

AN336
Advanced Dairy Nutrition
3 Credits

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AN336 Version: 1



Advanced Dairy Nutrition

Calendar Description

This course evaluates various feedstuff, nutrients and diets which are essential to ensure that animals achieve optimum production and health throughout their lives. Animal behavior with respect to feeding, feeding systems and metabolic diseases are also discussed.

Rationale

This is a required course for the Dairy and the Livestock Science majors of the Animal Science Technology program for second year students. Nutrition and nutritional management are key components of a successful dairy operation.

Prerequisites

AN 330

Co-Requisites

None

Course Learning Outcomes

Upon successful completion of this course, students will be able to

1. identify, assess, and evaluate various feedstuffs for nutrient content and suitability in a dairy ration.
2. recommend plant types, ideal harvest times and methods, and storage of harvested feed for silage and dry forages to be incorporated into a dairy ration.
3. describe ideal bunk management protocols to ensure maximal and optimal dry matter intake in a dairy herd.
4. assess and evaluate feeding behaviour to identify and troubleshoot health or production issues in the herd.
5. outline the advantages of a total or partial mixed ration on rumen health and nutritional consistency.
6. identify and describe common feeding systems used in the dairy industry.

7. describe feeding strategies for a dairy calf, including delivery of colostrum, milk feeding, and solid feed.
8. discuss feeding strategies for a dairy heifer from weaning until calving.
9. discuss the changing nutrient requirements of dairy cattle as they progress through the lactation cycle.
10. outline practical feeding strategies to optimize growth, production, and reproductive success in a dairy herd.
11. describe the specific nutrient requirements and nutritional management required by a dry cow.
12. identify, prevent, and/or treat common metabolic disorders arising in dairy cattle.
13. discuss the importance of working with a dairy nutritionist to optimize the nutrition of the dairy herd, reduce costs, and improve efficiency and profitability.
14. identify strategies to monitor and improve farm profit through changes to nutrition.

Resource Materials

Required Textbook(s):

Hutjens, M. (2018). *Feeding guide. Hoards dairyman* (4th ed.). Fort Atkinson, WI, USA: W.D. Hoard & Sons Company.

Reference Textbook(s):

Subcommittee on Dairy Cattle Nutrition, Committee on Animal Nutrition, Board on Agriculture and Natural Resources, National Research Council. (2001). *Nutrient requirements of dairy cattle* (7th ed.). Washington, DC: National Academy Press.

Kaulbars, C., & King, C. (2004). *Silage manual*. Edmonton, Alberta: Alberta Agriculture, Food and Rural Development. Her Majesty the Queen in Right of Alberta.

Conduct of Course

This course consists of approximately 3 hours of lecture per week. Some of these lectures are ration formulation applications, completed in the computer lab or practical applications completed in the Dairy Learning Center.

Evaluation Procedures

Assignments/Quizzes	40%
Ration Formulation	15%
Midterm Exam	20%
Final Exam	<u>25%</u>
TOTAL	100%

Lakeland College is committed to the highest academic standards. Students are expected to be familiar with Lakeland College policies related to academic conduct and academic honesty and to abide by these policies. Violations of these policies are considered to be serious and may result in suspension or expulsion from the College.

Grade Equivalents and Course Pass Requirements

A minimum grade of D (50%) (1.00) is required to pass this course.

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.

Attendance

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports, therefore absenteeism is recorded.

- a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours can be required to withdraw and would then automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade).
- b. An excused absence is one that is verified with your instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another instructor regarding a field trip or other activity, or authorization by your instructor following an in-person meeting. Be sure to contact your instructor and ask what they will require from you as verification for each absence. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

It is the students' responsibility to know their own absentee record.

Normal hours are 8:30 a.m. to 6:30 p.m., with potential for evening courses, exams or extended field trips. Students are expected to be available for classes during these times.

Course Units/Topics

1. Feed Ingredients and Evaluation
2. Forage Production
3. Feed Bunk Management and Behaviour
4. Feeding Systems
5. Young Stock Nutrition
6. Transition and Lactating Cow Nutrition
7. Dry Cow Nutrition
8. Metabolic Disorders
9. Nutritionists and Farm Profits



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