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VM11D: RUMINANT PRODUCTION
SEMESTER II 2005-2006
MODULE 1: COURSE INTRODUCTION

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VM11D: RUMINANT PRODUCTION

MODULE 1.1: COURSE INTRODUCTION

----------1

THE UNIVERSITY OF WEST INDIES ----------1

SEMESTER II 2005-2006---------- ---------- 1

MODULE 1.1: COURSE INTRODUCTION----------2

1.1.1 WELCOME !! ----------3
UNIT OBJECTIVE ----------3
PLEASE READ CAREFULLY AND UNDERSTAND THE CONTENTS OF THIS UNIT!!!!!!!!!!! --------3
SAANAN DAIRY GOATS ----------4
MACHINE MILKING OF A DAIRY COW ---------- 4
A DAIRY GOAT MILKING PARLOR ----------4
1.1.2 COURSE DESCRIPTION ----------5
1.1.3 GENERAL OBJECTIVES AND AIMS: ----------5
1.1.4 LEARNING OBJECTIVES: ----------5
1.1.5 COURSE LOGICAL FRAMEWORK/ THE DELIVERY OF INFORMATION WITHIN THE COURSE7
1.1.6 SOME GUIDELINES FOR YOUR FIELD VISITS: ----------8
1.1.7 CONTINUOUS ASSESSMENT.----------8
1.1.8 SEMESTER SCHEDULE (JANUARY TO APRIL 2006): ----------9
1.1.9 SEMESTER SCHEDULE SESSIONS AND LECTURES (JANUARY TO APRIL 2005):-------- 10
1.1.11 ESSENTIAL TEXT: ---------- 14
1.1.12 HIGHLY RECOMMENDED READINGS ---------- 15
1.1.13 RECOMMENDED READINGS: ---------- 15
1.1.14 VIDEO TAPES ---------- 18
BEEF CATTLE ----------18
DAIRY CATTLE ----------18
SHEEP PRODUCTION---------- 19

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Module 1.1 General Introduction
1.1.1 Welcome !!

Welcome to this very compact and interesting course on Ruminant Production !!!

I do hope that all students enjoy this course as much as I have enjoyed developing it for you and teaching it to wonderful learners like yourselves over the years.

A very important feature of this course which was designed to help make your learning enjoyable is that the course has three (3) learning approaches:

- **Didactic or Face to Face mode** i.e. You listening to the lecturers, but this year for the very first time, they will be doing very little talking,

- **Farm and Livestock Facilities visits** i.e. You making your own observations within a real Animal Production Environment and

- **Case Presentations and Problem Solving** i.e. You learn by doing through problem solving. This you are already accustomed to within the Faculty of Medical Sciences.

Unit Objective

This unit is going to describe for you the manner in which this course has been organized and how it will be conducted for your enjoyable learning.

Please read carefully and understand the contents of this unit!!!!!!!!!!!

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A Biogas Digestion Unit at a Pig Farm But could be used on a zero grazed dairy farm

Saanan Dairy Goats

Machine Milking of a Dairy Cow

A Dairy Goat Milking Parlor

Intensive Tropical Hair Sheep Production on Deep Litter

Barbados Black Belly Type Tropical Hair Sheep

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1.1.2 Course Description

Structure of the ruminant industry in CARICOM, management practices including breeds and breeding, nutrition and feeding, heath and disease prevention and control, housing and waste management, milking and milking management.

1.1.3 General Objectives and Aims:

(i) to become familiar with the structure of ruminant production in Caricom;

(ii) to briefly review the important physiological principles governing ruminant production and

(iii) to apply the principles of animal production to ruminant production in the tropics.

1.1.4 Learning Objectives:

The following is a list of the learning objectives for your guidance. It is the exit knowledge profile for you at the end of this course.

(i) to list and understand the Factors affecting Ruminant Livestock Production in the Tropics.
(ii) to be able to state the role of environment and housing in commercial ruminant livestock production.
(ii) to be able to list the essential features of ruminant livestock production systems;
(iii) to be able to explain the effect of the tropical environments of ruminant livestock production;
(iv) to be able to list the Physiological States involved in production systems involving the following animals:
- Dairy Cattle
- Beef Cattle and Buffalo
- Sheep and Goats
(v) to be able to list and describe the essential components and management practices involved in the production systems of

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the following animals:
- Dairy Cattle
- Beef Cattle and Buffalo
- Sheep and Goats.

This seems to be a mouthful but when you are preparing for the examinations this is what you will have to use as your study preparation checklist!!!!!!!!

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1.1.5 Course Logical Framework/ The Delivery of Information within the course

Introduction

↓

Introduction to Animal Production and Ruminant Production in the Caribbean

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VISIT TO LIVESTOCK FACILITIES

- Dairy
- Zero Grazing
- Small Ruminant Housing

↓

Module #5: Dairy Cattle Production
PBL Case: Persistent Mastitis

↓

Module #4: Goat Production
PBL Case: No Kidding

↓

Module #3: Tropical Hair Sheep Production

↓

Module #6: Beef Cattle Production
Module #7: Water Buffalo Production

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1.1.6 Some Guidelines for your Field Visits:

When you are visiting a livestock facility you should take notes in the following format.

- Name of Facility
- Type of Enterprise
- Location
- Area
- Form of Ownership
- Objectives of the Enterprise
- Products and Services
- Species of Animals
- Physiological States
- Housing and Environmental Management
- Feeding Systems and Programme Employed
- Health and Disease Prevention Programme
- Major Disease problems
- Breeding and Reproduction Management
- Genetic Improvement Programme
- Product Marketing
- Other Observations

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1.1.7 Continuous Assessment.

There would be two continuous assessment sessions ON Ruminant Production of one hour each as outlined in the semester schedule.

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1.1.8 Semester Schedule (January to April 2006):

Week of Semester	Starting Date	Session # Monday 2-4 pm	Session # Tuesday 10-12 pm	Special
1	16/1	1	2	
2	23/1	3	4	1] Thursday 26th 7-10pm Special Slide Session on Animal Housing and Zoos of the World 2] Saturday 28th and Sunday 29th January Week End All Day Field Trip
3	30/1	5	6	PBL Case: Persistent Mastitis
4	6/2	7	8	
5	13/2	9	10	
6	20/2	11	12	
Semester Break 24th February to 4th March		Carnival Monday	Carnival Tuesday	
7	6/3	13 Continuous Assessment #1	Wildlife Management Lecture #1	
8	13/3	14	Wildlife Management Lecture #2	PBL Case: No Kidding
9	20/3	15	Wildlife Management	

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			Lecture #3	
10	**27/3**	**16**	**Class Discussion**	
11	**3/4**	**17**	**Lab Animal Management**	
12	**10/4**	**18**	**Lab Animal Management**	
13	**17/4**	**19 Course Review**	**20 Continuous Assessment #2**	

1.1.9 Semester schedule Sessions and Lectures (January to April 2005):

Week #	Date	Session #	Topic
Wk1	**Monday 16th January**	**1**	**Module #1: Introduction** **Course Introduction**
	Tuesday 17th January	**2**	**Module #2: Introduction to Ruminants** **1. Concepts for Designing Intensive Animal Production Systems** **2. Introduction to Ruminants**
Wk2	**Monday 23rd January**	**3**	**Module #5: Dairy Cattle Production in the Tropics** **Milking and Milking Management**
	Tuesday 24th January	**4**	**Lactation Curve in Dairy cattle**
	Thursday 26th January	**Slide Show 7-10pm**	**Special Slide Session** **Lecture Room B, Sir Frank Stockdale Building,** **Faculty of Science and Agriculture** ALL Courses, VM11D, AL65B **1. Slides on Domestic Animal Facilities** **2. Slides on Zoos of the World** **3. Zoos and Wildlife**
	Saturday 28th January	**Field Trip Saturday**	**1] UFS Dairy Milking and Milking Management** **[6:00 to 8:00 am]** **Objectives:** **1. to observe milking and milking management;**

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			2. to observe and critique the milking practices; 3. to observe the animals and milking facilities. 2] Centeno Livestock Station : Small Ruminant Production [9:00 to 11:00 am] Objectives: 1. to observe the housing, feeding and intensive management of tropical hair sheep; [Gary Garcia, William Mollineau, Gail Young]
	Sunday 30th January	Field Trip Sunday	3] Emperor Valley Zoo [9:00 to 11:00 am] 1. to observe the functional elements of a tropical Zoo; 2. to observe the importance, role and function of the Kitchen in the Zoo; 3. to observe the elements of a Zoo Exhibit; and 4. to be able to appreciate the Role of Zoos within the Modern day society. 4] Sugarcane Feeds Centre [12:00 to 4:00] 1. to observe the building design and features of an intensive zero grazing beef and dairy cattle facility; 2. to observe the housing, feeding and intensive management of tropical hair sheep and goats; 3. to observe pig housing design for the tropics to facilitate the management of pig waste for biogas production; 4. to observe the integration of sheep and aquaculture production; and 5. to observe the integration of crop and livestock production. [Gary Garcia, William Mollineau, Gail Young]

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Wk3	Monday 30th January	5	Dairy Cattle Physiological States
	Tuesday 31st February	6	Management of the Dairy Herd
Wk4	Monday 6th February	7	Reproductive Management
	Tuesday 7th February	8	Calf Management
Wk5	Monday 13th February	9	Module #4: Dairy Goat Production Dairy Goat Physiological States
	Tuesday 14th February	10	Dairy Goat Lactation Curve [William Mollineau]
Wk6	Monday 20th February	11	Dairy Goat Housing
	Tuesday 21st February	12	Review
Semester Break	24th February to 4th March	Carnival Monday and Tuesday	
Wk7	Monday 6th March	13	CONTINUOUS ASSESSMENT #1 [1 hour]
	Tuesday 7th March		WILDLIFE LECTURE SESSION #1
Wk8	Monday 13th March	14	Module #3: Sheep Production Sheep Physiological States
	Tuesday 14th March		WILDLIFE LECTURE SESSION #2
Wk9	Monday 20th March	15	Housing and Management of Sheep Sheep Production Systems

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	Tuesday 21st March		WILDLIFE LECTURE SESSION #3
Wk10	Monday 27th March	16	Module #6: Beef Production Principles of Beef Production
	Tuesday 28th March		Class Discussion
Wk11	Monday 3rd April	17	Principles of Beef Production
	Tuesday 4th April		Lab Animal Management
Wk12	Monday 10th April	18	Module #7: Buffalo Broduction Water Buffalo Production
	Tuesday 11th April		Lab Animal Management
Wk13	Monday 17th April	19	Course Review
	Tuesday 18th April	20	Continuous Assiessment #2

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1.1.10 Closing Note:

I HAVE ATTEMPTED TO PUT SOME ORDER INTO THE KAOS, SO PLEASE WORK WITH ME TO HELP MAKE YOUR LEARNING ENJOYABLE €£¥∞α

THE FIELD TRIPS EARLY IN THE SEMESTER WERE DESIGNED TO HELP AND NOT TO HURT YOU.
SO IF YOU CHOOSE NOT TO ATTEND WELL IT WILL BE YOUR LOSS NOT MINE !!!!!!!!!!!!!!!!!!!!!

1.1.11 Essential Text:

Gary Wayne Garcia [2005]
Principles of Tropical Livestock Production
[A Self-instructional Manual]
Pilot Edition, PART 1 in the Series on "Tropical Agriculture, Food and Cuisine":
The Open Tropical Forage-Animal Production Laboratory [OTF-APL], Department of Food Production, Faculty of Science and Agriculture, The University of the West Indies, St Augustine, Trinidad, Trinidad and Tobago, GWG Publications, Trinidad and Tobago, West Indies. ISBN 976-95123-4-6

Course Module #1:	Course Introduction and Outline
Course Module #2.0	Form and Function in Animals
Course Module #2.1	Introduction to Ruminants
Course Module #2.2	Concepts for Designing Intensive Animal Production Systems
Course Module #3	Sheep Production in the Tropics

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Course Module #4	Goat Production in the Tropics
Course Module #5	Dairy Production in the Tropics
Course Module #6	Beef Production in the Tropics
Course Module #7	Buffalo Production in the Tropics

1.1.12 Highly Recommended Readings

Ensminger, M.E. [1993]: Dairy Cattle Science, Third Edition, Interstate Publishers, INC, Danville Ill. USA

Ensminger, M.E. [2002]: Sheep and Goat Science (Animal agriculture Series), Sixth Edition, Interstate Publishers, INC, Danville Ill. USA

1.1.13 Recommended Readings:

1. Anon (1983): Feeding of Animals in the Caribbean: An SFC-CARDI Sponsored Workshop 11-16 April, 1983 UWI. Editors; F. Neckles; W. Cateau and D. Walmsley
2. Anon (1979)
   The Management and Diseases of Sheep, CAB, UK.
3. ANON (1983)
   Livestock Manual for the Tropics.
   The Jamaica Livestock Association Ltd; Kingston, Jamaica
4. ANON (1990)
   Caribbean Middle-Level Management Livestock Training Manual- Volume 1 Ruminants; Commonwealth Secretariat
5. Anon (1993)
   Opportunities and Constraints for the Development of A Sustainable Small Ruminant Sub-Sector in the Caribbean Seminar Proceedings, Barbados, 15-17 September 1992, CARDI
6. Cole, H. H. and Ronning, M. (1974)
   Animal Agriculture. The Biology of Domestic Animals and their use by man. W. H. Freeman and Co., San Francisco
7. Devendra, C. and Burns. M (1983)
   Goat Production in the Tropics; CAB, UK.
8. Devendra, C. and Mc Leroy, G.B. (1982)
   Goat and Sheep Production in the Tropics, ITAS, Longman.

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9. FACT SHEETS ON RUMINANTS FROM THE DEPARTMENT OF AGRICULTURAL EXTENSION
Available from Ms. M. Jiminez-Spence, Dept. of Ag. Extension, Faculty of Agriculture Cost - $25
10. Ferguson, T. U. and Garcia, G. W. (Editors) (1992)
Leucaena in Agricultural Development
Proceedings of the 1st International Conference on Leucaena
Port of Spain, Trinidad and Tobago, 10-13 July, 1989
Faculty of Agriculture, UWI, St Augustine, Trinidad and Tobago.
11. Humphreys, L.R. (1988): Tropical Pastures and Fodder Crops; ITAS, Longman, Second Edition
12. Hill, D. (1988); Cattle and Buffalo Meat Production in the Tropics; ELBS, Longman
13. Jarrige, R. (EDITOR) (1989): Ruminant Nutrition, Recommended allowances and Feed Tables
INRA. Paris, France; John Libbey EUROTEXT, London-Paris.
14. Morand-Fehr, P Editor (1991)
Goat Nutrition; Pudoc Wageningen
15. National Research Council (NRC) (1978)
Nutrient Requirements of Dairy Cattle,
National Academy of Sciences, Washington DC
16. National Research Council (NRC) (1984)
Nutrient Requirements of Beef Cattle,
National Academy of Sciences, Washington DC
17. NRC (1985)
Nutrient Requirements of Sheep,
National Academy of Sciences, Washington DC
18. NRC (1981)
Nutrient Requirements of Goats,
National Academy of Sciences, Washington DC
19. Nelson, R. (1986)
Stockman's Veterinary Handbook
Livestock Development Company; 58 High Street, Georgetown,
20. Payne, W.J.A. (1990)
An Introduction to Animal Husbandry in the Tropics
ELBS, Longman: Fourth Edition.
21. Preston, T.R (1986)

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Matching Livestock Systems with available feed resources in tropical countries
CTA, The Netherlands, 14 January 1986.

22. Preston, T.R. and Leng, R.A (1987)
    Matching Ruminant Production Systems with available resources in the Tropics and Sub-Tropics. CTA, Netherlands.
23. Preston, T.R (1989)
    The Development of Milk Production Systems in the Tropics
    CTA, The Netherlands.
24. REGIONAL LIVESTOCK MEETINGS:
    Department of Livestock Science; Faculty of Agriculture
25. Roy, J.H.B (1980)
    The Calf
    Fourth Edition, Butterworths, London-Boston
26. Walmsley, D (EDITOR) (1987)
    Forage Legumes and other local protein sources as substitutes for imported protein meals. Seminar Proceedings, Kingston Jamaica, 1-4 December, 1987.; CTA and CARDI
27. Walmsley, D (EDITOR) (1990)
    Agricultural Diversification in the Caribbean
    Seminar Proceedings, Barbados, 27 November to 1 December, 1989.
    CTA and CARDI
28. Walmsley, D (EDITOR) (1993)
    Dairy Development in the Caribbean
    Seminar Proceedings, Jamaica, 20 November to 3 December, 1992., CTA and CARDI

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1.1.14 VIDEO TAPES

Please note that these videotapes are housed in the audiovisual room on the third (3rd) floor of the main library. Arrangements will have to be made with the librarian in charge of the Floor (Mr. R. Clarke) for groups to view the tapes. These tapes are all very informative and should be viewed by each student at least once.

Beef Cattle

Beef Production: Management Practices for Beef Cattle I & II VHS; 24, 47 minutes
Beef Production: Beef Reproduction I, II & III VHS; 23, 43, 21 minutes
Reproduction: Fundamental of Livestock Parturition VHS; 25 minutes
Artificial Insemination: Beef and Dairy Cattle VHS; 14 minutes
Reproduction: Artificial Insemination Striving for Perfection; VHS 17 minutes
Cattle Breed Identification: Zebu VHS; 20 minutes

Beef Forequarter: Fabrication & Retail Identification VHS; 18 minutes: Call #: TS1962.B443 1999
Beef Grading: Quality VHS; 27 minutes: Call #: TS373.B4 1998
Beef Grading: Yield VHS; 31 minutes: Call #: SF140.C37 B44 1998
Beef Hindquarter: Fabrication & Retail Identification VHS; 18 minutes: Call #: TS1960.B44 1999
Beef Slaughter and Dressing VHS; 18 minutes: Call #: TS1960.B43
Meat Judging Fundamentals VHS; 50 minutes: Call #: SF140.C37 M43 1998

Dairy Cattle

Dairy Production: Dairy Management Practices VHS; 37 minutes
Dairy Safety; VHS: 39 minutes
Dairy Production: The Dairy Cow; VHS; 15 minutes
Dairy Judging: Cows; VHS; 50 minutes
Dairy Judging: Heifers; VHS; 25 minutes
Dairy Judging: I VHS; 52 minutes
Dairy Judging II; VHS 35 minutes

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Sheep Production

Sheep Production: Sheep Management Practice I, VHS, 55 minutes
Sheep Production: Sheep Management Practice II, VHS, 44 minutes
Sheep Production Series: Selection and Care of Market Lambs; VHS, 44 minutes
Market Lamb Evaluation: VHS; 47 minutes
Market Lamb and Breeding Sheep Evaluation, VHS; 60 minutes
Fitting and Showing Market Lambs, VHS, 56 minutes

Lamb Carcass Fabrication VHS; 24 minutes: Call #: TS1963.L3 1991
Lamb Retail Cut Identification VHS; 17 minutes: Call #: TS1962.L36 1992
Lamb Retail Cut Identification Update; VHS 23 minutes
Lamb Slaughter and Dressing VHS; 28 minutes: Call #: TS1960.L363 1991

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