Genetic Resource Management Training Course

Professional Development Training Course Outline

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

Course Introduction

Genetic Resource Management (GRM) is at the forefront of sustainable agriculture, biodiversity conservation, and biotechnological innovation. Genetic Resource Management Training Course equips professionals with cutting-edge knowledge on the collection, preservation, characterization, and utilization of plant, animal, and microbial genetic resources. Participants will gain expertise in germplasm management, molecular breeding tools, genetic data analysis, and sustainable conservation strategies to drive research, breeding programs, and global food security initiatives.

With a focus on practical applications, this course bridges the gap between theory and field implementation. Emphasizing modern biotechnological approaches, policy frameworks, and international genetic resource regulations, participants will develop critical skills to manage biodiversity efficiently, implement innovative conservation strategies, and contribute to sustainable resource utilization. Case studies and hands-on exercises will enhance problem-solving capabilities, preparing professionals to address emerging challenges in genetic resource management globally.

Programme Curriculum

Genetic Resource Management Training Course

Introduction

Genetic Resource Management (GRM) is at the forefront of sustainable agriculture, biodiversity conservation, and biotechnological innovation. Genetic Resource Management Training Course equips professionals with cutting-edge knowledge on the collection, preservation, characterization, and utilization of plant, animal, and microbial genetic resources. Participants will gain expertise in germplasm management, molecular breeding tools, genetic data analysis, and sustainable conservation strategies to drive research, breeding programs, and global food security initiatives.

With a focus on practical applications, this course bridges the gap between theory and field implementation. Emphasizing modern biotechnological approaches, policy frameworks, and international genetic resource regulations, participants will develop critical skills to manage biodiversity efficiently, implement innovative conservation strategies, and contribute to sustainable resource utilization. Case studies and hands-on exercises will enhance problem-solving capabilities, preparing professionals to address emerging challenges in genetic resource management globally.

Course Duration

5 days

Course Objectives

1. Understand global genetic resource conservation strategies and frameworks.
2. Master germplasm collection, documentation, and characterization techniques.
3. Apply molecular markers and genomics for genetic diversity assessment.
4. Implement in situ and ex situ conservation strategies effectively.
5. Develop bioinformatics and genetic data management skills.
6. Integrate climate-resilient breeding techniques in resource management.
7. Analyze policy, regulatory, and intellectual property issues in GRM.
8. Promote sustainable utilization of plant and animal genetic resources.
9. Conduct risk assessment and conservation prioritization using case studies.
10. Enhance decision-making with GIS and digital resource mapping.
11. Utilize emerging biotechnologies for trait improvement and resource management.
12. Collaborate on international genetic resource exchange and sharing protocols.
13. Develop leadership in strategic planning, monitoring, and evaluation of GRM programs.

Target Audience

1. Agricultural scientists and researchers
2. Plant and animal breeders
3. Biotechnologists and molecular geneticists
4. Conservationists and biodiversity managers
5. Policy makers and regulatory authorities
6. University faculty and postgraduate students
7. NGOs and international organizations in agriculture and biodiversity
8. Bioinformatics and genetic data specialists

Course Modules

Module 1: Introduction to Genetic Resources

- Definition, scope, and importance of genetic resources
- Global biodiversity hotspots and conservation priorities
- International treaties: CBD, ITPGRFA, Nagoya Protocol
- Role of GRM in food security and climate adaptation
- **Case Study:** Global seed bank management and impact

Module 2: Germplasm Collection & Documentation

- Field collection techniques and ethical considerations
- Passport data and database management

- Phenotypic and genotypic characterization
- Documentation tools and software
- **Case Study:** Successful germplasm collection in drought-prone regions

Module 3: Conservation Strategies (In situ & Ex situ)

- Principles of in situ conservation (protected areas, gene banks)
- Seed banks, cryopreservation, and tissue culture methods
- Prioritization of threatened species
- Integration with community-based conservation
- **Case Study:** Cryopreservation of endangered crop varieties

Module 4: Molecular Tools & Genetic Diversity Analysis

- DNA markers (RFLP, SSR, SNP)
- Next-Generation Sequencing (NGS) applications
- Population structure and diversity analysis
- Software tools for genetic analysis
- **Case Study:** Molecular characterization of rice varieties

Module 5: Biotechnology in Resource Management

- Tissue culture and micropropagation
- Genetic engineering and gene editing (CRISPR)
- Marker-assisted selection (MAS)
- Cloning and transgenic approaches
- **Case Study:** Development of disease-resistant crops

Module 6: Policy, Regulation & Intellectual Property

- National and international GRM policies
- Patent and breeder rights in genetic resources
- Access and benefit-sharing mechanisms
- Ethical and legal considerations
- **Case Study:** Nagoya Protocol implementation in Africa

Module 7: Data Management & Bioinformatics

- Database design for germplasm information
- Digital mapping and GIS applications
- Statistical analysis and modeling tools
- Integration of omics datasets
- **Case Study:** Bioinformatics platform for crop genetic data

Module 8: Practical Applications & Sustainable Utilization

- Climate-resilient breeding strategies
- Community-based resource management
- Linking GRM to market and industrial applications
- Monitoring, evaluation, and reporting metrics
- **Case Study:** Sustainable livestock genetic improvement in smallholder farms

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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

Start Date	End Date	Location	Price
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

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

Register Online Now

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