

# **MSc Tropical Animal Production – A508 (Under Review)**

## **1. Objectives**

The Programme is intended to develop the student's ability to contribute to, and to make innovations for, the sustainable development and management of the livestock sector in Mauritius, and elsewhere in the region.

The curriculum is outcomes-based and is designed to help the learners develop their skills and knowledge so that they will be able to:

- implement animal production systems with due consideration to protection of the environment, consumers' concerns for quality and safety and animal welfare
- identify, and provide solutions to and advice on, technological and management problems in tropical animal production systems
- evaluate the local, and regional and global context of the animal production sector
- design, plan and execute an experiment (investigation or survey), evaluate the outcomes and draw valid conclusions
- synthesise innovative approaches to foster development of the animal production sector
- acquire a professional approach to study and lifelong learning

The Faculty endeavours to use a range of Teaching and Learning methods and assessment tools to achieve the objectives defined above. Teaching will be learner-centred to foster the development of a professional approach to lifelong learning. Assessment will be formative and summative, and will incorporate various forms, including examinations and continuous assessment.

## **2. General Entry Requirements**

Successful completion of an undergraduate degree with

- at least a Second Class or 50%, whichever is applicable or
- a GPA not less than 2.5 out of 4 or equivalent, from a recognised higher education institution.

**OR** alternative qualifications acceptable to the University of Mauritius.

## **3. Programme Requirements**

An Honours Degree in Animal Production, Agriculture, Agricultural Biotechnology, Zoology, or any allied fields.

## **4. General and Programme Requirements – Special Cases**

The following may be deemed to have satisfied the General and Programme requirements for admission:

- I. Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but submit satisfactory evidence of having passed examinations which are deemed by the Senate to be equivalent to any of those listed.
- II. Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but who in the opinion of Senate, submit satisfactory evidence of the capacity and attainments requisite to enable them to pursue the programme proposed.

## 5. Programme Duration

	Normal [Year(s)]	Maximum [Year(s)]
Master's Degree (FT):	1	2
Master's (PT):	2	4
Postgraduate Diploma (FT):	1	2
Postgraduate Diploma (PT)	2	4

6. **Credits per Year (FT)** : Minimum 18 credits subject to Regulation 5.  
**Credits per Year (PT)** : Minimum 12 credits subject to Regulation 5.

## 7. Minimum Credits Required For The Award of :

Master's Degree : 36  
Postgraduate Diploma : 24 (including a mini project)

Breakdown as follows:

	Core Taught Modules	Project	Electives
Master's Degree	18	12	6
Postgraduate Diploma	18	6	-

## 8. Assessment

Each taught module will carry 100 marks and will be assessed as follows (unless otherwise specified):

Assessment will be based on written examination of 2-hour duration for 3-credit modules and 3-hour duration for 6-credit modules, carrying a weighting of 70%, and continuous assessment carrying 30% of total marks. Continuous assessment will be based on practical classes in and outside the laboratory, case studies, problem-based learning, visits, student-led seminars, literature based research and/or assignments, and shall include at least 1 class test.

For a student to pass a module, a minimum of 30% should be attained in both the Continuous Assessment and Written Examination, with an overall total of a minimum of 40% in that module.

There will be a compulsory class test for all taught modules. Written examinations for all the modules, whether taught over one semester or one academic year, will be carried out at the end of the academic year.

### Submission Deadlines for Dissertation:

- First draft : end of July in the final year.
- Final copy : last working day of August in the final year.

## 9. Important Note

The rules as stipulated in this Programme Structure and Outline Syllabus will replace all other rules and regulations.

## 10. List of Modules

### CORE MODULES

<b>Code</b>	<b>Module Name</b>	<b><u>Hrs/Yr</u> L+P</b>	<b>Credits</b>
AGRI 6000Y(1)	Project	-	12
AGRI 6033Y(1)	Research Methods in Animal Experimentation	30 + 30	3
AGRI 6047Y(1)	Animal Production in the Tropics	75 + 30	6
AGRI 6048Y(1)	Animal Nutrition and Breeding in the Tropics	75 + 30	6
AGRI 6049Y(1)	Principles Applied to the Development and Marketing of Food Products of Animal Origin	45 + 0	3

### ELECTIVES (Two to be selected)

AGRI 6034Y(1)	Economics of Animal Production and Applied Management Principles and Concepts	45 + 0	3
AGRI 6035Y(1)	Livestock Project Management	45 + 0	3
AGRI 6036Y(1)	Animal Welfare, Health and Epidemiology	45 + 0	3
AGRI 6037Y(1)	Evaluation and Utilisation of Feeds	45 + 0	3

## 11. Programme Plan – MSc Tropical Animal Production

### For Full Time :

<b>YEAR 1</b>			
<b>Code</b>	<b>Module Name</b>	<b><u>Hrs/Yr</u> L+P</b>	<b>Credits</b>
<b><u>CORE MODULES</u></b>			
AGRI 6000Y(1)	Project	-	12
AGRI 6033Y(1)	Research Methods in Animal Experimentation	30 + 30	3
AGRI 6047Y(1)	Animal Production in the Tropics	75 + 30	6
AGRI 6048Y(1)	Animal Nutrition and Breeding in the Tropics	75 + 30	6
AGRI 6049Y(1)	Principles Applied to the Development and Marketing of Food Products of Animal Origin	45 + 0	3
<b><u>ELECTIVES</u></b>			
AGRI 6034Y(1)	Economics of Animal Production and Applied Management Principles and Concepts	45 + 0	3
AGRI 6035Y(1)	Livestock Project Management	45 + 0	3
AGRI 6036Y(1)	Animal Welfare, Health and Epidemiology	45 + 0	3
AGRI 6037Y(1)	Evaluation and Utilisation of Feeds	45 + 0	3

**For Part Time :**

<b>YEAR 1</b>			
<b>Code</b>	<b>Module Name</b>	<b>Hrs/Yr L+P</b>	<b>Credits</b>
<b><u>CORE MODULES</u></b>			
AGRI 6000Y(1)	Project (Note: Project to start at the end of 1 <sup>st</sup> semester of Year 1)	-	12
AGRI 6033Y(1)	Research Methods in Animal Experimentation	30 + 30	3
AGRI 6047Y(1)	Animal Production in the Tropics	75 + 30	6
<b><u>ELECTIVES (One to be selected)</u></b>			
AGRI 6036Y(1)	Animal Welfare, Health and Epidemiology	45 + 0	3
AGRI 6037Y(1)	Evaluation and Utilisation of Feeds	45 + 0	3

<b>YEAR 2</b>			
<b>Code</b>	<b>Module Name</b>	<b>Hrs/Yr L+P</b>	<b>Credits</b>
<b><u>CORE MODULES</u></b>			
AGRI 6048Y(1)	Animal Nutrition and Breeding in the Tropics	75 + 30	6
AGRI 6049Y(1)	Principles Applied to the Development and Marketing of Food Products of Animal Origin	45 + 0	3
<b><u>ELECTIVES (One to be selected)</u></b>			
AGRI 6034Y(1)	Economics of Animal Production and Applied Management Principles and Concepts	45 + 0	3
AGRI 6035Y(1)	Livestock Project Management	45 + 0	3
<b>Total: 36 credits</b>			

**12. Outline Syllabus****CORE MODULES****AGRI 6000Y(1) - PROJECT**

The project provides an opportunity for the students to undertake and contribute to a piece of original research work, in an area related to the production and development of livestock in the tropical environment. The students are required to design an experiment (or investigation, survey or other means) to test a hypothesis or proposition, to plan and execute the research work, to evaluate the outcomes and draw valid conclusions.

The research work is carried out under guided supervision. To support the dissertation work, the Faculty has prepared a document on: *Project Guidelines for MSc Degree*.

**AGRI 6033Y(1) - RESEARCH METHODS IN ANIMAL EXPERIMENTATION**

Applications of relevant research methods and experimentation to animal science and production. Interpretation of data. Data collection and organisation. Experimental design and data analysis in animal nutrition. Repeated measurements. Use of covariance and regression models. Probit Analysis. Cluster Analysis. Survey methodology. Use of statistical software for data processing. Principal Component Analysis. Scientific communication skills.

#### **AGRI 6047Y(1) - ANIMAL PRODUCTION IN THE TROPICS**

The structure, management and productivity of animals of economic importance. Biological, environmental and socio-economic constraints to production. Feeding. Welfare and Health. Housing design. Management of heat stress. Waste management. Food chain management from primary production to consumer use. Relevant technologies for improving the productivity of animals in the tropics. Current and emerging issues in animal production systems in the tropics.

#### **AGRI 6048Y(1) - ANIMAL NUTRITION AND BREEDING IN THE TROPICS**

Digestive physiology of farm animals. Metabolism of the end-products of digestion. Control of feed intake. Protein, energy and mineral requirements. Diagnosis of nutritional deficiencies. Nutrient requirements of different classes of livestock. Principles and practice of supplementary feeding. Manipulation of animal nutrition to meet consumers' and environmental concerns. Reproductive physiology. Reproductive management and manipulation of farm animals. Genetic principles of animal breeding. Design and evaluation of breeding plans and crossbreeding systems. Definition of breeding goals. Prediction and evaluation of genetic change. Tropical Breeding Programmes. New gene-based technologies and their application to tropical animal reproduction and breeding. Conservation of livestock genetic resources. Current and emerging issues in animal reproduction, breeding and nutrition.

#### **AGRI 6049Y(1) - PRINCIPLES APPLIED TO THE DEVELOPMENT AND MARKETING OF FOOD PRODUCTS OF ANIMAL ORIGIN**

Food production systems in the animal sector. Evaluation of product quality and safety using appropriate analytical tools. Recent developments in food quality and safety. The process of food product design and development. Quality assurance. HACCP analysis. Innovations in the food sector: identifying opportunities and problems; development of concepts or ideas into commercially viable value-added products. Application to relevant examples and case studies. Marketing of animal products at the national, regional and global levels: nature of markets, producer organisations, retailing. World demand for animal products: current and emerging issues. Meeting the needs of consumers.

#### **ELECTIVES**

#### **AGRI 6034Y(1) - ECONOMICS OF ANIMAL PRODUCTION AND APPLIED MANAGEMENT PRINCIPLES AND CONCEPTS**

The national economy and contributions of the animal production sector. Role of animal production in tropical agriculture. Livestock production economics: input / output relationships. Introduction to farming systems research. Impact of policies on the development of the animal production sector. Farm economics. Farm management principles: application to animal production enterprises including farm resource allocation, budgeting, managing risk and uncertainty. Linear programming (LP): basic concepts and principles, use of LP in "Best Cost" feed formulation. Issues pertaining to waste management in livestock enterprises. Applications and case studies.

#### **AGRI 6035Y(1) - LIVESTOCK PROJECT MANAGEMENT**

Project concept. Project cycle. Identification of project costs and benefits. Financial and economic aspects of project analysis. Feasibility studies. Measures of networth. Guidelines for project preparation. Project formats. Application of project management software/s. Case studies on national and regional agricultural / livestock projects. Management of the research and development process in the tropical livestock sector: using projects as the management unit. Project management skills

#### **AGRI 6036Y(1) - ANIMAL WELFARE, HEALTH AND EPIDEMIOLOGY**

General welfare and affecting factors. Specific requirements for the welfare of named ruminants and non-ruminants. Animal behaviour. Examination and selection of healthy animals. Steps in the study of animal diseases. Global approach to disease causing agents. Animal disease status (world, regional, national). Major diseases of economic and zoonotic importance in named species of livestock. Disease prevention and control. Disease surveillance.

**AGRI 6037Y(1) - EVALUATION AND UTILISATION OF FEEDS**

Characteristics of feeds. Production of compound feeds. Defining the physical standards of feeds for broilers. Feed evaluation. Feed formulation and feeding. Legislative framework for feed manufacture and trade. Growth and development of forage plants. Effects of defoliation, re-growth, perenniality, persistence. Carrying capacity of pastures. Tree fodder. Upgrading of low quality forages. Fodder conservation techniques. Integrating pasture production with the requirements of grazing animals. Evaluating the constraints to ruminant productivity under grazing conditions in the tropics. Cut-and-Carry system. Principles and practice of supplementation on pastures. Laboratory assessment of the nutritive value of grazed and conserved fodder. Anti-nutritional feed factors.