



# ORGANIC FARMING FOR SUSTAINABLE AGRICULTURAL PRODUCTION

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**INTENDED AUDIENCE :** Undergraduates and Post graduates in Agricultural and Food Engineering, Agricultural Science and Environmental Science

## COURSE OUTLINE :

Organic farming is an integrated system of agricultural production based on ecological principles, promotion of biodiversity, biological cycles and organic matter recycling to maintain and improve soil fertility and environmental sustainability. The regulations for organic crop cultivation prohibit the use of chemo-synthetic pesticides, mineral fertilizers, growth promoters and Genetically Modified Organism. Indiscriminate use of these chemicals in conventional farming poses a serious threat to the quality of produce as well as the environment. Concern about food safety and security and environmental sustainability is increasing among scientist, administrator and environmentalist. In view of this, the course is designed to train students on organic farming practices, quality analysis of the products, environmental impact assessment, health benefit of the organic food etc. After successful completion of the course, the students should be able to design resource efficient farming system for small and marginal farmers for improving their economy while meeting the quality food demand in a sustainable environment.

## ABOUT INSTRUCTOR :

Prof. Dillip Kumar Swain completed his Doctoral Degree from Indian Institute of Technology Kharagpur, India, which received the Fertilizer Association of India Silver Jubilee Award in 2003 for the outstanding doctoral research in Fertilizer Usage. Before joining this Institute, Dr. Swain worked as Post-Doctoral Fellow at the United Nations University, Tokyo, Japan, availing Japan Society for the Promotion Science Fellowship. Dr. Swain teaches the subjects: Systems Approach in Agriculture, Soil-Plant-Water Relationships, Crop Production Systems, and Organic Food Chain Management for undergraduate and postgraduate students in Agricultural and Food Engineering. The research areas of Dr. Swain are Climate Change Adaptations/Mitigations for Crop Production, Organic Farming and Sustainable Agricultural Production, and Crop Modeling and Simulation. He is working on assessment of climate change impacts on food grain production of India and evaluation of adaptations through environmental controlled experiment and simulation analysis. Dr. Swain is also involved in outreach activities through demonstration of food production technologies in farmers' field. Dr. Swain is actively involved in guiding M.Tech. and PhD research projects.

## COURSE PLAN :

- Week 01 :** Organic Farming: Concepts and principles of organic farming.
- Week 02 :** Key indicators of sustainable agriculture, organic farming and climate change
- Week 03 :** Input management; compost production, vermicomposting, Compost quality, Compost utilization and marketing.
- Week 04 :** Organic crop management: field crops, horticulture and plantation crops.
- Week 05 :** Plant protection measures, biopesticides, natural predators, cultural practice.
- Week 06 :** Rotation design for organic system, Transition to organic agriculture, farming system.
- Week 07 :** Quality analysis of organic foods, Antioxidants and their natural source, organic food and human health.
- Week 08 :** Standards of organic food and marketing.