Universitat de Lleida

DEGREE CURRICULUM

PIG PRODUCTION

Coordination: BLANCO PENEDO, MARIA ISABEL

Academic year 2023-24

PIG PRODUCTION 2023-24

Subject's general information

Subject name	PIG PRODUCTION
Code	102555
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION
Typology	

Degree	Course	Character	Modality
Bachelor's Degree in Agricultural and Food Engineering	3	COMPULSORY	Attendance-based

Course number of credits (ECTS)	6
Type of activity, credits, and groups	

Activity type	PRAULA	TEORIA
Number of credits	3	3
Number of groups	1	1

Coordination	BLANCO PENEDO, MARIA ISABEL
Department	ANIMAL SCIENCE
Teaching load distribution between lectures and independent student work	Horas presenciales: 60 Horas no presenciales: 90
Important information on data processing	Consult this link for more information.
Language	English:100%

PIG PRODUCTION 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
ARGEMI ARMENGOL, IMMACULADA	immaculada.argemi@udl.cat	5	
BLANCO PENEDO, MARIA ISABEL	isabel.blancopenedo@udl.cat	1	
LOPEZ ROMERO, PEDRO	pedro.lopez@udl.cat	1,2	

Learning objectives

This course belongs to the third year of the Degree in Agriculture and Food Engineering. The student will carry out an integrated approach to earlier knowledge in animal science (2nd year course on introductory animal science) to swine farming.

Objectives and learning outcomes
-Understand the importance and characteristics of the different swine breeds and crossbreds.
-Apply the physiological basis and the guidelines of handling of the animals in each production phase.
-Apply nutritional and housing requirements according to physiological phase and genetics.
-Analyze the feed formulation and design of nutritional strategies to improve carcass and meat quality.
-Design and planning of swine farms.
-Evaluate the environmental and welfare requirements of the animals.
-Assess the technical, economic and social implications released by the different swine production systems.

Competences

At least the following core competencies shall be ensured: CB1. That the students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, while it is supported by advanced textbooks, it also includes some aspects that involve knowledge from the forefront of your field of study. CB2. That students know how to apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study. CB3. That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant issues of a social, scientific or ethical nature. CB4. That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences. CB5. That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy. CG1. Capacity for the previous preparation, conception, drafting and signing of projects that have as their object the construction, reform, repair, conservation, demolition, manufacture, installation, assembly or exploitation of movable or immovable property that by its nature and characteristics are included in the technique of agricultural and livestock production (facilities or buildings, farms, infrastructures and rural roads), the agri-food industry (extractive, fermentation, dairy, canning, fruit and vegetable, meat, fishing, salting industries and, in general, any other dedicated to the elaboration and / or transformation, conservation, handling and distribution of food products) and gardening and landscaping (urban and / or rural green spaces –parks, gardens, nurseries, urban trees, etc.–, public sports facilities or private areas and environments subjected to landscape restoration). CG6. Ability to direct and manage all kinds of agri-food industries, agricultural and livestock farms, urban and / or rural green spaces, and public sports areas or private, with knowledge of new technologies, quality, traceability and certification processes and marketing and commercialization techniques for food products and cultivated plants. CG7. Knowledge in basic, scientific and technological subjects that allow continuous learning, as well as an ability to adapt to new situations or changing environments. CG8. Ability to solve problems with creativity, initiative, methodology and critical reasoning. CEEA1. Ability to know, understand and use the principles of: Animal production technologies. Animal anatomy. Animal physiology. Animal production, protection and husbandry systems. Animal production techniques. Genetics and animal breeding.

Subject contents

Lectures (30 hours) Lesson 1. Production context (2 h). Pig farming in the world, European Union, Spain and Catalonia. Swine breeds and husbandry systems. Types of swine production farms and enterprises. Selecting breeding stock and sires. Iberian production systems. Lesson 2. Reproduction management (4 h). Swine handling. Breeding sow and boar management. Breeding systems. Farrowing management. Processing Procedures for neonatal piglets. Handling and management of swine. Castration methods. Welfare aspects. Lesson 3. Nutrition (4 h). Nutrient assessment. Precision livestock feeding systems. Nursery and Finishing feeding strategies. Pregnant and lactating sow feeding practices. Lesson 4. Animal welfare and product quality (10 h). Transportation, loading, lairage and slaughter procedures to assure animal welfare. Management and behavior of pigs at the slaughterhouse. Stunning methods. Mobile abattoir concept. Killing-out proportion and carcass grading systems. Wholesale cuts. Factors affecting carcass and meat value and defects. Assessment of

basic technological pork meat attributes. Lesson 5. Swine housing requirements (6 h). Minimum standards for the protection of pigs (European Union Regulations). On-farm welfare protocols assessment. Swine production facilities. Environmental stressors. Managing manure from swine operations. Mortality management. Best available techniques reference document (BREF). Lesson 6 Benchmarking (4 h). Technical performance herd data. Case studies in sow farms and finishing farms. Cost of production assessment. Practice activity (30 hours) • Swine production in South-America (2 hours). • Case scenario from a farm stud. Semen evaluation and breeding dose elaboration (2 hours). • Least cost feed formulation by linear programming through Solver. Case scenarios in sows and growing pigs (4 hours). • Societal issues regarding welfare of pigs (2 hours). • On-farm factors affecting dry-cured ham production (2 hours). • Field trips to analyze sow and growing-finishing pig farms and welfare (10 hours). • Design of swine farms. Batch constraints and accommodation requirements (4 hours). • Environmental compliance. Case study from farm visits (2 hours). • Calculation and analysis of technical performance data (2 hours).

Methodology

Learning activities

Type	Description	Attending time	Homework time	Total	
		Hours	Hours	Hours	ECTS
Lecture	Flipped classroom, case study	**30**	**50**	**80**	**3,0**
Practice assignments	Seminar, computer tools, problem-based learning, oral discussion	**30**	**40**	**70**	**3,0**
TOTAL		**60**	**90**	**150**	**6**

Each ECTS credit equals to 25 hours.

Development plan

All sessions will be held in person, virtually or semi-in person according to the recommendations, regulations or restrictions of the health authorities.

Evaluation

Type of activity

	%	
exam 1 (minimum mark: 3.5 out of 5) (including on-farm industry tours questions)	30	60% score
exam 2 (minimum mark: 3.5 out of 5) (including on-farm industry tours questions)	30	
flipped classroom questionnaires	10	
case study group work report	20	40% score
case study group work presentation	10	

Observations

The evaluation will be passed when the overall mark of the exams is over 5/10 (with a minimum mark of 3.5 in a given activity). The course will be taught and assessed in English. If the students follow the continuous evaluation system, there won't be a second-chance examination.

Bibliography

Coursebook
www.marvin.udl.cat/produccioporcina
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Babot, D. (Ed.), 2008. La gestión técnica de las explotaciones porcinas en Spain. Ed. Ministerio de Medio Ambiente, Rural y Marino, Spain.

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Buxadé, C., Sánchez, R., 2008. El verraco: Claves de su optimización productiva. Ed. Euroganadería, Spain.
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Complementary references

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France.
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Printed news magazines regarding swine production:

Albéitar, Ed. Asisvet, Spain.
ANAPORC, Ed. Asociación Nacional de Porcinocultura Científica, Spain
Avances en tecnología porcina, Ed. Prodive S.A., Spain
Ganadería, Ed. Agrícola, Spain
Mundo Ganadero, Ed. Eumedia, Spain
Suis, Ed. Servet, Spain
Pig Progress, Ed. Reed Business Information, The Netherlands