

Forage and Pasture Management
SOCR 320
Spring Semester 2019

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Lecture Schedule: 9:00 – 9:50 MWF Clark C-146

Course Description: Fundamentals of establishment, management, and utilization of cultivated forages including hay, silage, and pasture production.

Text: None. Handouts, lecture notes, etc. will be distributed in class or posted on Canvas for downloading.

Course Objectives:

The overall objective of this course is to promote your understanding of the biological, climatic, and soil related factors affecting forages in cultivated production systems. You will then be able to better interpret the responses observed in managing forage-livestock systems and design management programs appropriate to each unique setting encountered. In addition to this general objective, you will:

- Learn some of the major forage plants and what adaptive features make them suitable for growth in particular environments.
- Become generally familiar with the composition of herbaceous plant tissue and how these fibrous plant components differ in composition from grains.
- Become familiar with the nutritional limitations of forages.
- Understand the concept of energy availability in forages and how factors such as composition, species, and environment affect forage quality.
- Learn about the most common livestock disorders associated with forage utilization.
- Become knowledgeable of the morphological and physiological features that determine growth patterns of forages and how they respond to environment, harvest, and animal utilization.
- Become familiar with the principles of cutting management in forage systems.
- Learn the importance and implications of fertilizer use in perennial forage production systems.
- Become knowledgeable of the most common forage preservation systems and the factors affecting the success of their use.
- Understand the basics of irrigation, insect, disease, and weed management in forage systems.
- Become familiar with the use of stocking rate and stocking density as management tools on pastures.
- Know the advantages and disadvantages of the most common grazing systems.

Instructional Methodology: The class will meet as a single group three hours per week for lecture and discussion. In addition, you will either work in conjunction with 1 or 2 other students to

conduct a simple greenhouse project and present your findings in class or put together a presentation on an assigned forage species. For students conducting greenhouse projects, most will meet at the greenhouse on February 6th to start their project. All lectures will be recorded using Echo360 and posted on Canvas. The recorded lectures are not intended as a substitute for attending class, but to aid students in studying the material, completing homework assignments, and accessing material when class must be missed due to excused absences, sickness, etc.

Methods of Evaluation: The objectives stated above will be met by lectures, selected problem sets, a greenhouse project and presentation or species presentation, regular examinations, and a final. Grading will be based on the following: 5 to 6 - homework assignments worth 160 total points, 1 - presentation at 50 points, 3 - one hour exams at 100 points each, 1 - calculation exam at 50 points, and 1 - final exam at 100 points (**The final is not comprehensive**). Final grades will be determined based on the following tentative breakdown:

<u>Total Points Accumulated</u>	<u>Grade</u>
594 - 660	A
528 - <594	B
462 - <528	C
396 - <462	D
<396	F

Course Policies: University policies on academic integrity will be followed. These are stated in the General Catalog under Student Responsibilities which can be found at the following: <http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/#academic-integrity>. In accordance with the emphasis CSU is placing on academic integrity, you will be given the opportunity to sign the Honor Pledge on all exams: "I have not given, received, or used any unauthorized assistance." For additional information on course policies, please see below.

Homework Policy: For full credit, homework assignments must be turned in at my office **by 4:00 p.m. on the date due**. Your grade will be penalized 10% (i.e. one letter grade) for each day that assignments are late up until I hand the graded assignment back in class (Generally less than a week). Late homework will not be accepted after that time. You are encouraged to work together on homework assignments as a double check of your answers, especially on those involving math problems. You must understand how to work the problems for the exams, so it is in your best interest not to copy from someone else.

Exam Policy: Make-up tests for missed exams will not be given after the time the exam is scheduled. Students with legitimate conflicts will be given the opportunity to take exams within a reasonable period prior to the regular exam time if arrangements are made ahead of time. You cannot use the calculator feature on your cell phone during exams. All you will need during exams is a simple 4-feature calculator, so please bring one on scheduled exam days.

Attendance: Attendance in class is highly encouraged. Large amounts of information are presented in lecture and **it is difficult for students to earn a high grade if they miss numerous classes.**

Distractions: Class discussion and questions relevant to the current topic **are welcome and encouraged**. Extended private conversations, however, are a distraction to others in the class and **are not acceptable**. You will first be warned and then asked to leave the classroom if the distraction persists.

Cell Phones: I prefer that all cell phones be turned off during class. If you must have your cell phone on, please set your ringer to silent mode. If I feel that your cell phone is distracting, you will be asked to leave the classroom immediately.

Course Schedule - Spring 2019
SOCR 320 - Forage and Pasture Management

Week	Day	Date	Lecture Topic
1	M	Jan. 21	No Class; Martin Luther King Day
	W	Jan. 23	Course Introduction
	F	Jan. 25	Classification/Growth Characteristics of Forages, Little Bluestem
2	M	Jan. 28	Nature and Properties of Soils
	W	Jan. 30	Nature and Properties of Soils, Alfalfa
	F	Feb. 1	Grass and Legume Morphology, Orchardgrass
3	M	Feb. 4	Grass and Legume Morphology, Smooth Brome
	W	Feb. 6	Meet at Greenhouse to Start Projects (only certain projects)
	F	Feb. 8	Forage Plant Development, Meadow Brome
4	M	Feb. 11	Forage Plant Composition, Tall Fescue
	W	Feb. 13	Forage Plant Composition/Analysis, Timothy
	F	Feb. 15	Exam 1
5	M	Feb. 18	Animal Utilization of Forages/Quality Criteria, Perennial Ryegrass
	W	Feb. 20	Forage Quality Evaluation, Festulolium
	F	Feb. 22	Forage Quality Evaluation, Red Clover
6	M	Feb. 25	Forage Digestibility and Intake, Hay Sampling
	W	Feb. 27	Frothy Bloat and Grass Tetany, White Clover
	F	Mar. 1	Nitrate and Prussic Acid Poisoning, Creeping Meadow Foxtail
7	M	Mar. 4	Fungal Endophyte & Blister Beetle, Nitrate & Prussic Acid Testing
	W	Mar. 6	Harvest Management of Legumes, Big Bluestem
	F	Mar. 8	Harvest Management of Grasses, Switchgrass
8	M	Mar. 11	Forage Establishment, Int./Pub. Wheatgrass
	W	Mar. 13	Exam 2
	F	Mar. 15	Forage Establishment, Seeding Depth
Spring Break (Mar. 16 to 24)			
9	M	Mar. 25	Interseeding Pastures and Hayfields, Sorghum-sudangrass
	W	Mar. 27	Interseeding Pastures and Hayfields, Seeding Rate
	F	Mar. 29	Seed Mixes/Alfalfa Varieties and Autotoxicity, Millets
10	M	Apr. 1	Forage Allocation, Birdsfoot Trefoil
	W	Apr. 3	Forage Allocation, Sainfoin
	F	Apr. 5	Pasture Management, Cicer Milkvetch
11	M	Apr. 8	Pasture Management, Tall Wheatgrass
	W	Apr. 10	Grazing Systems, Cereal Rye
	F	Apr. 12	Strategies for Extending the Grazing Season, Triticale
12	M	Apr. 15	Exam 3 – Main Information
	W	Apr. 17	Exam 3 – Calculations
	F	Apr. 19	Irrigation Management, Forage Cocktails & Grass-Legume Mixes
13	M	Apr. 22	Irrigation Management, Blue Grama
	W	Apr. 24	Nitrogen Fixation and Cycling, Buffalograss
	F	Apr. 26	Pasture and Hayfield Fertility, Legume Inoculation
14	M	Apr. 29	Pasture and Hayfield Fertility, Fert. Rates & Organic Fertilizers
	W	May 1	Student Presentations on Simulated Grazing Projects, Field Peas
	F	May 3	Student Presentations on Simulated Grazing Projects, Turnips
15	M	May 6	Principles of Haymaking, Oats
	W	May 8	Ensiling Process and Silage Mgt, Crested Wheatgrass
	F	May 10	Ensiling Process and Silage Mgt, Silage Additives & Wilting Time
	Tu	May 14	Final Exam (7:30 a.m.-9:30 a.m.)

Additional Course Information/Policies

Principles of Community

In this course we strive to follow and extend Colorado State's University's Principles of Community, and welcome spirited discussion, lively debate and pursuit of knowledge in a manner that respects each of us as individuals.

The Principles of Community support the Colorado State University mission and vision of access, research, teaching, service and engagement. A collaborative and vibrant community is a foundation for learning, critical inquiry, and discovery. Therefore, each member of the CSU community has a responsibility to uphold these principles when engaging with one another and acting on behalf of the University.

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

Need Help? Rams Take Care of Rams

Reach out and ask for help if you or someone you know is having a difficult time. Always feel free to come and talk to me; I will always make myself available to help connect you with any resources you need. CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, tell someone by calling 970-491-1350 (or visit <http://safety.colostate.edu/tell-someone.aspx>) to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams take care of Rams.

Title IX: Sexual Assault, Sexual Violence, Sexual Harassment:

CSU's Discrimination, Harassment, Sexual Harassment, Sexual Misconduct, Domestic Violence, Dating Violence, Stalking, and Retaliation policy designates faculty and employees of the University as "Responsible Employees." This designation is consistent with federal law and guidance and requires faculty to report information regarding students who may have experienced any form of sexual harassment, sexual misconduct, relationship violence, stalking or

retaliation. This includes information shared with faculty in person, electronic communications or in class assignments. As “Responsible Employees,” faculty may refer students to campus resources (see below), together with informing the Office of Support and Safety Assessment to help ensure student safety and welfare. Information regarding sexual harassment, sexual misconduct, relationship violence, stalking and retaliation is treated with the greatest degree of confidentiality possible while also ensuring student and campus safety.

Any student who may be the victim of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation is encouraged to report to CSU through one or more of the following resources:

- Emergency Response 911
- Deputy Title IX Coordinator/Office of Support and Safety Assessment (970) 491-1350
- Colorado State University Police Department (non-emergency) (970) 491-6425

Please Visit: <http://oeo.colostate.edu/title-ix-sexual-assault> for more information.

Classroom Etiquette

No animals are allowed in the classroom except those defined in the CSU policy regarding SERVICE animals (see policy below). No emotional support animals are allowed in class.

Please silence your phone and other electronic devices during class.

Please be quiet while in class. It can be difficult to hear in a large classroom and even quiet talking can be very disruptive to other students who are trying to listen.

Please do not read newspapers, text, play games, or listen to music during class. It may not impact your learning experience, but it is distracting to others in the room.

Service Animals in the Classroom

This course will follow all of the policies regarding service animal access to the classroom. The full university policy may be found here: <http://policylibrary.colostate.edu/policy.aspx?id=747>.

POLICY STATEMENT

The University will not discriminate against individuals with disabilities who use service dogs, nor, subject to the terms of this Policy, deny those persons access to programs, services and facilities of the University. In addition, only under certain limited conditions as stated in this policy, the University may permit an individual with a documented disability to have an Emotional Support Animal in a University residential facility. Pets are not permitted in any University building, including residence halls, except for the Veterinary Teaching Hospital and other veterinary facilities in accordance with their rules and policies, or when otherwise specially allowed with advance approval from Environmental Health Services for bona fide academic or University business purposes.

Service Dogs

Subject to some limitations, a service dog may accompany an individual with a disability throughout campus, such as in classrooms, recreational facilities and campus residences. It is strongly encouraged, but not required, that a service dog be identifiable to others through a visible signifier (e.g., vest or harness). Individuals with a disability who require a service dog in the classroom should contact Resources for Disabled Students (RDS) for assistance with accommodations.

Emotional Support Animals

An emotional support animal (ESA) is one that alleviates one or more identified symptoms or effects of a person's disability. ESAs are not permitted in university buildings, except in the rare situation where use of an ESA in University housing is approved in advance by the University upon the submission of appropriate documentation, as set forth in this policy.

ESAs are not permitted in non-residential buildings such as classrooms, laboratories, business offices, recreational facilities, dining halls, or the Lory Student Center; they are limited to the disabled individual's residence in a University residence hall, apartment, or other housing unit, and permitted only with prior approval.

Plagiarism and Academic Integrity

We take the issue of academic integrity very seriously in this course. You are expected to do your own work and to not access notes or the web during an exam, copy from someone else's exam or to provide exam answers to another student during an exam. We reserve the right to proctor all exams and will take actions to ensure that all students are following this policy.

Plagiarism

"Plagiarism includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment. Examples include a submission of purchased research papers as one's own work; paraphrasing and/or quoting material without properly documenting the source" (CSU Policies and Guiding Principles, 2017-2018).

Our motivation for rigorously enforcing a no-plagiarism policy is twofold: First, plagiarism is a form of theft. Taking someone else's words or ideas without attribution is stealing someone else's work. Second, copying someone else's work does not fulfill the purpose of the assignment, which is for you to develop critical thinking and analysis skills. You demonstrate this by presenting your own, new, synthesis and analysis in your writing. Simply copying or paraphrasing from source materials does not demonstrate this, however insightful the source(s) may be. Good writing generates new knowledge. This should be your goal in this class, in other courses at CSU and in your career after you leave here.

In this course, all written work will be spot checked for plagiarism issues by both instructors and originality checking software such as VeriCite. If you are caught plagiarizing materials you will receive a 0 for the assignment/exam/project, and depending upon the severity of the offense, an F in the course. All examples of plagiarism or academic dishonesty will be reported to the Office of Conflict Resolution and Student Conduct Services for additional disciplinary action as outlined in the student handbook under the heading "Academic Integrity/Misconduct" (<http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/>).

Academic Integrity

This course will adhere to the Academic Integrity Policy {Section 1.6} of the Colorado State University General Catalog, the Student Conduct Code, and University Principles of Community.

Please refer to The University Principles of Community and plagiarism policy found above in this syllabus. Links to the Student Conduct Code and General Catalog are as follows: <https://resolutioncenter.colostate.edu/wp-content/uploads/sites/32/2018/08/Student-Conduct-Code-v2018.pdf> and <http://www.catalog.colostate.edu/>.

Canvas Email System Utilization

Using the University's systems or networks for personal gain; for example, by selling access to your eID or to university systems or networks, or by performing work for profit with university resources (e.g. selling your notes or promoting a personal agenda) in a manner not authorized by the University is strictly forbidden within the CSU Code of Conduct and also CSU's policy for Acceptable Use for Computing and Networking Resources. All cases of this type of code violation will be reported to the Office of Conflict Resolution and Case Management and dealt with following CSU legal counsel guidance.