Training Course on Genetic Improvement and Breeding Programs for Livestock

Professional Development Training Course Outline

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

Course Introduction

Training Course on Genetic Improvement and Breeding Programs for Livestock is designed to empower agricultural professionals, researchers, extension workers, and livestock producers with the knowledge and tools needed to implement effective and sustainable breeding strategies. With increasing global demand for high-quality animal protein, enhancing livestock productivity through genetic improvement has become a critical priority. This course focuses on practical, data-driven approaches that integrate genomics, artificial insemination, performance recording, and genetic selection to enhance animal health, productivity, and profitability.

Participants will explore cutting-edge breeding technologies and livestock genetics to drive sustainable growth in the livestock sector. Through interactive modules and real-world case studies, the course offers actionable insights into animal genomics, breeding value estimation, herd improvement, and data-driven breeding decisions. By the end of the program, trainees will be well-equipped to lead and implement successful livestock breeding programs that align with national and international standards in animal agriculture.

Programme Curriculum

Training Course on Genetic Improvement and Breeding Programs for Livestock

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Course Objectives

1. Understand the fundamentals of animal genetics and inheritance.
2. Analyze the impact of genomic selection in livestock production.
3. Apply breeding value estimation methods for genetic improvement.
4. Identify traits for economic importance in livestock breeding.
5. Develop and manage a sustainable livestock breeding program.
6. Utilize AI and biotechnology in animal breeding.
7. Implement performance recording systems for genetic evaluation.
8. Improve reproductive efficiency through selection and mating plans.
9. Evaluate breed conservation and genetic diversity strategies.
10. Integrate climate-smart breeding practices into livestock systems.
11. Promote community-based breeding programs (CBBP).
12. Analyze case studies of successful national breeding strategies.
13. Understand policy frameworks supporting livestock genetic improvement.

Target Audience

1. Livestock Extension Officers
2. Veterinary Professionals
3. Agricultural Policy Makers
4. Livestock Farmers and Cooperatives
5. Animal Science Researchers
6. Breeding Program Managers
7. Development Partners in Agriculture
8. Academic and Training Institutions

Course Duration: 5 days

Course Modules

Module 1: Introduction to Livestock Genetics

- Overview of animal genetic principles
- Modes of inheritance and trait expression
- Role of genetics in livestock productivity
- Understanding heritability of traits
- Common genetic disorders in livestock
- **Case Study**: Dairy cattle genetics improvement in Kenya

Module 2: Breeding Objectives and Selection Criteria

- Setting measurable breeding objectives
- Traits of economic importance in livestock
- Genetic correlations among traits
- Tools for trait selection
- Evaluating breeding efficiency
- **Case Study**: Sheep and goat improvement programs in Ethiopia

Module 3: Genomic Selection and Biotechnology

- Basics of genomic selection
- Marker-assisted and genomic selection techniques
- Application of biotechnology in breeding
- Use of DNA testing in livestock
- Advantages of early selection using genomics
- **Case Study**: Genomic tools in beef cattle improvement in Brazil

Module 4: Breeding Value Estimation

- Concepts of Estimated Breeding Value (EBV)
- Statistical models for EBV calculation
- BLUP and genetic evaluation systems
- Data collection and analysis
- Incorporating EBVs into breeding programs
- **Case Study**: National dairy EBV system in New Zealand

Module 5: Reproductive Technologies in Breeding

- Artificial insemination (AI) protocols
- Embryo transfer and IVF
- Heat synchronization and estrus detection
- Semen collection and storage
- Reproductive performance evaluation
- **Case Study**: AI adoption in pig farming in Vietnam

Module 6: Performance Recording Systems

- Types of records in livestock breeding
- Recording systems and data management
- Importance of pedigree and performance data
- Software tools for livestock recording
- Challenges in data collection and accuracy
- **Case Study**: Performance recording in dairy cooperatives in India

Module 7: Conservation and Genetic Diversity

- Importance of preserving indigenous breeds
- Threats to genetic diversity
- In-situ and ex-situ conservation methods
- Role of gene banks
- Policies for breed conservation
- **Case Study**: Indigenous cattle conservation in West Africa

Module 8: Policy, Planning, and Program Management

- National livestock breeding strategies
- Legal and policy frameworks
- Institutional roles and responsibilities
- Monitoring and evaluation of breeding programs
- Public-private partnerships in breeding
- **Case Study**: Implementation of the National Livestock Genetic Improvement Policy in Rwanda

Training Methodology

- Interactive lectures and expert presentations

- Hands-on exercises using genetic analysis tools
- Group discussions and collaborative planning
- Real-life case study analysis
- Field demonstrations and practical examples
- Evaluation through quizzes and group presentations

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