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Sustainable and Regenerative Farming System:  
A New Paradigm for Indian Agriculture



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Threatened By Stem Rot Caused By Sclerotinia Sclerotiorum (lib.) De Bary, A Necrotrophic Fungus With A Broad Host Range, Long-term Survival Through Sclerotia, And The Ability To Cause 10–80% Yield Losses The Present Study, Conducted During Rabi 2024–25 Under Natural Farming Field And In Laboratory Of Tca, Dholi, Rpcau, Pusa. In Vitro Studies Revealed That Trichoderma Asperellum (76.5%) And T. Viride (69.9%) Were The Most Effective Fungal Antagonists, While Bacillus Subtilis (66.4%) And Pseudomonas Fluorescens (62.3%) Significantly Suppressed Pathogen Growth. All Natural Farming Formulations Showed Promising Result. Jeevamrut At 10% Concentration Inhibited 63.17% Mycelial Growth, Followed By Kunapajala (54.36%) And Beejamrut (50.65%) Along With Saunthastra Vermiwash And Brahmastra. These Results Confirm That Natural Formulations Possess Antifungal Activity And Are Compatible With Bioagents For Sustainable Management.

Keywords: Natural Farming, Stem Rot Disease, Natural Farming Formulations, Fungal Antagonists



## **224. Zero Budget Natural Farming**

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### **Abstract**

Zero Budget Natural Farming is the practice of growing crops without the use of any external inputs, such as pesticides and fertilizers. The phrase “Zero Budget” refers to all crops with zero production costs. The farmers revenue is increased as a result of ZBNF’s guidance towards sustainable farming methods that help to maintain soil fertility, assure chemical-free agriculture, and ensure a cheap cost of production. The principal methods of ZBNF include crop rotation, green manures and compost, biological pest control. Zero budget natural farming has mainly four pillars that are ‘Jeevamrut’, ‘Beejamrut’, ‘Acchadana’ (mulching) and ‘Whapasa’. Zero budget farmers relies on mulching, soil conservation techniques, natural pesticides and fertilizers. Mulching can maximizes the moisture content in the soil, forms the cover for the earthworms and minimizes the weed population. Management of pest and diseases is a key component in zero budget natural farming crop production systems. In ZBNF, formulae for natural fungicides ‘Sonthastra’ to manage fungal diseases in crops and pest management i.e. ‘Agniastra’, ‘Brahmastra’, ‘Neemastra’, ‘Dashparni ark’. Due to continuous retention of crop residues replenishment the soil fertility, it helps in maintaining the soil health. ZBNF allows farmer to grow chemical free as well as healthy and safe food.

Keywords : Soil fertility, Jeevamrut, Crop residue, Mulching, Zero budget natural farming.



## **225. Nutrient Recycling for Sustainable Crop Production in Organic Farming**

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### **Abstract**

Organic farming prioritizes maintaining soil fertility through internal nutrient cycling rather than reliance on external synthetic inputs. This approach depends on the recycling of key macronutrients such as nitrogen (N), phosphorus (P), and potassium (K) through biological mechanisms, including biological nitrogen fixation by legume crops, organic matter turnover, and well-managed organic amendments. The incorporation of crop residues, farmyard manure, and composted organic wastes supports soil biological activity, improves soil structure and aggregation, and enhances cation exchange capacity, thereby retaining essential nutrients while reducing leaching and gaseous losses. Diversified crop rotations, cover cropping, and minimized tillage stimulate microbial biomass and strengthen soil food webs, collectively promoting nutrient cycling efficiency and long-term soil health. Composting farm residues and manures stabilizes nutrients in organic forms, reduces pathogens, decreases volume, and synchronizes nutrient release with crop demand, thereby reducing dependence on off-farm nutrient inputs. However, maintaining balanced nutrient budgets in organic systems remains a challenge, particularly for phosphorus and potassium. Mismanagement of manures can result in localized nutrient imbalances and nitrogen losses through ammonia volatilization and nitrate leaching. Transitions between pasture and cropping phases may also lead to nitrogen losses if mineralization and crop uptake are not well synchronized. Overall, organic nutrient management aims to achieve a near-closed farm nutrient cycle by integrating legumes, diverse rotations, cover crops, and organic amendments to sustain soil fertility, productivity, and system resilience. Continued research on whole-farm nutrient budgeting and targeted phosphorus and potassium supplementation is essential for optimizing nutrient cycling and minimizing environmental losses in organic agriculture.

Keywords: Nutrient cycling; Organic amendments; Biological nitrogen fixation; Soil fertility; Crop rotations.



## **226. Freshwater Microplastic Pollution: A Critical Review Highlighting the Gomti River, India**

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