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Studying Organic Farming: A Field-Based Analysis From Koipady, Kasaragod

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Abstract: Organic farming is an ecologically balanced agricultural system that avoids synthetic fertilizers, pesticides, and genetically modified inputs. The present study was conducted in Koipady, Kumble (Kasaragod district), with an objective to document organically cultivated crops, manure usage, and pest diversity affecting yield. Regular field visits were carried out from March 2023, and data were recorded on crop diversity, pest incidence, and organic input use. A total of 14 crop families and 7 pest species were identified, with Hemiptera being the most dominant order. The observations reveal that organic farming enhances biodiversity, maintains soil fertility, and provides chemical-free produce despite challenges like labour intensity and seasonal pest outbreaks. The study establishes organic farming as a sustainable agricultural system ensuring long-term productivity and ecological stability.

I. INTRODUCTION

Organic farming is a traditional yet scientifically relevant method emphasizing soil health, ecological stability, and environmentally safe cultivation practices. It avoids synthetic fertilizers, chemical pesticides, and genetically modified inputs while encouraging the use of compost, cow dung, and other natural manures to sustain fertility and productivity (Isaacs 2012). Singh et al. (2012) describe organic farming as "giving back to the environment what was taken from it."

According to the Codex Alimentarius Commission, organic agriculture is a holistic production system that improves the health and productivity of interdependent communities of plants, animals, and people. It promotes ecological cycles, minimizes soil and water pollution, and supports biodiversity, making it a valuable model for sustainable farming.

II. REVIEW OF LITERATURE

Sundrum (2012) emphasized that organic livestock rearing enhances animal welfare and minimizes ecological stress. Isaacs (2012) identified that organic cultivation reduces phosphorus and nitrogen runoff, preventing eutrophication in aquatic systems. Studies by Hole et al. (2005) demonstrated that organic farming promotes biodiversity, while Sinha and Herat (2012) concluded that farmyard manure and compost improve soil structure and microbial activity. Although organic yields may initially fall below those of conventional farms, Seufert et al. (2012) found long-term benefits such as nutrient retention, soil restoration, and enhanced food safety.

III. OBJECTIVES

- To collaborate with natural ecological systems rather than dominate them.
- To improve long-term soil fertility using organic resources.
- To minimize environmental pollution from agriculture.
- To promote biodiversity conservation and ecological sustainability.

IV. MATERIALS AND METHODS

The study was performed in Koipady, Kumble, approximately 43 km from Canara College, Mangalore. Fieldwork began in March 2023. Crops grown, organic inputs used, and pest species observed were documented through periodic visits. Organic inputs such as cow dung, neem oil, tulsi extract, bone meal, and compost were applied. Crops were cultivated in open plots and grow bags, watered twice daily except during rainfall. Observations focused on seasonal variation in crop yield, pest occurrence, and manure efficiency.

V. RESULTS AND DISCUSSION

A. Crop Diversity

A total of fourteen crop families were documented, including Cucurbitaceae (ivy gourd, cucumber, snake gourd), Solanaceae (brinjal, tomato, chilli), Fabaceae (long bean, lablab), Brassicaceae (cabbage, cauliflower), Araceae (elephant foot yam), and Musaceae(banana).Seeds, stem cuttings, and tubers were used for propagation depending on the crop species. Seasonal variation showed that January–February favored amaranthus and long bean, while November–December favored brinjal, chilli, ivy gourd, and sweet potato.

B. Pest Diversity

Seven pest species were recorded—Hemiptera (3), Lepidoptera (2), Coleoptera (1), and Orthoptera (1)—with Hemiptera being the most prevalent. Cultural methods such as crop rotation, hand weeding, and mulching, combined with neem oil sprays and fermented cow urine, helped manage pest populations effectively.

C. Soil and Yield Management

The use of organic manures improved soil texture, moisture retention, and microbial activity. Regular pruning of brinjal plants extended their productive life to nearly two years. Crops such as amaranthus and long bean yielded within a month of sowing. Biofertilizers and compost ensured continuous nutrient availability without synthetic interventions.

D. Observations

Organic farming required more labour and time compared to conventional methods but resulted in healthier produce and minimal soil degradation. The integrated approach of biological pest control and nutrient recycling supported environmental sustainability and crop resilience.

V. CONCLUSION

The study concludes that organic farming enhances biodiversity, maintains soil fertility, and minimizes pollution. Although challenges such as higher labour demands and seasonal pest pressure exist, the benefits—chemical-free produce, improved soil health, and long-term ecological balance—make it an indispensable model for sustainable agriculture. Organic farming thus ensures environmentally responsible food production and strengthens the foundation of sustainable rural development.

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AUTHOR DECLARATION

The author declares no conflict of interest. All data presented are based on independent field observations conducted in Koipady village, Kasaragod district.