars of Natural Farming:

The four pillars consist of:

- 1) *Bijamrit*: Coating of microbial seeds through cow urine and dung-based formulation.



- 2) *Jivamrit*: Significantly improve the soil microbiome through and inoculums of cow dung, cow urine, pulse flour, jaggery and soil.
- 3) *Acchadana* (natural mulch): Soil to be kept covered by crops and crop residues which protects the soil during cultivation.
- 4) *Waaphasa*: Soil aeration to maintain the required moisture-air balance, soil structure, and water harnessing.

Beejamrit would offer the best results if it was used on the preparation day, while *Jeevamrit* was to be used after 10 days to get the best result. The most reported bacteria were N-fixers, P-solubilizers, fungi, and actinomycetes, among the various microbes recorded. It was concluded that such treatments naturally promote soil microorganisms, which is a good alternative to the use of synthetic fertilizers (Devakumar *et al.* 2014). These concepts enable workers to decrease costs, enhance yields, minimize risks, reduce water requirement for crops, improve micro and soil health, increase biodiversity, enhance pricing and improve climate change resistance.

Cropping Pattern

A cropping pattern is the proportion of the area under different crops at a time. In Natural Farming, various 3 to 4 crops are cultivated on the same area along with leguminous crops as the intercrop in order to ensure that no piece of land is wasted and properly utilized. In order to facilitate interaction between them, these combinations were established during the growing season and are based on the concept that their complementarity existed between the plants. As it enhances crop productivity and soil fertility by atmospheric nitrogen fixation, intercropping with leguminous crops is regarded as one of the most important components of Natural farming. It also facilitates diversification and increasing productivity by growing and selling different types of cereals, vegetables, legumes, fruit and even medicinal plants. Multiple cropping systems significantly improve income. This method maximizes the use of land and lowers the risk of failure of crop yield. Farmers grow various crops in different crop combinations. These crop combinations help to improve soil characteristics, to establish a balance and also to incorporate organic nutrients into the soil. In addition to increasing the range of available crop production at different times in the cropping season, mix cropping has helped to utilize the farm area more effectively than sole crop cultivation to further increase net profit. Some of the different types of crop combinations under Natural Farming system

include Vegetables, Vegetables-Cereals, Vegetables-Pulses, Cereals-Pulses and Vegetables-Oilseeds, Cereals-Pulses-Vegetables, Cereals-Vegetables- Oil seeds crops, etc.



Coriander + Pea + Spinach crop combination, UHF, Nauni

Conclusion:

Natural Farming is a special type of agriculture which does not require any financial investment to acquire basic inputs such as seeds, fertilizers, and plant protection chemicals from the market. In contrast to capital-intensive conventional farming, the Natural Farming approach reduces farmers' direct expenses, increases yields, and enables the use of locally obtained non-synthetic inputs. This significant decrease in cultivation expenses is due to the absence of costly market-driven inputs. The chemical farming techniques are now experiencing a number of difficulties, including decreasing productivity growth, inadequate and unbalanced nutrient utilization, low water and nutrient quality, natural resource depletion, rising input costs, and so forth. The increased returns in NF can be attributable to cost savings from not using chemical fertilizers and pesticides, as well as higher benefits from intercrops.

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