Training Course on Advanced Crop Nutrition and Soil Fertility Management

Professional Development Training Course Outline

Category	Agriculture	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Efficient crop nutrition and sustainable soil fertility management are essential pillars of modern agriculture. As global food demand rises, farmers and agribusiness professionals must adopt advanced crop nutrition strategies that boost yields while preserving soil health. Training Course on Advanced Crop Nutrition and Soil Fertility Management is designed to equip participants with scientific and practical tools to diagnose, plan, and apply integrated nutrient solutions that improve productivity and long-term soil health.

Through expert-led sessions, hands-on case studies, and interactive modules, participants will gain in-depth knowledge of soil testing, nutrient management plans, precision agriculture technologies, organic and inorganic fertilizer applications, and regenerative practices. This course is tailored for agronomists, extension officers, farm managers, and agribusiness professionals aiming to make data-driven decisions for optimal plant nutrition and soil enhancement.

Programme Curriculum

Training Course on Advanced Crop Nutrition and Soil Fertility Management

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Course Objectives

1. Understand key principles of soil fertility management and nutrient cycles.
2. Conduct effective soil and plant tissue testing for precision nutrient planning.
3. Identify macro and micronutrient deficiencies using field and lab data.
4. Develop site-specific nutrient management plans using GIS tools.
5. Apply precision agriculture techniques to enhance crop nutrition efficiency.
6. Integrate organic and inorganic fertilizer sources sustainably.
7. Promote carbon sequestration and soil health through regenerative practices.
8. Assess soil structure, pH, salinity, and organic matter content for productivity.
9. Optimize fertilizer application timing, method, and placement.
10. Evaluate the economic impact of smart nutrient application methods.
11. Understand policies and compliance related to agro-environmental regulations.
12. Implement biofertilizers and microbial inoculants for soil biodiversity.
13. Use remote sensing and digital tools for monitoring soil and crop health.

Target Audiences

1. Agronomists and soil scientists
2. Agricultural extension officers
3. Commercial and smallholder farmers
4. Agricultural input suppliers
5. Researchers and academic professionals
6. Environmental and sustainability officers
7. Farm managers and cooperative leaders
8. Government and NGO agriculture staff

Course Duration: 5 days

Course Modules

Module 1: Soil Health Fundamentals

- Soil formation and classification
- Key indicators of soil fertility
- Soil pH, salinity, and CEC
- Organic matter dynamics
- Soil testing interpretation
- *Case Study: Reclaiming degraded soils in semi-arid Kenya*

Module 2: Plant Nutrition Basics

- Nutrient uptake mechanisms
- Macro vs micronutrients
- Nutrient interactions in plants
- Nutrient mobility and deficiency symptoms
- Impact of nutrient imbalance
- *Case Study: Micronutrient correction in maize production in Uganda*

Module 3: Soil Testing and Fertility Mapping

- Soil sampling methods
- Laboratory analysis and interpretation

- GPS-based field mapping
- GIS integration for fertility zones
- Interpreting nutrient indexes
- *Case Study: Geo-mapping for fertilizer use in Ghana cocoa farms*

Module 4: Integrated Nutrient Management

- Principles of INM
- Organic amendments (compost, manure)
- Use of green manures and cover crops
- Combining chemical and organic inputs
- Economic analysis of INM
- *Case Study: Rice intensification with INM in India*

Module 5: Precision Nutrient Application

- Smart fertilizer application tools
- Variable rate technology (VRT)
- Drone-assisted nutrient monitoring
- Mobile apps for fertilizer planning
- Data analytics in precision farming
- *Case Study: VRT-based nitrogen application in wheat farming, Ethiopia*

Module 6: Fertilizer Types and Application Methods

- Classification of fertilizers
- Fertilizer compatibility and mixing
- Methods: broadcast, banding, foliar
- Application timing for efficiency
- Safety and storage best practices
- *Case Study: Efficient fertilizer application in tomato greenhouses*

Module 7: Soil Fertility and Environmental Sustainability

- Impacts of over-fertilization
- Nutrient leaching and runoff control
- Conservation agriculture techniques
- Carbon farming and sequestration
- Legume integration for N-fixation
- *Case Study: Reducing nitrogen leaching in potato farms, Netherlands*

Module 8: Innovations in Soil Fertility Management

- Biofertilizers and microbial inoculants
- Use of nanofertilizers
- Blockchain for fertilizer traceability
- AI for nutrient deficiency prediction
- Regenerative soil practices
- *Case Study: Biofertilizer adoption in coffee farming, Colombia*

Training Methodology

- Interactive lectures using multimedia presentations
- Group discussions and collaborative problem-solving
- Practical demonstrations and field simulations
- Real-world case study analysis

- Hands-on soil testing and nutrient planning exercises
- Assessment through quizzes, role-plays, and feedback sessions

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	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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