

## 28430 - Poultry and rabbit integrated Course

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 28430 - Poultry and rabbit integrated Course

**Faculty / School:** 105 - Facultad de Veterinaria

**Degree:** 451 - Degree in Veterinary Science

**ECTS:** 8.0

**Year:** 4

**Semester:** Annual

**Subject type:** Compulsory

**Module:**

### 1. General information

The objective of the subject is that the graduate is able to respond to the needs and requirements of the poultry and rabbit sectors. Spain is one of the most important European countries in the production and consumption of eggs and poultry and rabbit meat; the same is true for the Autonomous Community of Aragon in the national context. It is therefore interesting for students to learn about the breeding methods and health problems of these species with a view to their future professional possibilities.

SDGS

Training is provided to contribute to the achievement of SDGs 2, 3, 12 and 13 of the United Nations 2030 Agenda.

It is necessary to have passed most of the core subjects of years 1, 2 and 3.

### 2. Learning results

- Know and understand poultry and rabbit meat and egg production systems, and their conditions and circumstances.
- Is capable of assessing the health status and welfare conditions of the animals, and establish a critical judgment and proposals for improvement on their housing, feeding conditions, and reproductive and management techniques.
- Is able to recognize the most frequent pathological processes of infectious, parasitic, metabolic origin in these animal species, or those related to the environment, feeding and reproductive and general management normally used and to evaluate and propose the preventive and therapeutic measures applied or applicable.
- Is able to evaluate and establish a critical judgment and proposals for improvement of the productive and sanitary results of the animals.

### 3. Syllabus

CUNICULTURE

THEORETICAL PROGRAM

Situation of the Rabbit Sector. Use of the rabbit. Consumer perception. World production of rabbit meat. Evolution, trade and consumption in the main producing countries. Price evolution. Evolution of farm management and organization. Technical and economic management results. Specific factors involved in the cost of production.

Housing. Basic conditions of rabbit facilities, organization and characteristics. Cage models. Other installations and tooling. Environmental physiology of rabbits: effect of lighting, temperature and ventilation on reproductive and feeding behaviour and health. Environmental bio-stimuli. Biosafety: organization of the periodic sanitary following. Alternative systems.

Reproduction, reproductive management and production results. Objectives. Anatomic-physiologic reminder of the female -cycle- and male -puberty and choice of stallions-. Reproductive rhythms. Control of receptivity and ovulation induction by bio stimulation and hormonal treatments. Semen collection and analysis: collection systems and rhythms, spermogram, dilution-conservation.

Artificial insemination. Labour. Pathological processes: pseudogestation, gestational toxemia, abortion, mastitis. Kits: Lactation, weaning and fattening. Lactation control: protection and bio stimulation. Key factors for optimizing farm performance: prolificacy, fertility, mortality, turnover rate, overstocking rate.

Food. Digestive physiology of rabbits. Peculiarities of the species, needs and limitations: breeders, males, peri-weaning and fattening. Raw materials and their nutritional contribution. Additives and medicinal substances. Form of presentation, handling and forecasting. Transformation index.

Genetic Improvement. Objectives and selection criteria in genetic improvement of meat rabbits. Traits of interest and their genetic parameters. Selection and evaluation of breeding stock in paternal and maternal lines of rabbits. Crossing. On-farm

genetic management.

Infectious Diseases. Myxomatosis. Haemorrhagic viral disease. Respiratory syndrome. Digestive processes: Colibacillosis, Salmonellosis, Enterotoxaemia, Tyzzer's disease, Enteropathy. Other processes: Staphylococcus, Dermatophytosis - ringworm-.

Parasitic Diseases. Digestive processes: Coccidiosis, Cestodosis and Nematodosis. Respiratory processes: Pneumocystosis and Protostrongylidosis. Systemic parasitosis: Encephalitozoonosis, Hepatozoonosis and Larval Cestodosis. Cutaneous parasitosis: Scabies and other arthropods.

Pathological Anatomy. Macroscopic pathological anatomy of the most frequent rabbit diseases.

## PRACTICAL PROGRAM

On farm:

- Critical analysis of the facilities.
- Observation of the healthy animal. Handling male, female and kits. Breeding schedule.
- Replenishment: alternatives and management. Selection farms and multiplication farms: production, management and administration of grandmothers, grandfathers and breeders.
- Evaluation of feedstuffs used on farm by means of a comparative study of commercial labels.
- On-farm sampling to evaluate the incidence of different pathological processes. Behaviour of the sick animal. Collection of carcasses and terminally ill animals for necropsies.
- Insemination: Preparation of insemination material. Manipulation of the receptor. Ovulation induction. Insemination technique. Gestation diagnosis: Method of abdominal palpation
- Biosafety conditions: Dress and footwear. Problems resulting from poor rabbit management.
- Injury assessment.
- Semen collection and preparation of doses, seminal quality tests.

In laboratory/classroom

- Diagnosis of digestive and cutaneous parasitosis in rabbits.
- Resolution of a practical case study previously carried out by the students in non-classroom learning.

## POULTRY

### THEORETICAL PROGRAM

Economics of poultry production. Structure and productive organization of the poultry meat production sector. Census, production, marketing and consumption. Production costs. Recent trends and future prospects. Structure and productive organization of the egg production sector. Census, production, marketing and consumption. Production costs. Recent trends and future prospects.

Avian genetics. Base breeds of commercial hybrids. Qualitative characteristics of application in production. Quantitative characteristics: Heritability and correlations. Methodology of genetic selection in poultry farming. Genetic progress achieved. Current problems derived from genetic selection. Choice of commercial hybrids.

Poultry production.

Breeding of broiler and layer breeders. Dietary restriction: Fundamentals and control. Environmental needs. Facilities and equipment.

Management of adult breeders. Separate feeding by sex. Environmental needs. Facilities and equipment. Prevention of soil laying.

Fertility and hatchability. Variation and control factors. Handling and hygiene of the hatching egg before it enters the machine.

Artificial incubation. Necessary environmental conditions. Types of incubators and hatchers. Process control. Chick handling.

Broiler breeding: Basic objectives. Fattening phases. Facilities and equipment. Farm management and hygiene. Necessary controls.

Broiler breeding: Environmental needs and their control. Insulation, heating, ventilation

Broiler breeding: Heat stress, consequences and solutions. Refrigeration. Integrated climate control. Lighting programs. Population density: Productive and sanitary consequences, legal regulations.

Broiler breeding: Pre-slaughter handling. Channel quality and factors affecting it.

Breeding of future layers: Basic objectives. Phases of breeding. Facilities and equipment. Farm management and hygiene. Necessary controls. Peak treatment: Rationale, methodology, consequences, legal regulations.

Breeding of future layers: Effects of rearing conditions on subsequent production. Feeding management. Control of sexual maturity. Lighting programs.

Breeding of commercial laying hens. Basic objectives. Phases of the production cycle. Installations and equipment; legal regulations. Farm management and hygiene. Necessary controls.

Breeding of commercial laying hens. Egg formation process: practical applications in management and nutrition. Egg quality and variation factors. Induced molting. Egg collection, grading and packing.

Extensive systems in poultry farming. Free-range hens, free-range chickens and free-range chickens. Differences in production and management. Facilities and equipment. Organic poultry farming.

Other avian species: Breeding of turkeys, ducks and quail. Hunting birds. Productions, basic handling, facilities and equipment.

Poultry Nutrition and Feeding. Brief review of digestive physiology. Eating behaviour. Raw materials in poultry feed. Choice ingredients, non-conventional ingredients and additives. Feed presentation and particle size. Nutritional requirements (energy, PB/amino acids, intake) and factors influencing these requirements

Feeding of breeders. Nutritional needs. Meal plan: Breeding, laying and males.

Feeding of laying hens. Nutritional needs. Feeding plan for pullets in rearing and rearing. Layer feeding plan by production phases. Effects of feeding on egg quality.

Broiler feeding. Nutritional needs. Feeding plan according to growth stage. Effects of feeding on the quality of chicken meat.

Feeding in alternative poultry farming. Feeding of free-range chickens. Feeding of free-range and organic hens. Turkeys.

Avian Reproduction. Anatomic-physiological recollection of the reproductive system in males and females. Reproductive activity. Hormonal regulation. Reproductive behaviour. Artificial insemination in species of productive interest. Reproductive pathology (prolapse, low fertility, etc.)

Medical Pathology. Metabolic diseases: Ascites, sudden death syndrome, fatty liver syndrome. Leg problems: Valgus, varus, tibial dyschondroplasia, spondylolisthesis, etc. Pathology of nutrition

Infectious Diseases.

Avian influenza. Newcastle disease Infectious bronchitis (including variant strains)

Laryngotracheitis. Diphtherovirus

Pasteurellosis. Coryza. Swollen head syndrome (TRT). Aspergillosis. Mycoplasmosis. Ornithosis-Psittacosis. Marek's disease. Avian Leukosis

Gumboro disease. Proventriculitis. Infectious anemia. Colibacillosis. Salmonella infections. Clostridiosis. Necrotic enteritis

Layer drop syndrome. Viral hepatitis Avian encephalomyelitis. Reovirus.

Parasitic Diseases.

Parasitosis of the digestive tract: coccidiosis, histomonosis, trichomonosis, ascaridiasis, heterakiosis, trichostrongylosis, cestodosis.

Parasitoses of the respiratory tract: syngamosis Cutaneous parasitoses: dermanisosis, scabies

## PRACTICAL PROGRAM

On farm:

- Evaluation of the biosecurity conditions of the facility and handling. Hygiene and disinfection. Critical analysis of the facilities.
- Evolution of the environmental needs of broilers. Environmental control, programming. Evolution of poultry management. Signs of health and disease. Mortality and causes (necropsies). Evaluation of animal welfare. Control and follow-up of technical results.
- Sanitary sampling methods: Swabs, blood collection, etc. On farm.

In the necropsy room:

- Practice of necropsy on field cases. Anatomic-pathologic diagnosis.

In laboratory/classroom:

- Embryodiagnosis and embryonic development, incubation conditions, quality of the newly hatched chick.
- Evaluation of egg quality and variation factors, practical examples.
- Microbiological and serological diagnosis applied to field cases. Diagnosis of enteric and cutaneous parasitosis in poultry.
- Vaccination methods. Evaluation of vaccination programs and serological results. In the classroom
- Differential diagnosis of the most frequent lesions in broilers, layers, breeders and other poultry species of productive interest. In the classroom.
- Strategies for solving production and management problems. Practical examples. Ingredients and formulation of poultry rations.
- Strategies for the resolution of practical clinical cases.
- Presentation and discussion of real clinical cases, previously performed by the students in non-classroom learning.

## 4. Academic activities

- Theoretical lectures by teachers supported by complementary material in the ADD (Anillo Digital Docente) to encourage prior study and class participation by students.
- On-farm, necropsy room and laboratory practices, to achieve students' mastery of practical skills essential for acquiring the corresponding professional competencies.
- Discussion and resolution of real zootechnical and clinical cases, in order to increase their ability to analyse and solve frequent problems in professional practice, including the search for relevant information. Part of them will have to be

solved and publicly presented by the students themselves.

## 5. Assessment system

The subject is passed with a grade equal to or higher than 5 out of 10, as a combination of the written exam (70%) and the continuous assessment (30%).

At the end of the first four-month period there will be a midterm written exam (Cuniculture). The second midterm exam includes the subject of Poultry Farming and will be held at the end of the second four-month period. Each of these exams consists of theoretical and practical contents related to Production and Health at 50%, respectively, including short answer, multiple-choice or true-false questions. In questions associated to chance, wrong answers will be penalized, applying the formula  $1/n-1$ .

Rabbit farming and poultry farming are independently assessed and passed. Each exam is passed with a 5 out of 10, being necessary to obtain at least 40% of the possible points in each of the sections (Production and Health).

The grades obtained in the sections will be kept during the same academic year.

This option includes:

- Resolution of practical cases in class 6%
- Resolution of practical cases carried out in teams and their presentation 16%
- Attendance to practices, seminars and a positive and participative attitude in class 8%

Students who have not attended a minimum of 85% of the classroom practices must also take a specific exam on the contents of those practices not completed.