NEW ERA AGRICULTURE MAGAZINE

Important Practices for Natural Farming

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SUMMARY: -

Natural Farming is a climate-resilient, eco-friendly farming system that eliminates the use of synthetic chemical inputs and emphasizes the use of low-cost, locally available resources such as cow dung, cow urine and plant-based extracts. Its practices revolve around improving soil health, biodiversity, and sustainability while reducing production costs and enhancing food quality. The system covers all stages of farming, including land preparation, careful sowing methods, and seed treatment using natural solutions. Soil fertility is enhanced through organic matter addition, mulching, cover crops, and bio-inoculants. Diverse cropping systems such helps in nutrient cycling, weed suppression, and natural pest management. Natural extracts are applied to protect crops from pests and diseases. Harvesting and post-harvest practices emphasize minimal mechanical intervention, proper drying, and safe storage to maintain quality.

Introduction:

Natural Farming is a local low-input climate-resilient farming system that advocates the complete elimination of synthetic chemical agro-inputs. It encourages farmers to use low-cost, locally sourced inputs such as natural mixtures made using cow dung, cow urine, jaggery, pulse flour, mulch, crop covers, and symbiotic intercropping to stimulate the soil's microbial activities. It emphasizes the enhancement of soil conditions through improved organic matter and biological activity; crop diversification; enhanced biomass recycling with enriched biological interactions in the farm. The package of practices for natural farming is a structured set of guidelines that helps farmers transition from chemical-intensive agriculture to a regenerative, low-cost, and eco-friendly system. It outlines practical steps from seed treatment to pest management using locally available resources like cow dung, cow urine, and plant-based extracts. These practices not

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only rejuvenate the soil but also enhance crop resilience, reduce production costs, and improve food quality.

Land Preparation

- Reduced tillage involves reducing intensity, depth and frequency of farming operations to leave more crop residues on the surface, preserve soil structure, promote healthy microbial ecosystems, and enhance long-term fertility. It includes zero tillage, no tillage, direct seeding with drills, strip tillage, conservation tillage and ridge tillage.
- Minimal soil disturbance maintains the integrity of soil pores, facilitating water infiltration and root growth while preventing compaction. It can be achieved by minimum tillage, zero tillage and stubble mulch tillage.
- Bund preparation involves creates raised formations along the field's boundary to control water flow, increases infiltration and prevent soil erosion by water.
- Raised beds are prepared to improve infiltration, drainage, aeration, and facilitate better root development.

Sowing Methods

- Seeds are planted using manual or mechanical methods with minimal disturbance to the soil, keeping it intact and supporting soil microbes.
- Shallow seed drills can be used to plant seeds at the right depth, ensuring better germination.
- Transplantation is used to ensure healthy plant growth and efficient use of resources.

Selection of Crops and Varieties

- Growing a mix of crops, like legumes and cereals, helps improve soil fertility by adding organic matter and fixing nitrogen.
- Traditional varieties with well germination are used for sowing.
- Trap crops like marigold and okra help manage pests without chemicals.
- Proven multi-cropping methods recommended for the region can be adopted.

Seed Treatment

- Seed dressing with Beejamrut before sowing and drying them in the shade which helps in protecting seeds and young seedling roots from soil-borne and seed-borne pathogens, reduce germination time, and enhance seedling vigor, leading to better growth.
- Soak seeds in a diluted solution of neem extract (Neemastram) or use neem seed cake for treatment.

- Dust seeds with wood ash before sowing to prevent fungal infections and protect against pests.

Soil Health Management Practices

- Organic matter acts as a natural fertilizer, providing nutrients to plants over time and improving soil structure. It also helps the soil hold water, which is essential for crop growth.
- Use of jeevamrut, ghan-jeevamrut and compost helps further improve soil health by adding good microbes to the soil.
- Residue recycling involves reusing crop residues such as stubble, leaves, roots, and other plant materials to enhance soil health.
- Incorporating the residues into the soil by ploughing or tilling them at the end of the crop cycle.
- Mulching with plant residues are spread on the soil surface to protect the soil, conserve moisture, and reduce erosion.
- Cover crops are planted to protect the soil and enhance fertility during off-seasons or between main crops.

Cropping System

- Multi-cropping is the growing of two or more crops play complementary roles that benefit the overall ecosystem and improve farm sustainability.
- Trap crops are planted to attract pests away from main crops, thereby reducing pest pressure on the primary crops.
- Intercropping with legumes have a symbiotic relationship with nitrogen-fixing bacteria in their roots, which convert atmospheric nitrogen into a form that plants can use.
- Border crops and indicator plants can act as physical barriers, preventing soil erosion, protecting crops from wind, and providing habitat for beneficial insects.
- The layer of mulch acts as a barrier that slows down the loss of water from the soil surface, keeping the soil hydrated and reducing the need for frequent irrigation.
- Crop residue mulching should be applied immediately after sowing of the crops to reduce germination of weeds in the field.

Weed Management

- Fast-growing or dense-canopy crops help shade the soil, preventing weed seed germination.
- Organic matter, like crop residues or compost acts as mulch, further preventing weed growth by blocking sunlight.

- Diversified cropping systems like intercropping or multi-cropping, which reduce space and resources available for weeds.
- First weeding is done two weeks after seed sowing or after transplanting.

Plant Protection

- Remove infected plant residues and debris at the end of each crop cycle.
- Remove unwanted plants that can serve as hosts for pests
- Diversified cropping systems such as intercropping and polyculture, help disrupt pest life cycles by offering habitats for natural predators like ladybugs, birds, and spiders, which control pest populations and disease-causing organisms.
- Trap crops such as marigold or sunflower, attract pests away from main crops, reducing damage.
- Rotating crops and intercropping with non-host plants such as marigold, garlic etc., disrupting the pest's life cycle.
- Healthy and disease-free seeds are the foundation of successful pest and disease management.
- Soak seeds in beejamrut for 24–48 hours before planting. This treatment enhances seed germination, protects against soil-borne pests and diseases, and promotes healthy root development.
- Soak seeds in a diluted solution of neem extract (Neemastram) or use neem seed cake as a natural repellent.
- Prophylactic spray of agniastra, neemastra, dashparni ark, sonthastra, khatti lassi and cow urine every 15 days or in a month depending upon the crops are recommended under natural farming.

Harvesting Practices

- It should be done manually or with minimal mechanical intervention to preserve soil health and structure.
- Harvest the crops when they reach physiological maturity but before they over-ripen, which can lead to a decrease in quality or increased susceptibility to pests and diseases.
- Harvesting should be done during dry weather conditions to prevent the introduction of excess moisture into the harvested produce.
- Use of traditional tools like sickles, knives, or even hands for harvesting.

Post-Harvest Handling

- Crop residues should be left in the field to decompose, adding organic matter and enhancing soil fertility.
- Grains should be cleaned to remove soil, dirt, and plant residues. This helps

to prevent the spread of pests and diseases to the stored seeds.

- ☞ Seeds of crops should be thoroughly dried to ensure long-term storage.
- ☞ Seeds should be spread out in a shaded, well-ventilated area to dry naturally, avoiding direct sunlight that may damage seed quality.
- ☞ Seeds should be stored in cool, dry conditions to extend shelf life and avoid spoilage.

CONCLUSION

Natural Farming presents a holistic approach to agriculture that not only restores soil fertility and biodiversity but also empowers farmers by lowering input costs and making farming more self-reliant. Using natural practices, farmers can transition from chemical-intensive systems to regenerative models that ensure long-term sustainability, climate resilience, and safe, nutritious food.

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