Training Course on Circular Bioeconomy Models in Agricultural Systems

Professional Development Training Course Outline

Category	Agriculture	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In the face of climate change, resource scarcity, and rising environmental concerns, circular bioeconomy models in agricultural systems are emerging as transformative solutions. These models leverage sustainable practices, biological resources, and circular economy principles to reduce waste, optimize resource use, and boost agricultural productivity. Training Course on Circular Bioeconomy Models in Agricultural Systems is tailored to empower professionals and stakeholders with innovative tools, systems thinking, and regenerative techniques that align agricultural practices with green growth and sustainable development goals (SDGs).

By integrating renewable biological resources into value chains, circular bioeconomy models enhance environmental resilience, rural development, and food security. This course provides a multi-disciplinary approach that combines circular design, regenerative agriculture, biotechnology, and digital innovations. Participants will gain practical knowledge on designing circular systems, implementing biowaste valorization techniques, and driving socio-economic growth through sustainable bio-based business models.

Programme Curriculum

Training Course on Circular Bioeconomy Models in Agricultural Systems

Introduction

In the face of climate change, resource scarcity, and rising environmental concerns, circular bioeconomy models in agricultural systems are emerging as transformative solutions. These models leverage sustainable practices, biological resources, and circular economy principles to reduce waste, optimize resource use, and boost agricultural productivity. Training Course on Circular Bioeconomy Models in Agricultural Systems is tailored to empower professionals and stakeholders with innovative tools, systems thinking, and regenerative techniques that align agricultural practices with green growth and sustainable development goals (SDGs).

By integrating renewable biological resources into value chains, circular bioeconomy models enhance environmental resilience, rural development, and food security. This course provides a multi-disciplinary approach that combines circular design, regenerative agriculture, biotechnology, and digital innovations. Participants will gain practical knowledge on designing circular systems, implementing biowaste valorization techniques, and driving socio-economic growth through sustainable bio-based business models.

Course Objectives

1. Understand core principles of circular bioeconomy in agriculture.
2. Explore sustainable agricultural practices and regenerative farming.
3. Learn waste-to-resource strategies using bio-based technologies.
4. Analyze agri-food systems using systems thinking and life cycle analysis.
5. Promote zero-waste farming and composting methods.
6. Implement carbon farming and climate-smart agriculture techniques.
7. Design resilient supply chains through circular agri-business models.
8. Evaluate bioenergy production from agricultural residues.
9. Develop circular inputs for soil health and organic productivity.
10. Foster innovation through bio-based entrepreneurship and green startups.
11. Assess policy, finance, and governance frameworks for circular bioeconomy.
12. Leverage digital tools, IoT, and AI for circular agriculture.
13. Apply real-world case studies to design location-specific circular models.

Target Audience

1. Agribusiness professionals
2. Agricultural extension officers
3. Rural development experts
4. Environmental and sustainability consultants
5. Government policy makers in agriculture and environment
6. Agri-tech entrepreneurs and startups
7. NGOs and community-based organizations
8. University researchers and agricultural students

Course Duration: 10 days

Course Modules

Module 1: Introduction to Circular Bioeconomy

- Definitions and concepts
- Relevance to agri-food systems
- Circular vs linear models
- Global and regional frameworks
- Benefits and barriers
- **Case Study: EU Bioeconomy Strategy Implementation**

Module 2: Principles of Regenerative Agriculture

- Soil restoration practices
- Biodiversity and ecosystem services
- Minimum tillage and cover cropping
- Water conservation methods
- Holistic grazing management
- **Case Study: Regenerative Practices in Kenya’s Drylands**

Module 3: Waste-to-Resource Strategies

- Agri-waste classification
- Composting and bio-fertilizers
- Anaerobic digestion for energy
- Value-added processing
- Circular nutrient loops
- **Case Study: Banana Waste Utilization in Uganda**

Module 4: Bio-Based Innovations in Agriculture

- Bioplastics from crop residues
- Biochar production and use
- Algae and microbial technologies
- Biopesticides and biostimulants
- Bio-lubricants and enzymes
- **Case Study: India's Bio-based Product Startups**

Module 5: Circular Supply Chain Models

- Localized sourcing and logistics
- Circular procurement practices
- Reverse logistics in agri-sector
- Tracking and traceability
- Life cycle costing (LCC)
- **Case Study: Circular Rice Value Chain in Vietnam**

Module 6: Soil Health and Circular Inputs

- Organic amendments
- Mycorrhizal and microbial inoculants
- Precision nutrient management
- Soil carbon sequestration
- Digital soil monitoring
- **Case Study: Sustainable Soil Management in Ethiopia**

Module 7: Biowaste Valorization Technologies

- Fermentation and extraction methods
- Pyrolysis and gasification
- Biogas and bioethanol production
- Crop-residue-based packaging
- Market opportunities and constraints
- **Case Study: Smallholder Biogas Units in Rwanda**

Module 8: Circular Water Use in Agriculture

- Water recycling and reuse
- Drip irrigation systems
- Constructed wetlands
- Greywater harvesting
- Water-energy-food nexus
- **Case Study: Israel’s Agricultural Water Reuse System**

Module 9: Digital Tools and AI for Circular Agri-Systems

- Smart sensors and automation

- Data analytics for circular decision-making
- AI-based resource efficiency models
- Blockchain for supply transparency
- GIS mapping for bioeconomy hubs
- **Case Study: IoT-Driven Circular Farms in The Netherlands**

Module 10: Carbon Farming and Climate-Smart Techniques

- Soil carbon offset markets
- Integrated crop-livestock systems
- Agroforestry and carbon sinks
- Climate-resilient crop varieties
- MRV (Measurement, Reporting, and Verification)
- **Case Study: Carbon Credit Programs in Malawi**

Module 11: Business Models and Bio-Based Entrepreneurship

- Circular business canvas
- Incubators and accelerators
- Market development and branding
- Financing circular agri-enterprises
- Social innovation in rural economies
- **Case Study: Bioeconomy Hubs in East Africa**

Module 12: Policy and Regulatory Frameworks

- National bioeconomy strategies
- Land use and resource rights
- Agro-environmental compliance
- Green public procurement
- Multi-stakeholder governance models
- **Case Study: Rwanda's Green Agriculture Policy**

Module 13: Circular Agri-Food System Design

- Farm-to-fork integration
- Closed-loop agri-food systems
- Community-based circular models
- Risk assessment and resilience
- Multi-scalar integration approaches
- **Case Study: Urban Food Loops in Accra, Ghana**

Module 14: Circular Bioenergy in Agricultural Systems

- Biomass collection and densification
- Bioenergy conversion pathways
- Techno-economic analysis
- Co-products and circular synergies
- Regional bioenergy plans
- **Case Study: Sugarcane Bagasse in Brazilian Energy Systems**

Module 15: Monitoring, Evaluation, and Scaling Circular Models

- Indicators for circularity
- Theory of Change (ToC) models
- Participatory evaluation methods

- Knowledge transfer and scaling
- Stakeholder engagement
- **Case Study: Scaling Bioeconomy Models in Tanzania**

Training Methodology

- Interactive lectures and multimedia presentations
- Hands-on group activities and simulations
- Expert guest sessions and panel discussions
- Field demonstrations and virtual tours
- Case study reviews and role-playing exercises
- Personalized action planning and assessments

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com