



Objectives

Nut tree crops such as almond, pistachio, hazelnut, and walnut are key to Mediterranean agriculture, contributing to rural economies, landscapes, and diets. Yet producers face mounting pressures: climate variability, limited water resources, evolving pests and diseases, and the need for sustainable, high-quality production. Innovation now plays a central role in meeting these challenges. Advances in plant material, orchard design, mechanisation, irrigation, and digital technologies are transforming nut production systems. At the same time, maintaining soil health, biodiversity, and resource efficiency has become essential to ensure long-term sustainability.

The course is designed to provide agricultural professionals, researchers, advisors, and decision-makers with an advanced and integrated understanding of innovation, sustainability, and technical management strategies in modern nut tree production systems. In response to increasing pressures related to climate variability, resource use efficiency, market demands, and environmental sustainability, the programme addresses the biological, agronomic, technological, and economic dimensions shaping the future of Mediterranean nut orchards.

By the end of the course participants will:

- Acquire an advanced understanding of the ecophysiological and edaphoclimatic requirements of major nut tree species (almond, pistachio, hazelnut and walnut).
- Evaluate orchard design strategies, planting systems, and mechanisation approaches under different production scenarios.
- Understand crop water requirements and apply efficient irrigation and deficit irrigation strategies.

- Analyse the role of plant material and genetic improvement in productivity, resilience, and sustainability.
- Identify key biotic and abiotic constraints affecting nut production systems.
- Apply principles of sustainable orchard management, including soil management, cover crops, precision nutrition, and integrated crop protection.
- Understand the interactions between production practices, quality attributes, and post-harvest performance.
- Assess the economic, technological, and environmental implications of innovation in nut production systems.
- Develop a holistic perspective on future challenges, sustainability transitions, and innovation opportunities in nut tree systems.

Organisation

The course is organised by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), through the Mediterranean Agronomic Institute of Zaragoza (CIHEAM Zaragoza).

Qualified lecturers from research centres and universities in different countries will deliver the programme.

The course will be held for one week, in morning and afternoon sessions at CIHEAM Zaragoza, from 21 to 26 September 2026. The course can also be followed online.

Programme

0. Opening (1 h)

1. World Nut Production, Markets and Trade (1 h)

Global production and trade, major regions, market trends, competitiveness and sustainability pressures.

2-5. Biology and Ecological Requirements of Nut Species (4 h; 1 h per species)

Almond, Pistachio, Hazelnut, and Walnut: reproductive biology and pollination, climatic requirements, alternate bearing and main constraints.

6. Orchard Planning, Design and Development (2 h)

Planting systems and densities, training and pruning, harvesting innovation and mechanisation challenges.

7. Water Requirements and Irrigation Strategies (2 h)

Crop-water relations, irrigation system selection, deficit irrigation and precision technologies.

8-11. Species Modules (12 h; 3 h per species)

Almond, Hazelnut, Pistachio, and Walnut: plant material and genetic improvement, breeding trends, orchard design and mechanisation, stress factors and sustainability.

12. Sustainable Orchard Management (2 h)

Soil biodiversity and microbiome; fertilisation and precision farming; crop protection and organic production; agroforestry.

13. Harvesting and Post-Harvest Systems (2 h)

Harvest and field quality, drying and hulling, processing and manufacturing.

14. Nut Quality and Value Chain Considerations (2 h)

Nutritional quality, market standards, value chains, product innovation and consumer acceptance.

15. Participants' Group Presentations and Round Table – Future Challenges and Innovation Pathways (2 h)

Technical visit (Saturday 26 September)

La Almunia de Doña Godina (Zaragoza).

Guest lecturers

María José Rubio Cabetas – Centro de Investigación y Tecnología

Agroalimentaria de Aragón (CITA), SPAIN

Mehdi Ben Mimoun – National Agronomic Institute of Tunisia (INAT), TUNISIA

Daniela Farinelli – Università degli Studi di Perugia (UNIPG), ITALY

Neus Aletà – Instituto de Investigación y Tecnología Agroalimentarias – Centro Torre Marimon (IRTA), SPAIN

Ignasi Iglesias – Grupo AGROMILLORA, SPAIN

Joan Girona – Instituto de Investigación y Tecnología Agroalimentarias (IRTA Lleida), SPAIN

Jerome Grimplet – Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), SPAIN

Francisco J. Lacueva – Instituto Tecnológico de Aragón (ITA), SPAIN

Jean Paul Jouban – Comité Noix du Périgord-France/Premium Fruit-España/Codorniu-España/NOUCA-España/La Nocciola- Facma Italia/ Finca TOULA-Portugal/Mallinko SA - Chile/GTT Bio Bio - Chile/SAFFCO, CHILE

Fabrice l'Heureux – CTIFL, Centre Technique Interprofessionnel des Fruits et Légumes, FRANCE

Esaú Martínez – Centro de Investigación Agroambiental. CIAG IRIAF, SPAIN

Carlos Agustí – Universidad de Córdoba, SPAIN

Xavi Miarnau – IRTA Fruitcentre, SPAIN

Agustí Romero – IRTA Mas Bové, SPAIN

Admission

The programme targets researchers and academics, agricultural advisors and extension specialists, technical professionals from the agri-food sector, policymakers and institutional representatives, professionals from cooperatives, producer organisations, and NGOs and practitioners involved in nut tree production and orchard management.

- 25 places will be available for face-to-face participation with access to lectures, round table discussion all practical work and a technical visit (36 hours).
- 30 places will be available for online participation with access to lectures via live streaming, round table discussion and case studies (30 hours).

Given the international composition of the teaching staff, simultaneous interpretation will be provided, however knowledge of English and Spanish will be positively considered during the selection process.

Registration

- Candidates may apply online at the following address: <https://admission.iamz.ciheam.org/en/>
- Applications must include a curriculum vitae and a copy of the supporting documents most related to the course subject.
- The deadline for the submission of applications is 3 June 2026.
- Registration fees for the course amount to 500 euro for face-to-face participation and 350 euro for online participation. This sum covers tuition fees only.
- Applications from candidates requiring authorisation to attend the course may be accepted provisionally.

Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Türkiye) may apply for scholarships covering registration fees, and for scholarships covering the cost of travel and full board accommodation. If you wish to request a scholarship, please complete the relevant section when you make your application online to participate in the course.

Candidates from other countries who require financial support should apply directly to national or international institutions.

All applications are subject to a selection process based on the profiles submitted.

Insurance

It is compulsory for participants to provide proof of insurance cover valid for Spain at the beginning of the course. The Organisation offers the possibility of subscribing to a group policy, upon payment of the stipulated amount.

Contact:

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