Training Course on Pest Resistance Management in Horticultural Crops

Professional Development Training Course Outline

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

Course Introduction

Pest resistance is a growing threat to sustainable horticultural production and global food security. The misuse of chemical pesticides, coupled with a lack of integrated pest management (IPM) practices, has led to increased resistance among major crop pests, significantly reducing yield quality and economic returns for farmers. Training Course on Pest Resistance Management in Horticultural Crops is designed to build expert capacity in pest resistance management through evidence-based strategies, sustainable technologies, and ecosystem-based solutions tailored to horticultural systems.

This course combines practical field-based learning, biotechnology innovations, regulatory frameworks, and advanced diagnostics to equip participants with tools to mitigate pest resistance in horticultural crops. It is ideal for agronomists, researchers, policymakers, extension workers, and value chain stakeholders who seek to enhance resilience in horticultural ecosystems. The program promotes climate-smart agriculture, ecological sustainability, and productivity enhancement using global best practices.

Programme Curriculum

Training Course on Pest Resistance Management in Horticultural Crops

Introduction

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Course Objectives

1. Understand pest resistance dynamics in major horticultural crops
2. Identify genetic and biochemical mechanisms of pest resistance
3. Apply IPM strategies to reduce pest pressure
4. Promote bio-pesticides and natural enemies in crop protection
5. Enhance diagnostic skills for early detection of resistance
6. Strengthen pest surveillance systems and monitoring
7. Implement climate-resilient crop protection methods
8. Analyze resistance management policies and global regulations
9. Utilize precision agriculture tools for pest detection
10. Evaluate case studies of successful resistance interventions
11. Train on safe pesticide use and application technology
12. Improve farmer education and stakeholder communication
13. Develop resistance action plans for target crops

Target Audiences

1. Horticultural Extension Officers
2. Agronomists and Crop Consultants
3. Plant Protection Researchers
4. Pesticide Regulators and Policymakers
5. Agribusiness Managers
6. IPM Practitioners and Advisors
7. Horticulture Farmers and Growers
8. NGO and Development Organization Staff

Course Duration: 5 days

Course Modules

Module 1: Basics of Pest Resistance in Horticulture

- Definition and classification of pest resistance
- Economic impact of resistance on crop yield
- Factors contributing to resistance development
- Cross-resistance and multiple resistance
- Role of crop diversity in resistance suppression
- **Case Study:** Whitefly resistance in tomato fields in Kenya

Module 2: Diagnostic and Monitoring Techniques

- Pest and disease scouting methods
- Use of diagnostic kits and field tools
- Digital surveillance tools (apps, drones, IoT)
- Risk mapping and geo-referencing
- Resistance detection protocols
- **Case Study:** Monitoring Tuta absoluta resistance in greenhouses

Module 3: Integrated Pest Management (IPM) Strategies

- Biological control methods
- Cultural and mechanical control practices
- Responsible chemical use and rotation
- Economic threshold levels (ETL)
- Farmer participatory IPM adoption
- **Case Study:** IPM adoption among avocado farmers in Tanzania

Module 4: Bio-pesticides and Natural Enemies

- Types and sources of bio-pesticides
- Mass rearing of natural enemies
- Application methods and compatibility
- Regulatory issues in bio-pesticide use
- Farmer awareness and uptake strategies
- **Case Study:** Neem-based bio-pesticide adoption in mango farms

Module 5: Resistance Management Frameworks

- Resistance management plans (RMPs)
- Use of pesticide resistance action groups (PRAGs)
- Mode of action (MoA) labeling
- Role of international regulatory bodies
- Data-driven policy recommendations
- **Case Study:** Regional pest resistance frameworks in East Africa

Module 6: Climate-Smart Crop Protection

- Pest outbreaks under climate variability
- Weather-based decision support tools
- Use of climate-resilient crop varieties
- Ecosystem-based adaptation techniques
- Sustainable soil and water management
- **Case Study:** Climate-smart practices in onion production in Ethiopia

Module 7: Farmer Training and Communication

- Development of farmer field schools (FFS)
- Gender-inclusive training approaches
- Use of ICT and mobile learning
- Participatory learning tools
- Evaluation of training impact
- **Case Study:** SMS-based pest alerts for chili farmers in India

Module 8: Innovation and Emerging Technologies

- Use of AI and machine learning in pest detection
- Blockchain for pesticide traceability
- Smart sprayers and robotics
- Genetic approaches to pest resistance
- Mobile applications for resistance management
- **Case Study:** AI-based pest management tools in strawberry farms in California

Training Methodology

- Participatory lectures and PowerPoint presentations

- Hands-on field demonstrations and pest scouting
- Group discussions and problem-solving sessions
- Case study analysis and peer reviews
- Mobile/digital learning tools and quizzes
- Pre-and post-training evaluations

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

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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

Register Online Now

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