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Department of Business Administration, Utkal University*

Focused on

NATURAL FARMING





BACK TO THE LAND





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EDITORIAL

NATURAL FARMING

Natural Farming is a chemical-free alias traditional farming method. It is considered as agro-ecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity. It means using natural processes and inputs to improve the health of soil, crop yield and quality. The objective of natural farming, (Economic survey 2021, Govt of India) is elimination of chemical fertilisers and pesticides, the indiscriminate use of which pollutes the environment, and to promote "good agronomic practices", which means using science and technology to manage crop

Salient Features of Natural farming

- ◆ The plants get 98% of their supply of nutrients from the air, water, and sunlight. And the remaining 2% can be fulfilled by good quality soil with plenty of friendly microorganisms. (Just like in forests and natural systems).
- ◆ The soil is always supposed to be covered with an organic mulch, which creates humus and encourages the growth of friendly microorganisms.
- ◆ The system requires cow dung and cow urine (Gomutra) obtained from Indian breed cow only. Desi cow is apparently the purest as far as the microbial content of cow dung, and urine goes.
- ◆ A farm made bio-culture named 'Jeevamrutha' is added to the soil instead of any fertilizers to improve microflora of soil. Jeevamrutha is derived from very little cow dung and cow urine of desi cow breed.
- ◆ Natural, farm-made pesticides like Dashparni ark and Neem Astra are used to control pests and diseases .

Differences between natural farming and organic farming

- ◆ In organic farming, organic fertilizers and manures like compost, Vermi-compost, cow dung manure, etc. are used and added to farmlands from external sources.
- ◆ In natural farming, neither chemical nor organic added to the soil. In fact, no external fertilizers are added to soil or give to plants whatsoever.
- ◆ In natural farming, decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface itself, which gradually adds nutrition in the soil, over the period.
- ◆ Organic farming still requires basic agro practices like ploughing, tilting, mixing of manures, weeding etc. to be performed.
- ◆ In natural farming there no ploughing, no tilting of soil and no fertilizers, and no weeding is done just the way it would be in natural ecosystems.
- ◆ Organic farming is still expensive due to the requirement of bulk manures, and it has an ecological impact on surrounding environments; whereas, natural agriculture is an extremely low-cost farming method, completely moulding with local biodiversity.
- ◆ There are many working models of natural farming all over the world, the zero budgets natural farming is the most popular model in India. This comprehensive, natural, and spiritual farming system is developed by Padma Shri Subhash Palekar.



In India, Natural farming is promoted as Bharatiya Prakritik Krishi Paddhati Programme under centrally sponsored scheme- Paramparagat Krishi Vikas Yojana . BPKP is aimed at promoting traditional indigenous practices which reduces externally purchased inputs. It is largely based on on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations; periodic soil aeration and exclusion of all synthetic chemical inputs. The natural farming will reduce dependency on purchased inputs and will help to ease smallholder farmers from credits burden.

The BPKP programme has been adopted in State of Andhra Pradesh, Karnataka, Himachal Pradesh, Gujarat, Uttar Pradesh and Kerala. Several studies have reported the effectiveness of natural farming- BPKP in terms of increase in production, sustainability, saving of water use, improvement in soil health and farmland ecosystem. It is considered as a cost- effective farming practices with scope for raising employment and rural development.

It is roughly estimated that around 2.5 million farmers in India are already practicing regenerative agriculture. In the next 5 years, it is expected to reach 20 lakh hectares- in any form of organic farming, including natural farming, of which 12 lakh hectares are under BPKP.

The system works along with the natural biodiversity of each farmed area, encouraging the complexity of living organisms—both plant and animal—that shapes each particular ecosystem to thrive along with food plants. The farming means both producing food and as an aesthetic or spiritual approach to life, the ultimate goal of which was, "the cultivation and perfection of human beings". The farmers could benefit from closely observing local conditions

Natural farming is referred to as "the Fukuoka Method", "the natural way of farming" or "do-nothing farming", is an ecological farming approach established by Masanobu Fukuoka a Japanese farmer., .

Fukuoka's natural farming practice rejected the use of modern technology, and after twenty-five years, his farm demonstrated consistently comparable yields to that of the most technologically advanced farms in Japan, doing so without the pollution, soil loss, energy consumption, and environmental degradation inherent in these modern types of farming, if nature is capable of achieving similar yields without the negative side-effects of these technologies technique that disturbs nature. Fukuoka claimed that his approach prevents water pollution, biodiversity loss and soil erosion, while providing ample amounts of food,

Availability of food through natural farming is more expensive because farmers do not get as much out of their land as conventional farmers do. Production costs are higher because farmers need more workers. Marketing and distribution is not efficient because organic food is produced in smaller amounts. The farmers should have sufficient knowledge and skills about localized soil systems, meteorology, ecology, and other factors that influence crop growth. Without the proper knowledge, an individual organic farmer will be unable to protect his crop in critical stages that may arise while farming processes.

The crops are easily susceptible to illness that may slow down production.

Organic farms have to go through tough certification processes.

Prof Benudhar Bhuyan

Advisor, Centre For Agribusiness Management

Utkal University

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NATURAL FARMING

CONCEPT & SCENARIO IN INDIA

Introduction

The injudicious usage of chemical pesticide and fertilizers were the aftermath of green revolution in India. Though no concrete work has been done till today to assess the impact of this excessive application of pesticide and fertilizers on nation's environment, human health or economy, it is no wonder that the detrimental effect has been caused by this practice in several parts of India. The current Government under the chairmanship of Hon'ble PM first taken it into consideration in 2019. India being an agrarian state has to start its journey towards 'Atmanirbhar' keeping the farmers at its core. Due to that reason, the nation needs to cut down its dependency on the import of chemical fertilizer and look back at its fertile and productive age old lands for food production. It will not only strengthen the economy of the country; the soil-plant-human chain will also become a healthy system through this. To harness the potential of our country's soil and plants, a concept of 'Natural Farming' was introduced during the 2019-20 budget speech in the form of zero budget farming. The agroecology based diversified farming system integrating plants and livestock with functional biodiversity is the prime focus of natural farming. It implies that, the farming can be done through the indigenous organic input or harnessing the potential of soil in-vitro.

Natural farming is the method of farming with natural means. This process of farming exists since ancient age. Naturally made composts and naturally made pest repellents with all sorts of cultural practices were used to harvest the crop. However, changing method of farming brought the chemical fertilizers and pesticides as well as the weedicides for the use in agriculture. Growing pesticide residues in foods, eutrophication of surface and ground-waters and injurious effect of accumulated nitrous oxide emissions on the ozone layer of the atmosphere, drew attention towards the detrimental effects of conventional agriculture. In India, since 1969, the fertilization application rate has been increased from 12.4kg/ha to 175 kg/ha in 2018 and so on. This is a major cause of depletion of organic carbon in soil. With the increasing health concern due to consumption of chemical laden cereals, pulses, vegetables and fruits and deteriorating soil health has an alarming call to opt for sustainable/organic/natural farming.

The Government of India has taken an initiative to simplify the protocols, popularizing the idea and streamline the methods through Bhartiya Prakrit Krishi Padhti (BPKP) and Paramparagat Krishi Vikash yojona (PKVY) among the Indian farmers for a paradigm shift. It is estimated that around 2.5 million farmers in India are already practicing natural farming and that will keep on increasing in next years. The improved yield, lowered cost of cultivation, employment generation and higher income along with better human health are cause of their interest in natural farming. This great initiative was lauded by the PM as "**This would be a great service to the nation**". This would be a great step in saving our Mother Earth".

Principles of Natural Farming: There are two sets of principles described in literatures. One set defines the aesthetic value whereas the other sets define the techniques.

First set of principles of values are Principle of health, Principle of care, Principle of ecology and Principle of fairness. Under principle of health, the priority has been given to the healthy food production in natural farming. Taking care of health of soil, plants, animals, human and planet as one and indivisible is the principle of health. There is no place of any unhealthy practices, harmful chemicals and fertilizer in this mode of farming. Improving the health of soil will in turn improve the health of plants and thereby health of animals and humans. Principle of ecology indicates that this kind of farming should be based on the natural ecological cycle cycles. It should work in such a way to sustain and preserve the ecological systems. Reuse, recycling and efficient management of resources and energy should be of utmost importance in such farming. Principle of fairness emphasises that natural farming should build on connections that confirm fairness with regard to the common environment and life opportunities. All the abiotic and biotic elements of ecological systems should be given equal respect and importance under principle of fairness. Natural farming should provide everyone involved with a good quality of life; contribute to healthy food sovereignty and reduction of poverty. It aims to produce a ample supply of good quality food and other products. The animals should also get good conditions and opportunities of life in harmony with their physiology, natural behaviour and well-being. Natural and environmental resources that are used for

production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs. Principle of care indicates that natural farming should be managed in responsible manner so that the natural resources in good conditions will be handed over to our next generation. With complete understanding of ecosystems and agriculture, care must be taken to ensure its health and productivity. Time tested practices should be incorporate for preserving the resources.

Second sets of principles of techniques are No Tillage, No Chemical Fertilizer, No Weeding, and No Dependence on Chemicals. No tillage concept is basically for leaving the flora and fauna inside the soil undisturbed. Whereas No chemical fertilizer and No dependence on chemical are the principles which keep crop chemical-free. Use of no chemical also facilitates the soil flora and fauna to be intact in the soil. As they are active inside the soil, they work for increasing fertility and better health of soil. The third is No Weeding or use of Herbicides. Weeds play their part in building soil fertility and in balancing the biological community. As a fundamental principle, weeds should be controlled, not eliminated.

Cow-Based Natural Farming (CBNF):

Quite a number of agriculture tribes have adopted CBNF and have observed proven results. Girveda, a Junagadh-based community been practising cow-based natural farming for quite a few years. As they have been growing a variety of crops through it, the farmers are able to get rid of debts and have benefitted from using non-chemical-based fertilizers and practices.

Different studies in different state of India have shown that how with a single *Deshi* cow can sustain natural farming in an area of 5-6 *bigha*. In a study, Neelam and kadian (2016) described that a group of farmers in Andhra Pradesh, maintaining their farm naturally with self-made fertilizer and pesticide, by using the indigenous traditional knowledge and *Deshi* cow. Their products are not only getting good market value with a low investment of ₹4000-5000/- per acre as compare to ₹ 20000-25000/- per acre in case of conventional farming. They are using cow-dung and cow-urine to prepare, fertilizer like *Ghanajeevamrut* and *Dravajeevamrut* along with different concoction for using as pesticides, such as *Neemastra*, *Agniastra*, *Brahmastra*, etc. With the help of Agriculture Technology Management Agency (ATMA) such farmers were linked with market and also getting knowledge about non-chemical crop management practices.

As per the study done by NITI Aayog, Cow-based farming results in the conservation of natural resources, soil, water and lives. Even the need of water and electricity are cut down by 90% which resulted in the significant reduction of the cultivation cost. Only 10% of the irrigation water will be utilized by this method in the farming practice. As there is less power consumption, there will be less pollution in addition to the several advantages of cow-based farming.

Status of Natural Farming in India

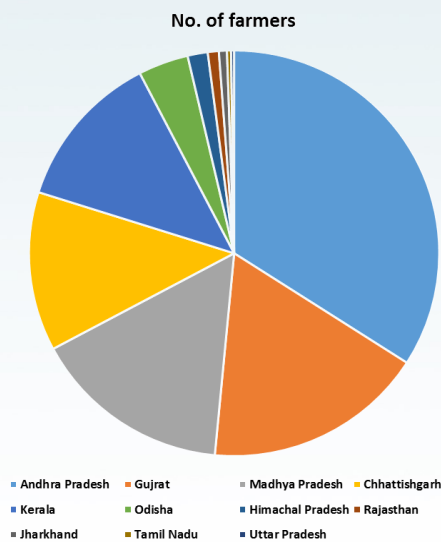
Rising issues of global warming, depleting natural resources for manufacturing chemicals for agriculture and deteriorating health values in India, prompted government to take steps for betterment. In last two decades, government is coming up with different schemes promoting the organic farming or natural farming. In this context, NITI Aayog along with Ministry of Agriculture & Farmers welfare had organized several high level discussions with global professionals on Natural farming does and don'ts. It is roughly reported that around 2.5 million farmers in India are already involved in regenerative agriculture. In the next 5 years, it is projected to reach 20 lakh hectares- in any form of natural farming, of which 12 lakh hectares are under Bharatiya Prakritik Krishi Paddhati (BPKP).

In India, Natural farming is promoted as BPKP under centrally sponsored scheme- Paramparagat Krishi Vikas Yojana (PKVY). BPKP is aimed at promoting traditional indigenous practices which reduces externally purchased inputs. It is largely based on on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations; periodic soil aeration and exclusion of all synthetic chemical inputs. According to the report of High Level Panel of Experts, natural farming will reduce dependency on purchased inputs and will help to ease smallholder farmers from credits burden.

According to the Andhra Pradesh government, as of March 2020, 0.62 million farmers (10.5 per cent of all farmers) were registered under the programme. Of the registered farmers, 0.44 million farmers (7.5 per cent), were actually practising natural farming on an area of 0.45 million acres, which works out to 2.9 per cent of the net sown area spread across 3,011 gram panchayats (NITI Aayog reports). Andhra's ambitious natural farming programme started at mass scale and has generated a fresh interest in other states to make ambitious targets. Karnataka recently initiated implementation of zero budget natural farming (ZBNF) on a pilot basis in 2,000 hectares in each of the 10 agro-climatic zones of the state. Only a few farmers have been doing it at individual scale in other states.

Himachal Pradesh, too has set an ambitious target of converting entire state to natural farming by 2022. It is implementing the state-funded scheme Prakritik Kheti Khushal Kisan since May 2018.

It has claimed to exceed its targets of year 2019 by covering more than 50,000 farmer families. The Kerala, Gujarat and Haryana have conducted multiple mass level awareness programmes, trainings and workshops for hundreds and thousands of farmers to promote natural farming.



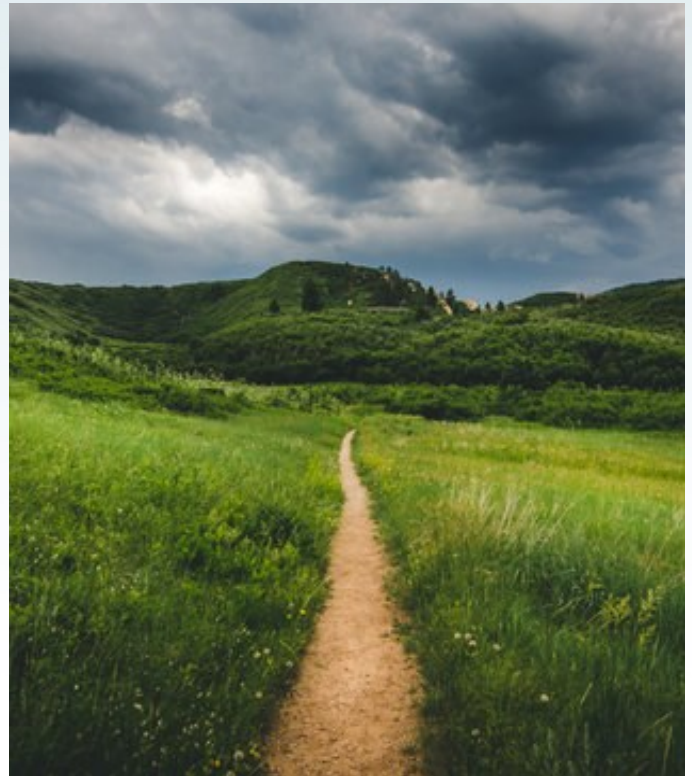
Major states in India practicing Natural Farming (Source: NITI Aayog)

Recently, studies have been carried out by Indian Council of Agricultural Research on Natural Farming methods practiced by basmati and wheat farmers in Modipuram (Uttar Pradesh), Ludhiana (Punjab), Pantnagar (Uttarakhand) and Kurukshetra (Haryana), assessing the impact on productivity, economics and soil health including soil organic carbon and soil fertility. Further, Andhra Pradesh Government Launch Indo German Global Academy for Agro ecology Research and learning (IGGAARL) at Pulivendula in July 2022. As per the study, India with the largest farmlands in the world, consumes only 1 % organic produce of the total organic produce but holds almost 20 % of the world population. Absence of proper marketing linkage is major issue being faced by organic food products whether obtained organically or naturally in the Indian market. Apart from that awareness among the farmers is required for proper implementation of all the schemes that are promoting the Natural/ Organic Farming in India.

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LANDSCAPE APPROACH IN NATURAL RESOURCES MANAGEMENT



The Concept of landscape approach in managing natural resources for sustainable ecosystem gaining enormous traction over the last decade. Landscape is a socio-ecological system that consists of a mosaic of natural and/or human modified ecosystems. Landscape typically comprises of farm lands, pastures or rangelands, forests, water courses, wetlands, sometimes mining and other industrial zones, communication and transportation infrastructure and built up areas of habitations. Landscape may be natural landscape, production landscape, rural landscape and aesthetic landscape. The Landscape approach essentially gains momentum for managing natural resources in an integrated and multidisciplinary manner for natural resources management with environment and livelihood considerations. Landscape approach seeks to provide tools and concepts for allocating and managing land to achieve social, economic and environmental areas where agriculture, mining and other productive land uses compete with environmental and biodiversity goals. There is an increasing acceptance of sectoral approaches to land management are no longer sufficient to meet global challenges such as poverty

alleviation, biodiversity conservation and food production. Integrated landscape approaches provide a basic framework for balancing competing demands and integrating policies for multiple land uses within a given area.

Besides integrated landscape management for natural resources management, aesthetic landscape has been quite popular in the perspective of increasing scenic, ecological and environmental health preferences. The approach gains huge momentum both for domestic landscape management and for commercial purposes. With centuries of development, the environment has suffered a severe impact affecting our lives. In such circumstances, maintaining a healthy balance in our surroundings including air quality, ecology, and natural resources is no longer an option. Landscape architecture or the design of the indoor and outdoor areas is focused on achieving aesthetic and environmental outcomes while ensuring sustainability by removing pollutants from the surroundings. Landscaping provides excellent means to create pocket parks, roof gardens, etc. to utilize the small open spaces in urban areas. The crisis of space can be easily dealt with by creating a cost-effective and sustainable development of green plants and natural landforms.

Landscape Design

Landscape architecture can be defined as the art of designing outdoor and indoor environments or varying sizes including aspects of environment, art, engineering, architecture, and sociology. In the urban context, one can describe landscape architecture as the creation of life between buildings. Landscape architects use small spaces in urban areas to create roof gardens, pocket parks, etc.



The urban landscape design usually includes sustainable and cost-effective development of natural spaces with a lot of plants.

Many people think that landscape architecture is all about gardening and the planting of green plants to make the place look beautiful. However, landscape planning creates garden designs using concepts of climate and ecology after a careful analysis of the surroundings. The customize solutions based on the specific surroundings of each house and target the environmental issues in the area. Therefore landscape planning and approach is the need to restore and maintain ecological and environmental reversals along with bringing aesthetic pleasure and entertainment.

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NATURAL FARMING OF MUSHROOM



IMPORTANCE, STATUS & TECHNOLOGY

Commercial production of edible mushrooms bio converts the agricultural, industrial, forestry and household wastes into nutritious food (mushrooms). Indoor cultivation of mushrooms utilizes the vertical space and is regarded as the highest protein producer per unit area and time, almost 100 times more than the conventional agriculture and animal husbandry. The total production of mushroom of our country now stands at 2,66,000 metric tonnes of which white button mushroom has the lion's share of 70%. rest 30% is shared by oyster, paddy straw and milky mushrooms (Directorate of Mushroom Research, 2021-22). It has been estimated that, by just diverting one percent of agro-wastes towards mushroom production, India can produce 3 million tonnes of mushroom and about 15 million tonnes of compost. Mushroom possesses significant health benefits and medicinal properties including anti-cancer effect.

Organic Mushroom Production: Status

The Food Export Development Authority (APEDA), Govt. of India has framed rules for Organic Production. In general, the area under natural farming has increased continuously, signifying more demand for organic food. Organic cultivation of white button mushroom was initiated at National Research Centre for Mushroom in the year 2001-02. Trials were conducted and the residue analysis of all the composting ingredients, compost at various stages of composting, spawn, casing materials, water and fruit body was undertaken to record pesticide residues and their mode of entry into the compost/fruit body with an objective of eliminating these residues, if any, through substrate fermentation process and cultural practices.

Odisha is the 3rd leading state in terms of mushroom production in the country with an annual production of 24,998 metric tonnes contributing to 9.66% of the total output of the country. Paddy straw mushroom production has reached an all-time high of 16,748 metric tonnes accounting for 67% of total mushroom production of the state. Further, Oyster mushroom production stands at 8,250 metric tonnes annually (All India Coordinated Research Project on Mushroom, OUAT, Bhubaneswar, (2021-22). Both paddy straw and oyster mushrooms utilize paddy straw as the substrate for preparation of beds and bags respectively. However, the source of substrate being the high yielding varieties of paddy contains pesticide residues. The case is similar in button mushroom, which utilizes wheat straw as the substrate for production. In true sense, organic mushroom is not being produced anywhere in India.

BENEFITS OF MUSHROOMS

1. LOW CHOLESTEROL



2. MAINTAINS BLOOD PRESSURE LEVEL

3. GOOD FOR BONE HEALTH



4. PREVENTS OXYGEN DEFICIENCY

5. RICH IN ANTIOXIDANTS



6. AIDS IN WEIGHT LOSS





Organic mushroom production: Standards

Organic mushroom production standards cover all edible mushrooms intended for human consumption, whether grown on compost or raw biomass. The operator has to submit an organic management plan during registration of the organic mushroom production unit which will be verified by the Accredited Certification Body (ACB) during inspection. The organic management plan shall be updated annually. The entire production site including the housing facilities should be maintained in a way that prevents contact with prohibited substances. Organic and non-organic units must be separated by space and time and have separate tools and facilities for mushroom production. All the substrates and growing media shall be prepared in the farm in compliance of these standards. In case of unavailability of certified organic raw material needed for the substrate, the accredited certification body may allow the use of chemically untreated conventionally grown raw material up to a maximum limit of 25% for making the compost. Accredited Certification body shall evaluate the conformance of organic spawn production as per the evaluation process. Existing mushroom production systems on being converted to organic management shall have to undergo a minimum period of 12 months as conversion period from the date of registration with the certification body. During the conversion period, all the management practices must be in compliance of these standards. In case of new

installations, where the entire production system is being implemented in compliance of these standards, two or more production cycles must have been produced under organic conditions compliant with this standard prior to products being sold as organic.

Conclusion

There is increasing demand for quality products at competitive rate both in domestic and export market. Though growth of mushroom will depend on increasing and widening domestic market in coming years, export market will be equally attractive. To be successful in both domestic and export market, it is essential to produce quality (organic) fresh mushrooms and processed products devoid of pesticide residues and at competitive rate. It is also important to commercially utilize the compost left after cultivation for making manures for additional income and total recycling of agro-wastes.

The tropical mushroom has a great potential in Odisha. Protected cultivation in low cost thatched houses, shade net houses, poly houses or indoor cultivation in compliance with the organic mushroom production standards has the potential of giving higher and stable yields besides satisfying the quality parameters.

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NATURAL FARMING

Principles, Practices & its Benefits

Natural Farming is known as “do nothing” farming, an environmentally sustainable way of growing food, on the principle that an equitable relationship between farmer and nature. The nature plays a dominant role i.e. no-till, farm biodiversity, integration and protection of soil cover and closer relationships among farmer, land, and humanity. Arguments in favor of Natural Farming are, safe and nutritious food that ensures good health, economically and spiritually beneficial to both producers and consumers, sustainable and easily practiced, conserve and protect the environment and does not depend on chemical pesticides. The reduced tillage preserves the crop residues on the top of the soil, allowing organic matter to be formed more easily and hence increasing the total organic carbon and nitrogen when compared to conventional tillage. Tilling uproots all the plants in the area, turning their roots into food for bacteria and fungi. Living roots drill millions of tiny holes in the soil and thus provide oxygen

The main principles of natural farming are

-  No tillage
-  No fertilizer
-  No pesticides or herbicides
-  No weeding
-  No pruning

Natural farming minimizes human labor and adopts production of foods such as rice, barley in diverse agro ecosystem. Without plowing, seeds germinate well. Natural farming recognizes soils as a fundamental natural asset. Ancient soils possess physical and chemical attributes that render them capable of generating and supporting life abundance. Tilling destroys physical characteristics of a soil such as water suction, its ability to send moisture upwards, even during dry spells. The economics of natural farming are consumption of pure and natural foods for overall health and well-being. Products are safe and full of vitality, saved people from diseases, such as children having atopic dermatitis and adult cancer patients.. Reducing the cost of operation, no longer have to purchase seeds and fertilizers, and their crop yields are higher.

The dung of local cow is effective. One can mix half cow dung and half the dung of bullock or buffalo, but not of Jersey or Holstein at any cost. For one-acre land, only 10 kg/month of cow dung is sufficient. Therefore, a farmer can cultivate 30 acres of land with only one indigenous cow.

The micro-organisms available in cow dung decompose the dried biomass (mulch) on the soil and make the nutrients available to the plants. It also increases earth worm population in the field. Jeevamritha is perfect and complete solution for crop cultivation. There is no need to add FYM in bulk quantity.

Organic farming is not suitable for poor Indian farmers, as it requires huge quantity of FYM, making their agriculture un-remunerative. Besides, the worms *Eiseniafoetida* used in vermi-composting convert considerable amounts of heavy metals into bio-available form, and these poisonous heavy metals ultimately enter into the human food chain.

The main pillars of Natural farming

1. Jivamrita/Jeevamrutha:

Micro organisms play an important role in the conversion of unavailable forms of nutrients to available form in the plant root zone. The microbes present in jeevamrutha helps non-available form to dissolved form when it is inoculated into the soil. It also helps as antagonism to pathogens



2. Bijamrita:

It is composed of 20 liters of water, 5 kg cow dung, 5liters of urine 50 kg lime, and a hand full of soil are thoroughly and stored in a tank.

The Bijamrithto protect the crop from harmful soil-borne pathogens and young seedlings roots from fungus and soil-borne and seed-borne diseases.



3. Accha dana/Mulching:

Mulching is of three types i.e. straw mulch, soil mulch, and live mulch. The growth of cover crops like legumes helps to reduce the weed population and increases water infiltration capacity.

It conserves soil moisture by reducing evaporation loss of water from the soil layer and retains water for a longer time.



4. Agriastra:

It consists of local cow urine (10 l), tobacco leaves (1 kg), and green chili (500 g), local garlic (500 g), and Neem leaves pulp crushed in cow urine (5 l) store it in a cool place. Take 2 l per 100 ml of water and spray on crops. It effectively controls the pests like Leaf Roller, Stem Borer, Fruit borer, Pod borer. The leaves like Neem leaves, custard apple leaves, lantern camellia leaves, guava leaves, pomegranate leaves, papaya leaves and white natural leaves are crushed and boiled. With urine finally make filtration. After filtration, the extractant can store for longer use. It is most effective against all of the sucking pests, pod borer, fruit borer, etc.

5. Neemastra:

By using 5 liters of local cow urine, 5 kg cow dung, 5 kg neem leaves 5 kg of neem pulp mixed well, and keeps airing tight for 24 hours of fermentation. After the fermentation process is ready to use. Mainly controls sucking pests & Mealy Bug.



Natural farming even is not well accepted in some quarters due to following reasons.

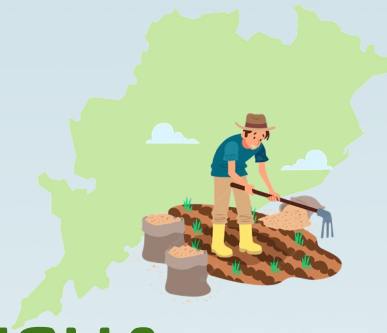
- ◆ The production and productivity are below the mark and cannot meet the food requirement of growing population.
- ◆ The labor requirement has increased compared to conventional farming. The demand for animal manure is high and .on national scale, the number of cattle cannot support this level of manure application.
- ◆ The demand and consumption pattern is constantly changing which cannot fulfill the natural farming.
- ◆ Better technology and high investment are required for modern cultivation.
- ◆ No yet there is any scientific validation of microbial composition, efficiency and impact of jivamrith, bijamrith, bramhastra,dashaparnikashaya are not yet tested and there is no scientific data on it.
- ◆ The pest management has become difficult as different crop-specific weeds, diseases, insects are damaging the crop drastically and by using natural products pest control is not effective..
- ◆ However, the Government is promoting Natural Farming through Bhartiya Prakriti Krishi Padhan as a sub scheme of Paramparagat KrishiVikasYojana for the promotion of traditional indigenous practices in view of human health and healthy environment. Because the natural farming mainly emphasizes exclusion of all synthetic and chemical inputs and promotes on-farm biomass recycling with major stress on biomass mulching, use of cow dung-urine formulations and other plant-based preparations besides being cost effective.

Dr Niranjn Nayak

Former Professor Agronomy

OUAT

NATURAL FARMING IN ODISHA



The zero budget natural farming envisages use of no external inputs, throughout the year, minimum disturbance of soil, use of bio-stimulants, use of indigenous seeds, mixed cropping, integration of trees and livestock into the farm, water and soil moisture conservation, increase in organic residues of the soil, pest management through botanical extracts and no use of synthetic fertilizers, pesticides and herbicides. Natural farming is different from organic farming as the latter promotes substitution of chemical inputs with other external inputs. It has been reported that green revolution farming is liable to keep the farmers in a constant cycle of debt due to high cost of production and adverse effects on human health, soil and environment. The natural farming is beneficial to the farmers as it ensures family healthy, food self sufficiency, environment protection, reducing cost of production, increasing farm income etc besides positioning it to provide a solution to agrarian crisis and rising trends of farmers suicide in the country. Every farmer has to adapt principle of their own culture and ecological context without use of purchase inputs. The practices of using Beejamrit-cow dung and cow urine for seed treatment, Jeevamrit-fermented cow dung and cow urine, jaggery, pulse flour and uncontaminated soil to stimulate microbial activity in the soil, Mulching-covering the top soil for soil and moisture conservation, crop growth and soil aeration practices.

The, Govt. of Odisha adopted Natural Farming practices with BPKP, Odisha millet mission and PKVY. Natural farming practices such as seed treatment through

Beejamrit, application of Jeevamrit, handikhata for soil health and promotion of cycle weeders practiced under OMM. A special programme for promotion of integrated farming in Malkanagiri district follows the natural farming principles for promoting crop diversification, rice intensification, rain fed fishery etc. The natural farming is being promoted in the state in line with State's Organic Policy of 2018. The natural farming scheme is being implemented through Women Self Help Groups in the districts of Sundergarh, Keonjhar, Mayurbhanj, Rayagada, and Koraput. The WSHGs are being trained on crop diversification, bio input preparation, and pre-monsoon sowing. They are supported in creation of common facility centre for cleaning, grading, segregation and storage.

The farmers make a profit due to negligible costs. They have added intercrops to get income from many crops. Further they owe nothing to any one as everything they get as income to the family. There are instances of improvement in soil quality, improved soil organic matter with increased earthworm and beneficial soil microbial activity and reduction in irrigation requirement. The supportive policies of the Government on procurement, education, research, extension and commercialization would foster the growth of Natural farming.

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EVENTS





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