UF | IFAS Extension
UNIVERSITY of FLORIDA

FORAGES IN TROPICAL AND SUBTROPICAL ENVIRONMENTS

FLORIDA INTERNATIONAL DAIRY ACADEMY

DEPARTMENT OF ANIMAL SCIENCES

Instructors

This will be a team-taught course involving faculty from the North Florida Research and Education Center, Range Cattle Research and Education Center, Dept. of Agronomy and Dept. of Animal Sciences.

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Course Description

Forages are an important component of dairy production systems. This course will address key concepts in forage management and utilization including forage production, forage quality, and the relationship between forage systems and the environment in tropical and subtropical climates. Four experienced faculty will cover these topics in four units. Module 1 will address plant growth and development and their interaction with the growing environment. Module 2 will describe production systems, grazing management, and ecosystem services. Module 3 will cover forage conservation practices, including hay, haylage, and silage. Finally, Module 4 will address forage nutritive value and methods of analysis as well as the role of forage quality in dairy systems. Upon completion of this course, the student will be familiar with key concepts of forage production and utilization in dairy systems as well as the crucial role forages play in dairy operations.

Course Objectives

The main objective of this course is to provide basic knowledge on forage production, utilization, and the role forages play in the environment. The focus will be forage and dairy systems located in tropical and subtropical environments.

Course Schedule

Part 1

Module 1: Forage Plant Morphology, Anatomy, Growth, and Development (Dr. Sollenberger)

- **Introduction**
- **Topic One:** Forage Plant Morphology & Anatomy
- **Topic Two:** Seed & Vegetative Propagation
- **Topic Three:** Photosynthesis, Nitrogen Fixation, & Carbon Allocation

Module 2: The Growing Environment and its Effects on Forage Plants (Dr. Sollenberger)

- **Topic Four:** Growing Environment Effects on Forage Plants: Temperature, Soil Moisture, & Light
- **Topic Five:** Principles of Soils & Nutrient Uptake
- **Topic Six:** Soil Testing & Fertilization Practice

Module 3: Forage Crop Establishment (Dr. Sollenberger)

- **Topic Seven:** Forage Establishment: Planting into Prepared Seedbed
- **Topic Eight:** Forage Establishment: Overseeding into Perennial Pastures or Hayfields

Part 2

Module 4: Description of Forage Production Systems (Tropical and Subtropical) (Dr. Dubeux)

- **Topic Nine:** Overview of Forage Production Systems in Tropical and Subtropical Environments
- **Topic Ten:** Forage growth potential and nutritive value in tropical and subtropical systems
- **Topic Eleven:** Forage production systems: examples in tropical and subtropical environments

Module 5: Grazing Management (Dr. Dubeux)

- **Topic Twelve:** Grazing management: concepts, definitions, and goals
- **Topic Thirteen:** Stocking methods: definition, examples, and applications
- **Topic Fourteen:** Grazing management and its role in the animal performance and the environment

Module 6: Ecosystem Services of Forage System (Dr. Dubeux)

- **Topic Fifteen:** Ecosystem services: definition, examples, and importance
- **Topic Sixteen:** Ecosystem services: the role of forage legumes in the sustainable intensification

Part 3

Module 7: Forage Conservation (Dr. Vendramini)

- **Topic Seventeen:** Hay One
- **Topic Eighteen:** Hay Two
- **Topic Nineteen:** Haylage One
- **Topic Twenty:** Haylage Two
- **Topic Twenty-One:** Silage One
- **Topic Twenty-Two:** Silage Two

Part 4

Module 8: Understanding the Basics of Forage Quality and Sampling Procedure (Dr. Vyas)

- **Topic Twenty-Three:** Forage quality: Basics and Applications
- **Topic Twenty-Four:** Forage Sampling

Module 9: Evaluating Forage Quality Based on Proximate Analysis and Van Soest System (Dr. Vyas)

- **Topic Twenty-Five:** Evaluating Forage Quality

Module 10: Animal and Lab-based Methods for Measuring Forage Quality (Dr. Vyas)

- **Topic Twenty-Six:** Measuring Forage Quality

Module 11: Measure of Fiber Digestibility and Its Impact on Animal Performance (Dr. Vyas)

- **Topic Twenty-Seven:** Measures of Fiber Digestibility and Forage Utilization

Course Website

The course is offered using CANVAS on the IFAS Extension Online Learning platform. The course website is: https://ifas.instructure.com/login/canvas.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Certificate of Completion

A Certificate of Completion will be awarded upon successful completion of all modules and viewing of all required videos. This course is designed for self-paced learning, allowing students to progress through the material at their own speed. Students will have indefinite access to the course, enabling them to revisit the content at any time for continued learning and reference. We encourage students to engage with the material thoroughly to maximize their understanding of information provided.

Dairy AdvanCE Continuing Education

Students earning continuing education credit through Dairy AdvanCE will be awarded credit only after course has been 100% completed. Please allow time for processing. Contact fida@ifas.ufl.edu for any questions or concerns.

This course will award 8 CEUs.