

Animal Production

Code: 102624
ECTS Credits: 5

Degree	Type	Year	Semester
2502445 Veterinary Medicine	OB	3	2

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

Ana Cristina Barroeta Lajusticia
Ramón Casals Costa
Alfred Ferret Quesada
Josep Gasà Gasó
Antoni Graupera García
Jordi Bartolomé Filella
Ricard Pares Casanova

Prerequisites

There are no established official prerequisites, but the student must use the knowledge acquired in Bases of Animal Production and Management, Ethnology and Ethology, Agronomy and Agricultural Economics and Animal Nutrition.

Objectives and Contextualisation

The objectives of Integrated Animal Production II are:

- Make known the productive factors that most affect the production and quality of meat from slaughter animals
- Introduce the key factors of the organization and management of the agricultural enterprise

The specific training objectives of Integrated Animal Production II are:

- Understand the key factors that mark, now and in the future, the production of meat
- Know the meat production sector, as well as its location
- Understand the productive factors that affect the production and quality of meat obtained from slaughter animals
- Know the characteristics and operation of the economic unit of production

- Know how to calculate costs and profitability indicators of the company and assess the impact of productive and organizational decisions on the economic performance of the company
- Analyze business activity in relation to strategy, financial and investment management, and the production and supply process

Competences

- Analyse, synthesise and resolve problems and make decisions.
- Demonstrate knowledge and understanding of structural and functional disorders of the animal organism.
- Demonstrate knowledge and understanding of the aspects of organisation, finance and management in all fields of the veterinary profession.
- Handle the correct protocols and technologies used to modify and optimise different animal production systems.
- Properly evaluate the nutritional status of animals and know how to advise others on breeding and feeding principles.

Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply physiological knowledge to production objectives.
3. Describe the basic principles of pasture and animal fodder.
4. Evaluate feeding programs: Know how to assess the main methods of animal fodder preparation, conservation and administration.
5. Evaluate the quality of products of animal origin.
6. Evaluate the technical and economic indexes of a farm: recognise problems and offer solutions.
7. Formulate rations for animals in the most conventional situations.
8. Identify and evaluate the factors that affect the production of products of animal origin.
9. Identify cost calculation systems, the different entries and their practical uses.
10. Identify the different stages of livestock production cycles.
11. Identify the different types of business organisation.
12. Identify the production systems of different domestic species, integrating physiological and economic knowledge.
13. Locate and identify the main producers of foodstuffs of animal origin, as well as their economic dimension.
14. Recognise the basic characteristics of the different stages of livestock production cycles and how they function.
15. Use correct and suitable financial terminology.
16. Use current feeding systems: Know how to obtain the nutritious value of foodstuffs and calculate animals nutrition requirements.

Content

THEORY (26h)

Introduction

1. Introduction (2h)

Meat consumption from an anthropological perspective. Use, abuse and taboo in meat consumption. Future challenges for meat production: Sustainable Development Goals (SDGs).

2. The production sector (1h)

Global meat production, covering the EU, Spain and Catalonia. Meat consumption. International trade.

Meat characteristics

3. Structural composition of meat (1h)

Definition of product and structural composition. Muscle fibres: types, number and diameter. Adipose tissue and body distribution.

4. Chemical composition of meat (1h)

Definition of meat quality parameters. Chemical composition of meat. Nutritive value of meat: energy, protein, lipid content, minerals and vitamins. Production factors affecting the chemical composition of meat.

5. Organoleptic quality of meat (1h)

Organoleptic characteristics of meat. Appearance, tenderness, juiciness and flavour. Production factors affecting the organoleptic characteristics of meat.

Growth and development

6. Growth and development (1h)

Concepts of growth and development. Growth and its measurement. Development and its measurement.

7. Animal factors affecting growth and development (1h)

Pre- and postnatal periods. Age effect. Sex effect. Genetic factors. Hormonal factors.

8. Environmental factors affecting growth and development (1h)

Effect of environmental conditions. Feeding effect. Compensatory growth.

Feeding meat-producing animals

9. Feeding in swine (2h)

Feeding and pig farming. Economic and environmental significance. Feeding sows. Feeding pigs during transition and fattening.

10. Feeding in poultry (2h)

Feeding broilers. Nutrition and feeding of broiler breeders. Feeding turkeys. Feeding other types of poultry.

11. Feeding in ruminants (1): Pasture-based meat production (2h)

Meadows and pastures. Typologies. Pastoral value. Plant-herbivore relation. Livestock load and livestock load capacity. Factors affecting diet choice. Techniques for determining diet quality and composition.

12. Feeding in ruminants (2) (1h)

Feeding cow herds. Feeding sheep flocks.

13. Feeding ruminants (3) (1h)

Feeding young beef cattle. Feeding lambs.

Financial management of livestock farming

14. The company as productive unit (1h)

The company as a system. Company organization. Business strategy. Management process. Aims and decision-making. Information and communication systems.

15. Resource management in livestock farming (2h)

Typology and classification of costs. Cost calculation. Amortization cost. Break-even point.

16. Profit and loss account and profitability in livestock farming (1h)

Analysis of different profit margins. Profit. Net margin. Other profitability indicators.

17. Financial and economic profitability (1h)

Key factors of profitability: margin and turnover. Effect of financial leverage.

18. Financial evaluation of livestock farming investment (1h)

What is investing? Aspects that define an investment. Methods of evaluating and choosing investments.

Obtaining carcasses

19. Transport and slaughter (1h)

Transport to the abattoir and lairage of animals and implications for meat quality. Slaughter chain: from stunning to carcass storage. Halal and Kosher slaughter.

20. Carcass and performance (1h)

Specific definition of carcass. Dressing percentage. Factors affecting dressing percentage. Carcass components.

21. ***In vivo*** estimation of animal composition and post-mortem classification(1h)

In vivo estimation of animal composition. Post-mortem evaluation of carcasses. Carcass classification.

PRACTICAL TEACHING SESSIONS (18h)

Growth measurement (1.5h)

Development measurement: allometric coefficient (1.5h)

Formulation of concentrates for sows and pigs (2h)

Formulation of concentrates for broiler breeders and broilers (2h)

Formulation of concentrates for beef cattle and lambs (2h)

Costs and profitability of a livestock company (2.5h)

Seminar on financial management of a livestock company (1.5h)

Seminar on outcomes of concentrate-formulation case studies (1h)

Financial evaluation of livestock farming investments (2h)

In vivo evaluation of farm animals (2h)

SELF-LEARNING (30h)

Study project on growth indexes (10h)

Case study of concentrate formulation (10h)

Production costs in a livestock farm (10h)

Methodology

The methodology of learning used is to offer the student structured information that allows him to get the knowledge on the subject that will allow him to apply it, immediately in the execution of the practical activities and in the resolution of the cases that will be posed to him and, in the future, in the development of their professional activity. To achieve this, you must follow the following activities:

Master class with which the student will acquire the scientific knowledge in the subject, which may be supplemented with recommended readings and with the practical and autonomous work proposed.

Practical teaching sessions in which the student must apply the theoretical knowledge acquired in the lectures. The practices will be divided into:

1. Computer classroom practices in which the student will learn to use real data to calculate growth and development rates of animals, to formulate feed for slaughter animals and to calculate production costs of an agricultural company
2. Farm practice in which the student will learn to make an in vivo evaluation of slaughter animals
3. Seminar on financial management of an agricultural company
4. Seminar for the resolution of the feed formulation case

Self-learning work in which the student must solve the practical cases. The student must solve 3 cases. In the first one, the student will work with data collected in farm to calculate different technical indexes. In the second, the student must solve a case of formulation of animal feed. In the third, the student must calculate the production costs of a livestock farm.

The teaching material used, presentations in the classroom, practice guide and self-learning, will be available on the Moodle Classrooms platform.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Computer classroom practices	13.5	0.54	7, 16
Farm practice	2	0.08	2
Master classes	26	1.04	2, 4, 3, 11, 9, 12, 8, 10, 13, 14, 15, 5
Seminar for the resolution of the case	1	0.04	1, 7, 16
Seminar on financial management	1.5	0.06	11, 9, 15
Type: Autonomous			
Self-learning work	30	1.2	1, 2, 6, 4, 7, 11, 9, 16, 15
study	49	1.96	2, 3, 11, 9, 12, 8, 10, 13, 14, 15, 5

Assessment

The evaluation of the subject will be done as follows:

Exam of the theoretical contents (50% final grade) and practical (11% final grade) of the subject at the end of the course. In the part of the exam corresponding to theory you must take a grade equal to or higher than 4 to be able to make average with the remaining grades.

Resolution of cases, each case will represent 13% of the final grade.

To pass the course requires not miss more than 2 of the 10 sessions of practical activities, solving the 3 cases raised and achieve the set of all evaluation activities, a final grade equal to or greater than 5.

At the end of the semester there will be a recovery test.

It will be considered not presented the student who does not take the exam.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exam	61%	2	0.08	2, 6, 4, 3, 11, 9, 12, 8, 10, 13, 14, 15, 5
Resolution of cases	39%	0	0	1, 6, 7, 11, 9, 16, 15

Bibliography

PRODUCCIÓN DE CARN

Cañeque V., Sañudo C., 2000. Metodología para el estudio de la calidad de la canal y de la carne en rumiantes. Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria. Ministerio de Ciencia y Tecnología. Madrid.

Cañeque V., Sañudo C., 2005. Estandarización de las metodologías para evaluar la calidad del producto (animal vivo, canal, carne y grasa) en los rumiantes. Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria. Ministerio de Educación y Ciencia. Madrid

Encyclopedia of meat sciences: www.sciencedirect.com/science/referenceworks/9780124649705

FEDNA: www.fundacionfedna.org

Grandin T., 2007. Livestock handling and transport (3rd edition). CABI Publishing, Wallingford, UK.

Gregory N. G., Grandin T., 2007. Animal welfare and meat science (2nd edition). CABI Publishing, Wallingford, UK.

INRA 2007. Alimentation des bovines, ovins et caprins: Tables INRA 2007. Quae editions, Paris, France.

Lawrence T.L.J., Fowler V.R., Novakofski, 2012. Growth of farm animals (3rd edition), CABI Publishing, Wallingford, UK.

Everts M.E., Haagsman H.P., te Pas M. F. W., 2004. Muscle development of livestock animals, CABI Publishing, Wallingford (UK).

NRC 1994. Nutrient requirements of poultry. National Academy Press, Washington, D.C., USA

NRC 1998. Nutrient requirements of swine. National Academy Press, Washington, D.C., USA

NRC 2000. Nutrient requirements of beef cattle. National Academy Press, Washington, D.C., USA

NRC 2007. Nutrient requirements of small ruminants. National Academy Press, Washington, D.C., USA

Swatland H. J.,1991. Estructura y Desarrollo de los Animales de Abasto. Ed. Acribia, Zaragoza.

Warriss P.D., 2009. Meat Science (2nd edition), CABI Publishing, Wallingford (UK).

ECONOMIA

Alonso Sebastián R., Serrano Bermejo A. 2008. Economía de la empresa Agroalimentaria. 3ª Ed. Mundi-Prensa

Alonso Sebastián, R. 1991. Los costes en los procesos de producción agraria. Mundi-Prensa.

Ballesteros,E. (2000. Economía de la empresa agraria i alimentaria. 2ª Ed. Mundi-Prensa Libros.

Juliá J.F., Server R.J. 1996. Dirección contable y financiera de empresas agroalimentarias. Ed. Pirámide

Romero C.1998. Evaluación financiera de inversiones agrarias. Mundi-Prensa Libros