University of Zagreb Faculty of Agriculture
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Sheep and goats nutrition (296573)

Course coordinator

Prof. Goran Kiš, PhD

Course description

In the introduction to the module, students are introduced to the anatomical-physiological and nutritional peculiarities of ruminants as well as differences between, sheep and goats in the manner of utilization of nutrients and feed. Feeding the sheep includes knowledge and correctness determining food intake and nutritional requirements, and methods of their calculation. The properties of food for sheep and goats, through their evaluation (chemical composition, digestibility, energy value, consumption) as the basis for the settlement of nutritional requirements. Peculiarities of forage continental, mountain and coastal Croatian and methods of their use as food for sheep and goats. Feeding methods of preventing metabolic disorders and environmental pollution, and the food effect on the change in the composition and quality of milk and meat, and their derivatives. The use of nutritional legality in meeting the needs in preparing meals and feed mixtures according to stages of production. In feeding the cubs learn to be nutritional requirements, composition and nutritional value of food for calves (colostrum, milk, milk substitutes and supplements) and how they are feeding. The growth of the animals as the basis of applied nutrition breeding offspring and meat production. The feeding of sheep and goats will focus on grazing and browsing as a source of nutrients, and how their amendments mighty stern. Details will be studied nutritional requirements of sheep and goats in milk and meat production in extensive production conditions, ie, during the scarcity of food and water as well as the nutritional management of sheep and goats Mediterranean region.

ECTS: **6.00**

E-learning: **L1**

Teaching hours: 60
Lectures: 40
Auditory exercises: 4
Laboratory exercises: 8
Seminar: 8

Lecturer

- Prof. Goran Kiš, PhD

Associate teacher for exercises

- Prof. Goran Kiš, PhD

Grading

Sufficient (2): 50-59 %
Good (3): 60-79 %
Very good (4): 80-89 %
Excellent (5): 90-100 %

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Type of course

- Graduate studies / MS Courses taught in English (Elective course, 1 semester, 1 year)

General competencies

After completion of the Module, students will be able to build independently their knowledge by using information technology, applying knowledge in practice and working independently or in a team. The aim of this module is to provide students with the knowledge, skills and competencies for independent management of the feed management in sheep and goats. The choice of feed management, according to the available sources of feedstuffs with the aim of optimizing production, animal health and the economic competitiveness of the production in accordance with the desired product quality. Furthermore, student's competences will be to choose a way of sheep or goats production in accordance with the availability of natural resources of feed in order to increase profitability and/or environmental sustainability.

Types of instruction

- Lectures
- Auditory Exercises
  Calculating nutritional requirements and nutritive values of feedstuffs for sheep and goats. Practical calculating of compound feeds and rations for sheep and goats..
- Seminars
  The seminar related to the characteristics of feeding sheep and goats. Students independently prepare a final project in which they analyze complete nutritional management in sheep and goats production.

Learning outcomes

Learning outcome	Evaluation methods
Explain special features of anatomically-physiological characteristics of sheep and goats.	Written or oral
Identify biological role, the required amounts, signs of excess and lack of nutrients in the feeding of sheep and goats.	Written or oral
Identify the types of feed materials according to their nutrition for sheep and goats.	Written or oral
Calculating assess the needs of sheep and goats for energy, protein, amino acids, minerals and vitamins from the basic information about the animal.	Written
Calculating evaluate nutritional feeding of sheep and goats.	Written
Recognize the impact of nutrition on the well-being (health), animals and the environment.	Written or oral
Create meals for all types and categories of sheep and goats, depending on the production process.	Written

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Working methods

Teachers' obligations

• Lectures and auditory exercises.
• Assistance in the preparation of seminars and possible, graduate theses.

Students' obligations

• Participation in teaching.
• Preparation and presentation of a seminar paper.
• Design and oral exam.

Methods of grading

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Total number of average student workload	ECTS
Adoption of program content – Partial exam I	30%	up to 49 50-59 60-79 80-89 90-100	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)	12	30	0.5
Adoption of program content – Partial exam II	30%	up to 49 50-59 60-79 80-89 90-100	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)	14	30	0.5
Writing a seminar paper	10%	up to 49 50-59 60-79 80-89 90-100	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)	2	10	0.5
Final project	30%	up to 49 50-59 60-79 80-89 90-100	Insufficient (1) Sufficient (2) Good (3) Very good (4) Excellent (5)	2	20	1
Continuous attendance of lectures				0	0	0.5
Total	100%			30	90	3

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Evaluation elements	Description	Deadline	Recoupment
Writing a seminar paper	Seminar is conducted in groups of 2-3 students and for students is mandatory. Seminar topics are related to the feeding of sheep and goats, depending on the preferences of the student. After making seminar presented the theme with a public presentation during class.	Within lectures	At the regular examination periods.
Final project	The final project performed each student individually and for the students is mandatory. The theme of the final project is the development of complete management of feeding sheep or goats. It is expected that an independent processing threads.	The last lecture	At the regular examination periods.
Continuous attendance of lectures	Arrival of students to classes is checked and a condition for obtaining signatures and approach to the exam.	The last lecture	Not possible.

Weekly class schedule

1. Introduction – Characteristics of sheep and goats nutrition
2. Anatomy and physiology of sheep and goats
3. Nutrients in sheep and goats nutrition
4. Nutritive requirements of sheep and goats
5. Feedstuffs in sheep and goats nutrition
6. Evaluation of sheep and goats feedstuffs.
7. Feeding of sheep and goats breeding heard and offspring.
8. Feeding of sheep and goats in milk production
9. Feeding of sheep and goats in meat production (optional).
10. Influence of nutrition on sheep and goats milk and milk products.
11. Compound feed formulation for sheep and goats.
12. Diet formulation for sheep and goats.
13. Feeding of sheep and goats in the Mediterranean.
14. Seminars
15. Project presentation and oral exam

Obligatory literature

1. M. Freer and H. Dove (2002): Sheep Nutrition, CABI Publishing
2. A. Cannas and G. Pulina (2007): Dairy Goats, Feeding and Nutrition, CABI Publishing
3. Internal Materials

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Recommended literature

1. National Research Council (2007):Nutrient Requirements of Small Ruminants: Sheep, Goats, Cervids, and New World Camelids, National Academies Press
2. G. Pulina (2004) Dairy Sheep Nutrition, CABI Publishing
3. W. G. Pond, D. C. Church, K. R. Pond and P. A. Schoknecht (2004): Basic Animal Nutrition and Feeding, Wiley

Similar course at related universities

- Reja drobnice, Univerza v Ljubljani Biotehniška fakulteta, Slovenia
- Piccoli ruminanti: nutrizione e qualità dei prodotti, Universita degli studi di Milano, Italy
- Pratica dell´allevamento caprino, Universita degli studi di Milano, Italy

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