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Natural Farming: To Overcome Chemical Effect

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Natural Farming is a chemical-free alias traditional Indian farming practices. It is considered as agroecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity that largely depends on use of on-farm biomass recycling with major stress on biomass mulching, on-farm production of cow dung urine based formulations for maintaining soil fertility as well as crop protection etc. Natural Farming (Bhartiya Prakratik Krishi Paddhati (NF-BPKP)) is a chemical free farming system based on livestock and locally available resources and rooted in Indian tradition. Natural Farming-BPKP is aimed at promoting traditional indigenous practices which gives freedom to farmers from externally purchased inputs and is largely based on biomass mulching, round the year green cover, multi-species green manuring, use of on-farm desi cow dung-urine formulations (such as Bijamrit, Jivamrit, Ghanjivamrit etc) for nutrient and soil fertility management, use of diversity, multi-cropping systems and on-farm made botanical extracts for plant protection and maintaining soil aeration in exclusion of all purchased synthetic chemical inputs directly or indirectly. As natural farming is aimed at reduction in cost of cultivation and providing freedom to farmers from purchased inputs, use of external purchased inputs including organic, biological or otherwise are also avoided.

Major Objectives of Natural Farming

- ✓ Preservation of natural flora and fauna
- ✓ Restoration of Soil fertility through promotion of nutrient recycling
- ✓ Maintaining diversity of crop production
- ✓ Efficient utilization of natural resources (Soil, air, water)
- ✓ Promotion of local breeds of Livestock integration
- ✓ Use of on farm produced Natural inputs
- ✓ Reduce input cost of agricultural production -Improve economy of farmers

Principles of Natural Farming

- ✓ A healthy soil microbiome is critical for optimal soil health and plant health, and thereby animal health and human health.
- ✓ Soil may be covered with crops for maximum period of the year.
- ✓ The soil across a farm or larger field/collection of fields should have diverse crops, a minimum of 8 crops over the year. The greater the diversity, the better.
- ✓ Minimal disturbance of soils is critical, hence no till farming or shallow tillage is recommended.
- ✓ Animals should be incorporated into farming. Integrated farming systems are critical for promoting Natural farming.

- ✓ Healthy soil microbiome is the key to retaining and enhancing soil organic matter. Bio stimulants are necessary to promote the process of nutrient recycling in soil. There are different ways of making bio stimulants. In India, the most popular bio-stimulants are based on fermentation of animal dung and urine, and uncontaminated soil
- ✓ Increasing the amount and diversity of organic residues returned to the soil is very important. These include crop residues, cow-dung, compost, etc.
- ✓ Pest management should be done through better agronomic practices (as enshrined in Integrated Pest management) and through botanical pesticides (only when necessary).
- ✓ Use of synthetic fertilizers and other biocides is harmful to this process of regeneration and is not allowed.

Pillars of Natural Farming

Use of bio stimulants is an integral part of natural farming to enhance soil microbial community.

1. Beejamrita: This includes coating of seeds with formulations prepared by using cow dung and cow urine. This coating on seeds protects them from various fungal and other soil borne diseases. Beejamrit prepared by take 5 kg desi Cow dung and wrap it in a cotton cloth after that take 20 litre water in bucket and dip the above 5 kg cow dung wrapped in cloth into it. Leave it for 12 to 16 hours so that the cow dung extract may come into the water then take 50gm lime in another container having 1 litre water, Now mix the above two preparations and into it add 50gm rhizospheric soil After that Add 5 litre of cow urine into it and leave the solution prepared for 8-12 hours, Now the Beejamrit is ready for seed treatment. Add Beejamrit to the seeds of any crop; coat them, mixing by hand; dry them well and use them for sowing. For leguminous and other plant seeds which have thin seed coats, always use bamboo baskets for placing the seeds and just dip them in beejamrit solution and allow the treated seeds for drying in shade.

2. Jeevamrita: Jeevamrita is mainly a mixture of cow dung and cow urine. Few other elements added to this mixture are jaggery, pulse flour and uncontaminated soil. This solution turn into a fermented microbial culture which when applied to soil it adds nutrients to soil and enhanced microbial activities and nutrient availability to plants. Jeevamrit also increases the carbon content of soil and protect the crop from soil pathogens. Preparation of Jeevamrit by take 200 litre water in a barrel for one acre farmland., add 10 litre cow urine preferably desi cow urine in the above barrel filled with water, then add 10 kg Cow dung in the above solution, add 2kg Jaggery into the above solution, add 2kg any Pulse flour preferably besan in the above solution, add handful of rhizospheric soil in the above solution. Then Stir all the above ingredients well using a wooden stick by rotating in clockwise direction and Keep the barrel covered with jute bag for 48 hours for fermentation under shade. Use the above prepared Jeevamrit solution within 14 days of its preparation. Use 200 litre of Jeevamrit at the time of irrigation for one acre land. This mixture should be applied every fortnight by farmers starting from 15 days after sowing

3. Mulching: The practice of mulching includes addition of a protective covering or a layer of organic matter such as plant residues, leaf, hay, wood products or compost on the field soil. This layer prevents the water loss from soil through evaporation, prevent field from heat and pest attack. The process of mulching also help in weed suppression. The mulch contributes to soil humus formation and increases its fertility. The advantages of Mulching are reduces Soil temperature, crusting of soil, surface evaporation, weed emergence, soil erosion and reduce crop failure as a result of drought.

Types of mulching

Crop Residue Mulch: This comprises any dried vegetation, farm stubble, such as dried biomass waste etc. It is used to cover the soil against severe sunlight, cold, rain etc. Residue mulching also saves seeds from birds, insects, and animals.

Live Mulch: Live mulching is practiced by developing multi-cropping/inter cropping patterns of short durational crops in the rows of a main crop. It is suggested that the pattern

should be of monocotyledons and dicotyledons in the same field, in order to provide all the essential nutrients. Monocots, like wheat and rice, supply nutrients such as potash, phosphate and sulphur, while dicots are capable of nitrogen-fixation in fields. Such practices reduces the demand fo some essential plant nutrients required for their optimal growth.

4. Waaphass: Whapasa means the mixture of 50% air and 50% water vapour in the empty space between two soil particles. Waaphasa is a method to aerate soil through a favorable microclimate and aeration of soil is necessary for plant growth and development. The basic principle for Whapasa formation is irrigation should be done six inches outside the shadow circumference of any plant/tree formed at 12 noon during the day time.

Benefits of Natural Farming

- ✓ It Ensures Better Health ecosystem
- ✓ Environment Resources Conservation
- ✓ Increased Farmers' Income
- ✓ Employment Generation
- ✓ Reduced Water loss & Consumption
- ✓ Reduced Cost of Production
- ✓ Remove Application of Synthetic Chemical Inputs
- ✓ Revives Soil Health
- ✓ Livestock Sustainability