



## Objectives

Animal nutrition is an essential element of livestock production. It is estimated that the cost of feeds represents over 50 % of the total expenses of livestock production systems. Besides being a major economic cost, animal nutrition also has a direct impact on production performance, animal welfare, safety and quality of animal-derived products and the environment. Thus, it is important to count on experts able to develop nutrition and feeding programmes for a profitable and sustainable livestock production. Similarly, research on this topic is essential in order to find new methods to increase efficiency in livestock production systems.

The main objective of this Master is to train experts able to assume technical responsibilities and to develop high-impact research in the field of animal nutrition and feeding.

Specific objectives of this Master are to provide:

- an understanding of the scientific basis and fundamental mechanisms of modern animal nutrition;
- knowledge to characterize different feed categories and their nutritional composition and to implement feed safety control methods;
- criteria and skills to integrate different components of an animal nutrition programme in a variety of livestock species;
- experience for planning and developing experimental procedures to test innovative ingredients or feeding programmes;
- skills to manage and discriminate available scientific and technical information on nutrition-related topics;
- ability to communicate findings, reasoning and conclusions of research work through written reports and oral communication.

## Organization

The Master is organized by the Mediterranean Agronomic Institute of Zaragoza (CIHEAM Zaragoza) of the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) and the University of Zaragoza (UZ), with the collaboration of the Polytechnic University of Madrid (UPM) and the Spanish Foundation for the Development of Animal Nutrition (FEDNA).

## Why choose this Master?

1. **International and multicultural experience.** A unique opportunity to study and establish a network of contacts and collaboration with participants and experts from different countries.
2. **Lectures of recognized experience.** Well qualified lecturers from UZ, UPM, and international organizations, universities, research institutes and private companies in 8 countries.
3. **Initiation to professional work and research.** Traineeship at a firm in the agro-food production or animal nutrition sector, a livestock farm or a public institution and research work for the Master thesis.
4. **Official Spanish Master degree** awarded by the UZ and **Master of Science Degree** awarded by CIHEAM. **Postgraduate Specialization Diploma** awarded by CIHEAM upon completion of the first year.
5. **High employability rate of alumni.**

**” This Master trains future experts and contributes to develop and support sustainable livestock production focusing on management and research of animal nutrition and feeding.**

# Programme

## 1st year of the Master (60 ECTS)

The programme delivered in the first year (60 ECTS) has a professional orientation focus and includes lectures, individual and group practical work, a supervised individual project, technical visits and a professional traineeship.

### Unit 1. Principles of animal nutrition (12 ECTS)

Feed composition, nutrient digestion and metabolism  
Feed evaluation  
Nutrient requirements  
Feed intake

### Unit 2. Feedstuffs and feed technology: composition, quality and safety (9 ECTS)

Feed components and feed categories  
Feed technology  
Raw material and compound feed quality  
Feed safety

### Unit 3. Animal feeding, and food quality and safety (15 ECTS)

Feeding for milk production: cattle, sheep and goats  
Feeding for meat production in ruminants: cattle, sheep and goats  
Feeding for meat production in monogastrics: pigs, poultry and rabbits  
Feeding for egg production

### Unit 4. Mathematical and statistical methods in animal nutrition (6 ECTS)

Data analysis and experimental design  
The use of modelling as a tool in animal nutrition

### Unit 5. Repercussions of nutrition on the environment and on animal health and welfare (6 ECTS)

Health and nutrition  
Welfare and nutrition  
Animal production and environmental interactions  
Reducing environmental impact in intensive systems through nutritional management  
Livestock/environment interactions in extensive systems  
Environmental-friendly production systems

### Unit 6. Individual project (6 ECTS)

### Unit 7. Professional training stage related to animal nutrition (6 ECTS)

## 2nd year of the Master (60 ECTS)

The second year (60 ECTS) consists of a tutored initiation to research and a Master Thesis based on an original research work, submitted under the supervision of a thesis director. The research work will be conducted at the organizing institutions or different collaborating entities for an approximate period of 10 months.

### Unit 8. Introduction to research (30 ECTS)

### Unit 9. Master thesis (30 ECTS)

#### Contact:

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www.masteranimalnutrition.com

#### More info:



## Admission and registration

The Master is designed for participants that fulfil the following criteria:

- Eligibility to pursue postgraduate studies in their country of origin or accrediting the equivalent of 240 ECTS in graduate studies.
- University degree, preferably in agricultural science, veterinary science, animal husbandry, animal science, agricultural engineering. Previous knowledge of animal biology, animal physiology, animal nutrition and statistics must be accredited.
- Knowledge of Spanish and English. Spanish is the working language of the Master. Applicants from non-Spanish-speaking countries should accredit knowledge of Spanish at B2 level or higher. Knowledge of French will be also valued.

Registration fees are approximately 1920 euro per academic year\*. This amount covers:

- cost of credits enrolled
- administration fee

(\* This fee is indicative and will vary according to the new official rates of the Government of Aragon for the corresponding academic year.

Candidates must apply online at the following address:  
[www.admission.iamz.ciheam.org](http://www.admission.iamz.ciheam.org)

## Dates and deadlines

The first year of the Master will be held from 2 October 2023 to 14 June 2024.

The second year will begin in September 2024 and run for approximately 10 months.

Application deadlines\* are as follows:

- Candidates requiring visa and/or without knowledge of Spanish: 2 May 2023
- Candidates not requiring visa and with knowledge of Spanish:  
-1st deadline 15 June 2023. Candidatures presented by this deadline will have preference  
-2nd deadline 10 September 2023.

\*Non-European candidates should be aware of visa application deadlines.

## Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Türkiye) may request a scholarship to cover registration fees and accommodation. They will be awarded according to academic merit. Priority will be given to applicants from low, medium and medium-high income CIHEAM member countries according to the World Bank: Albania, Algeria, Egypt, Lebanon, Morocco, Tunisia and Türkiye. Requests for scholarships should be made during the application process.

Candidates from other countries seeking finance should apply directly to other national or international institutions.

## Degrees

- Postgraduate Specialization Diploma awarded by CIHEAM Zaragoza (60 ECTS)
- Official Spanish Master degree awarded by the UZ and Master of Science Degree awarded by CIHEAM (120 ECTS).

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