CONCEPT

Organic Farming and Climate-Smart Agriculture: Soil Health, Biological Inputs and Farm Conversion



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Introduction:

Organic farming and climate-smart agriculture projects often falter in the first seasons: soils low in organic matter cannot feed crops once synthetic fertiliser stops, pest outbreaks hit before beneficial insects establish, heat and drought cut yields, and certification is delayed by missing records. This Core Concept course equips farm and advisory practitioners to rebuild soil biology, manage fertility and pests with biological inputs, save irrigation water in hot, dry climates, prepare for organic inspection and apply climate-smart practices. Participants produce a Farm Organic Conversion and Climate-Smart Action Plan.

Course Objectives:

- Assess soil organic matter, structure and biological activity to set a fertility baseline before converting fields to organic management
- Design compost, green manure, legume and rotation programmes that supply crop nutrients without synthetic fertilisers
- Apply cultural, mechanical and biological controls to keep insect pests, diseases and weeds below damaging levels
- Plan water-saving irrigation, mulching and heat and drought tolerance measures for crops grown in arid and semi-arid conditions
- Prepare a farm for organic inspection by building the conversion timeline, input approval list, buffer zones and record-keeping system
- Build a Farm Organic Conversion and Climate-Smart Action Plan linking yield transition, costs, resilience measures and soil carbon gains

Target Audience:

- Managers who run crop production on commercial farms, orchards and date palm groves considering organic conversion
- Agronomists who advise on soil fertility, crop protection and cropping calendars for growers
- Extension and rural development advisers who train farmer groups in sustainable production practices
- Agricultural investment and portfolio analysts who assess organic and low-input farming ventures
- Sustainability managers in agri-food companies who source organic or climate-resilient produce from growers

Course Outline:

Day 1: Organic and Regenerative Farming Foundations and the Farm Baseline

- IFOAM Four Principles of Organic Agriculture: Health, Ecology, Fairness and Care
- Organic, Regenerative and Agroecological Systems Compared by Practice and Market Claim
- Soil Food Web Functions: Microbes, Mycorrhizae, Earthworms and Nutrient Cycling
- Field Soil Assessment Kit: Spade Test, Slake Test, Infiltration Ring and Organic Matter Sampling
- Farm Conversion Readiness Baseline: Fields, Inputs Used, Water Sources and Records

Day 2: Soil Fertility Building, Composting and Nutrient Supply without Synthetic Inputs

- Aerobic Composting Method: Carbon to Nitrogen Ratio, Moisture, Turning and Temperature Log
- Vermicompost, Compost Tea and Manure Handling Rules for Organic Systems
- Green Manure and Cover Crop Selection: Legumes, Grasses and Mixtures for Hot Climates
- Organic Nutrient Budget: Crop Removal, Legume Nitrogen and Permitted Mineral Amendments
- Crop Rotation and Intercropping Plan Design: Families, Break Crops and Companion Planting

Day 3: Biological Pest, Disease and Weed Management with Water-Efficient Production

- Integrated Pest Management Hierarchy: Prevention, Monitoring, Thresholds and Intervention
- Conservation and Augmentative Biological Control: Predators, Parasitoids and Microbial Biopesticides
- Organic Weed Control Toolkit: Stale Seedbed, Mulches, Mechanical Weeding and Solarisation
- Drip Irrigation, Mulching and Deficit Irrigation Practice for Arid and Saline Conditions
- Protected Cultivation under Organic Rules: Net Houses, Shade Structures and Soil-Based Beds

Day 4: Organic Certification, Conversion Economics and Climate-Smart Agriculture

- Organic Certification Cycle: Standards, Conversion Period, Inspection and Non-Conformity Handling
- Participatory Guarantee Systems and Group Certification for Smallholder Producers
- Conversion Economics: Yield Dip, Input Cost Shift, Labour and Organic Price Premium
- FAO Climate-Smart Agriculture Objectives: Productivity, Adaptation and Emission Reduction
- Heat and Drought Tolerance Measures and Carbon Farming Practices: Biochar, Reduced Tillage and Agroforestry

Day 5: Farm Conversion Case Work and the Climate-Smart Action Plan

- Case Study: Mixed Vegetable Farm Converting Fields in Phased Blocks
- Case Study: Date Palm Grove Adopting Compost, Cover Crops and Biological Control
- Case Study: Farmer Group Preparing for Group Certification
- Conversion Timeline, Input Approval List and Farm Record System Drafting
- Farm Organic Conversion and Climate-Smart Action Plan Presentation and Peer Review Panel

Skills You Will Gain:

- Soil Health Assessment
- Compost Production Management
- Organic Nutrient Budgeting
- Rotation and Intercropping Design
- Biological Pest Control
- Organic Weed Management
- Certification Readiness Planning
- Climate Resilience Planning

Why Attend This Course:

- Return with a Farm Organic Conversion and Climate-Smart Action Plan built for fields, groves or farmer groups you manage
- Cut dependence on synthetic fertilisers and pesticides without losing control of pests, weeds or crop nutrition
- Avoid failed inspections and delayed certification by setting up records, buffer zones and approved input lists from the first season
- Share field experience with growers, advisers, investors and agri-food buyers working across different crops and climates

Conclusion:

Organic and climate-smart farming succeeds when soil biology, fertility, crop protection, water use and certification are planned as one system. The one week move from organic principles and soil assessment, through composting, green manures, nutrient budgets and rotations, to biological pest and weed control, water-saving irrigation and protected cultivation. They then cover certification, participatory guarantee systems, conversion economics, climate-smart objectives and carbon farming, and close with case work that produces a Farm Organic Conversion and Climate-Smart Action Plan.