

A person wearing a plaid shirt is holding a tablet computer in a field of tall grass. The scene is bathed in the warm, golden light of a sunset, with the sun low on the horizon and trees in the background. The person's hands are visible, with one hand holding the tablet and the other pointing at the screen.

# **ACTIVITY REPORT** 2024

**IRTA<sup>®</sup>**



**Generalitat  
de Catalunya**

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# TOWARDS THE MODERNISATION OF IRRIGATION AND LESS BUREAUCRACY

The IRTA's 2023 annual report highlighted the effects the drought was having on the Catalan agri-food sector and all the work carried out that critical spring by the IRTA, in collaboration with the government and other institutions involved in water management.

The Right Hon. Mr.  
**ÒSCAR ORDEIG MOLIST**

Minister for Agriculture, Livestock,  
Fisheries and Food  
and President of the IRTA



In 2024, in more stable circumstances, the new team at the Department of Agriculture, Livestock, Fisheries and Food, which I have the honour of leading, has worked hard to ensure that we are well prepared to deal with the highly likely future droughts. We have also put **a lot of effort into understanding which administrative processes can be simplified to make work easier for the agri-food sector, especially for small producers.** These have been, and continue to be, two of our main areas of work.

The government has listened to the farmers' protests and understands that administrative procedures should not be an obstacle, but a way of facilitating work. **These processes need to be simplified, made more accessible and better supported.** Soon, a single web portal will bring together, in a one-stop app, around twenty procedures that until now had to be completed on different platforms.

Another of our major commitments is the **modernisation of irrigation systems.** Catalonia currently lags behind other regions of Spain in terms of water infrastructure, and reversing this situation is a priority. The Government, backed by IRTA's decades of expertise in this field, is working on a new irrigation plan that looks ahead to 2040 and provides significant investment to adapt the infrastructure to the uncertainties and variability caused by the climate emergency.

In short, farmers and livestock breeders must be able to see the viability of their present and future activities more clearly and, in this regard, recognise that the IRTA has a key role to play. Its close relationship with the sector, the **more than 700 knowledge dissemination activities** it carries out each year and its **continuous search for innovative solutions** are essential in order **to provide answers and solutions** to the needs of producers as well as the public authorities.

Finally, I would like to highlight the Catalan Government's commitment to rural and agri-food development as a cornerstone of our economy. I am convinced that by working together, we will succeed in consolidating a more sustainable future for our sector.

# NEW TECHNOLOGIES FOR THE MAJOR CHALLENGES FACING

At the IRTA, we have been **researching and innovating** in the agri-food sector for four decades, tackling global challenges that are constantly evolving: from food safety to sustainability, climate change, animal and plant health, and the necessary digitalisation of the sector.

We want our work to help **build a more resilient food future** that provides quality, affordable food for citizens and is economically viable for our country's producers.

In 2024, **new technologies have taken centre stage as the key tools for tackling the main challenges we face.** For example, climate change is already having a direct impact on crops and water availability. In this area, our research seeks solutions to promote more sustainable agricultural practices that help optimise every drop of water to regenerate our soils and ensure proper product traceability. Emerging technologies such as artificial intelligence will be essential tools for anticipating potential risks and improving agri-food production.

We are also making great strides in food safety and global health (One Health): we are **improving techniques for detecting and controlling diseases** that can affect farm animals and crops, because it is crucial that we are prepared to respond quickly and effectively to emerging infections and pests.

Likewise, we keep looking into safe and efficient ways to **cut down antibiotic use in animals** without putting their well-being at risk. Resistance to these drugs, which comes from their widespread use at all levels over the last few decades, is another big global health challenge.

New technologies are also helping us to improve environmental sustainability in agri-food production. With a specific focus on reducing greenhouse gas emissions and optimising the management of resources like water, we are creating solutions that will help producers adapt to climate change and improve the efficiency of their processes.

Through these and other developments, the IRTA is **committed to remaining a strategic ally for our agri-food industry.** We work closely with the sector, to which we transfer the results of our research, and we promote innovation, which essentially means bringing our solutions to market.

Our research and innovation work is part of our Strategic Plan, which runs until 2027. Within this framework, in 2024 we have also promoted important generational renewal. In addition, we have begun preparations to celebrate **our 40th anniversary** in 2025.

The commemorative events will be a great opportunity to remember our origins and history and look to the future with optimism. It will be a time to recognise all those who have contributed to making the IRTA what it is today: a leading institution both nationally and internationally.

Forty years after our founding, we are aware that the challenges are becoming increasingly complex, but we also know that, with the **committed work of the thousand professionals who make up today's IRTA** and with the collaboration of all our allies, we will continue to make valuable contributions to the transformation of our agri-food system.

**JOSEP USALL I RODIÉ**  
General Manager of IRTA



## A person is holding a small plant in a black plastic nursery container. The plant has green leaves and a thin stem. The background shows a greenhouse structure with a white wall and a black frame. The lighting is bright, suggesting a sunny day.





SCIENTIFIC MANAGEMENT

DIRECTOR

Jordi Garcia-Mas

SCIENTIFIC COORDINATION TEAM

Sara Bover · Maria Devant · Jordi Riudavets

ANIMAL PRODUCTION AREA

MARINE AND CONTINENTAL WATERS  
Jorge Diogène

AQUACULTURE  
Enric Gisbert

ANIMAL WELFARE  
Antoni Velarde

ANIMAL BREEDING AND GENETICS  
Raquel Quintanilla

ANIMAL NUTRITION  
Maria Devant

ANIMAL INFRASTRUCTURE PLATFORM  
Diana Ramirez

RUMINANT PRODUCTION  
Maria Devant

ANIMAL HEALTH  
Natàlia Majó

SUSTAINABILITY IN BIOSYSTEMS  
August Bonmatí

PLANT PRODUCTION AREA

SUSTAINABLE FIELD CROPS  
Marta da Silva

FRUIT PRODUCTION  
Luis Asin

GENOMICS AND BIOTECHNOLOGY  
Maria José Aranzana

POST-HARVEST  
Neus Teixidó

SUSTAINABLE PLANT PROTECTION  
Jordi Riudavets

EFFICIENT USE OF WATER IN AGRICULTURE  
Jaume Casadesús

FOOD INDUSTRIES AREA

FOOD SAFETY AND FUNCTIONALITY  
Sara Bover

FOOD QUALITY AND TECHNOLOGY  
Sara Bover

OUR MISSION

To contribute to the modernisation, competitiveness and sustainable development of the agricultural, food and aquaculture sectors, to supply healthy, quality food for consumers and, in general, to improve well-being of the population.

OUR VISION

To become a scientific benchmark, a driving force for innovation and technology transfer. We want to be the strategic ally of the agri-food sector.

OUR VALUES

INTEGRITY

COMMITMENT

RESPECT FOR THE ENVIRONMENT

EXCELLENCE

999  
PEOPLE

12% PHD CANDIDATES

8% STUDENTS IN INTERNSHIP, VISITORS AND OTHERS

80%  
IRTA STAFF

73%  
TECHNICAL STAFF

27%  
RESEARCH STAFF

557  
WOMEN



442  
MEN

23%  
STAFF FROM OTHER COUNTRIES

36%

STRUCTURAL CONTRIBUTION FROM THE GENERALITAT OF CATALUNYA

34%

RESEARCH AND INNOVATION PROJECTS WITH PUBLIC FUNDING

26%

CONTRACTS, PROJECTS AND SERVICES WITH COMPANIES

4% OTHERS

BUDGET

71,024,075  
EUROS IN REVENUE

↑8.40%  
COMPARED TO 2023



# STRATEGIC PLAN 2024-2027

The IRTA is aware that it is increasingly necessary to transform the current food systems in order to provide the population with sufficient healthy nutrition, while making these systems more sustainable, safe, fair, resilient and compatible with the well-being of future generations.

Global demand for food is increasing, while ecosystems are degrading and food imbalances, water scarcity and loss of biodiversity are on the rise. **The food and nutrition sector faces major challenges**, but at the same time has immense potential to promote the health and well-being of the population, thereby guaranteeing the sustainability of the planet.

In Catalonia, **agri-food is the leading industrial sector in terms of turnover and employment** and is a pillar of our economy. It is led by mass industries and supported by a old business ecosystem covering the entire value chain.

Innovation is a key element in the current context, and **the sector is pushing forward in three major directions**: sustainable food production, healthy food, and the application of new technologies and digitalisation.

On this basis, and with our sights set on the coming years, in 2024 we had our sights set on the challenges outlined in the 2024-2027 Strategic Plan, which identifies **five major challenges for the future**.

We are focusing particularly on scientific goals but also on attracting talent, on reinforcing the value and impact of our research, on establishing alliances with key players in the sector, and on communicating the results of our research to society, placing knowledge at its service.

Looking more closely at the details of our scientific activity, our 2024-2027 Strategic Plan **focuses our efforts on four areas of research** aligned with the UN's Sustainable Development Goals.

## SCIENTIFIC RESEARCH AREAS

### CLIMATE CHANGE RESILIENCE

DEVELOPING PRACTICES AND SOLUTIONS THAT  
ENABLE AGRI-FOOD SYSTEMS TO ADAPT TO THE  
IMPACTS OF CLIMATE CHANGE, AND TO MITIGATE  
ITS EFFECTS

### SUSTAINABLE PRODUCTION INTENSIFICATION

OPTIMISING FOOD PRODUCTION BY INCREASING  
YIELDS WITHOUT COMPROMISING NATURAL  
RESOURCES

### ONE HEALTH

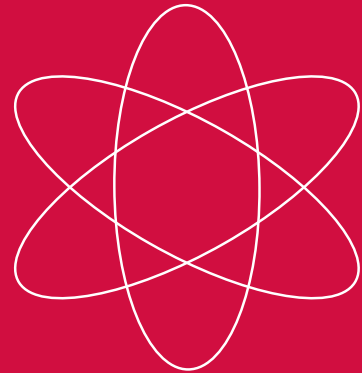
ADDRESSING HEALTH TO PREVENT RISKS AND  
ENSURE FOOD SAFETY

### DIGITALISATION AND TRANSFORMATIVE TECHNOLOGIES

APPLYING ADVANCED DIGITAL TECHNOLOGIES  
AND OTHER TOOLS THAT ARE AVAILABLE TO US  
TO IMPROVE EFFICIENCY AND INNOVATION IN  
THE AGRI-FOOD SECTOR



## CHALLENGE 1



## SCIENCE

At the IRTA, we are working hard to **transform the agri-food sector** with digital solutions, efficient water use, improved soil health, and by promoting the circular economy.

The scientific goals of the 2024-2027 Strategic Plan include a commitment to sustainable protein alternatives. We ensure **animal welfare** and stay ahead of emerging biological risks.

We are also strengthening viticulture research to adapt to climate change. Through innovation and commitment, we are contributing to **a more efficient, competitive and eco-friendly food model**.

# 8

## SCIENTIFIC GOALS:

### 1 BOOSTING THE DIGITAL TRANSFORMATION OF THE AGRI-FOOD SECTOR

The digital transformation can improve the sustainability of the agri-food sector. To harness this potential, we have launched Agrolabs Digitals, spaces for testing new technologies and developing digital twins for the sector.

#### WHAT ARE WE DOING?

We are creating spaces for experimentation and working on digital tools for fruit plantations. We are also developing an API to capture real-time data from pig farms and defining a module to visualise water quality data.

### 2 OPTIMISING WATER MANAGEMENT FOR AGRICULTURAL USE

For thirty years we have been promoting more efficient and sustainable water management, advising water users' communities and developing platforms for monitoring water needs.

#### WHAT ARE WE DOING?

We are improving water management by utilising survival irrigation and reclaimed water. We have also set up the RegAssist network to provide farmers with technical support and we remain committed to selecting drought-resistant crops.

### 3 IMPROVING CARBON SEQUESTRATION AND SOIL HEALTH

We promote soil health and carbon sequestration to foster sustainability, biodiversity and more resilient, high-quality agriculture.

#### WHAT ARE WE DOING?

We are conducting 14 agro-regenerative trials on different crops. We have acquired key equipment for analysing soils and greenhouse gases, and we are managing 20 projects worth more than €6.1 million, including an ERC Consolidator project (Wildroots).

### 4 PROMOTING THE BIOECONOMY BY VALORISING ORGANIC WASTE AND AGRI-FOOD BY PRODUCTS

We transform resources into sustainable solutions through innovation, to reduce the sector's environmental impact and generate value, promoting a more circular and increasingly efficient system

#### WHAT ARE WE DOING?

We are promoting the recovery of organic waste and residues through composting and methanisation trials, and we are developing foods and ingredients from surplus and co-products.

### 5 BOOSTING THE ALTERNATIVE PROTEIN SECTOR

We promote alternative protein by innovating ingredients and biorefining, in line with the European strategy for more sustainable and healthier food.

#### WHAT ARE WE DOING?

Together with Protein.cat, we are making 17 investments, including an insect farm, and by 2024 we will have carried out seven R&D&I activities. We have also launched eight others. We are setting up the Alternative Protein Innovation Centre (CiPA), based at four IRTA centres, to work with algae, vegetables, insects and fermentation products.

### 6 GUARANTEEING ANIMAL HEALTH AND WELFARE IN THE CONTEXT OF REDUCED ANTIBIOTIC USE

We guarantee animal health and welfare, promoting a reduction in antibiotic use in line with European policies, and we seek effective solutions to address current challenges.

#### WHAT ARE WE DOING?

We are making progress in animal welfare and disease resistance by studying and patenting immunostimulant molecules, identifying genetic biomarkers for disease resistance, and developing alternative molecules to antibiotics.

### 7 ENHANCING RESILIENCE TO EMERGING BIOLOGICAL RISKS

We work closely with the Department of Agriculture, Livestock, Fisheries and Food to address emerging biological risks, expanding our actions towards soil and plant health, with extensive experience in animal health and food safety.

#### WHAT ARE WE DOING?

We are developing technological surveillance platforms for plant health and bioinformatics to manage pathogenic microorganisms, developing rapid diagnostic techniques for diseases such as Xylella and Flavescencia dorada, and implementing three biosafety infrastructures.

### 8 BOOSTING RESEARCH INTO VITICULTURE IN RESPONSE TO THE NEW CHALLENGES FACING THE SECTOR

Wine is a key sector for Catalonia, but there is a need for more viticulture research. At the IRTA, with expertise in agronomy, pathology, water management and plant material, we are committed to the i4Vi Alliance to boost our research.

#### WHAT ARE WE DOING?

We are advancing towards this scientific goal by implementing key measures, such as filling the position of viticulture coordinator and progressing in the selection process for a viticulture specialist.



CHALLENGE 2

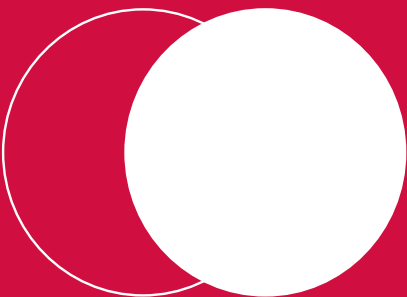


PEOPLE

We know that the employee experience is key to attracting and retaining new talent, which is why **we strive to create a satisfactory and enriching work environment**. We are committed to continuous improvement, offering adapted training and generating professional development opportunities.

We also value internal communication and effective, conscientious leadership to **ensure that our team is motivated and engaged**, thereby guaranteeing long-term talent retention.

CHALLENGE 4



ALLIANCES

Our capacity to interact with the scientific and business world and public authorities is fundamental for forging strategic alliances and closer collaborations.

**We are exploring new collaborations that allow us to grow and innovate** as well as becoming more outward to Europe looking to maximise opportunities in European calls and strengthen our impact in the sector.

CHALLENGE 3

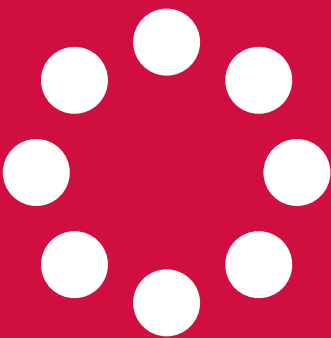


INNOVATION

We develop solutions to **address the challenges of the sector**, transferring knowledge to companies to improve their competitiveness in a sustainable way.

**We promote open and collaborative innovation**, exploring new models for exploiting research results to adapt to the needs of the sector. We also offer specialised training to respond to the growing demand for technical knowledge.

CHALLENGE 5



SOCIETY

We have the capacity to generate high-impact content in coordination with the Department of Agriculture, Livestock, Fisheries and Food, aimed at society and the agri-food sector.

Additionally, there is a growing interest in food issues, where our **experts make us a scientific benchmark**. We aspire to deliver messages that not only transmit technical results, but also connect with the interests and concerns of society.



SCIENTIFIC PRODUCTION

445  
SCIENTIFIC  
ARTICLES

PUBLISHED IN JOURNALS OF THE  
WEB OF SCIENCE CORE COLLECTION

58%

ARTICLES WITH  
INTERNATIONAL CO-AUTHORS

77%

ARTICLES PUBLISHED  
IN Q1 JOURNALS

25  
DOCTORAL  
THESES  
DEFENDED



30.659  
CITATIONS

24  
BOOKS  
OR BOOK  
CHAPTERS



466

COMPETITIVE  
PROJECTS



165

TOTAL IN  
CATALONIA



219

TOTAL IN  
SPAIN



82

TOTAL  
INTERNATIONALLY

ACTIVE  
PROJECTS  
IN 2024

371

152  
PROJECTS

140  
PROJECTS

79  
PROJECTS

GRANTS FOR  
RESEARCH  
STAFF

95

13  
GRANTS

79  
GRANTS

3  
GRANTS

535  
CATALAN  
CLIENTS



353  
CLIENTS OF THE  
REST OF SPAIN



173  
INTERNATIONAL  
CLIENTS



3.5  
M€

VALUE OF NEW  
BUSINESSES WITH  
INTERNATIONAL  
COMPANIES



49

COUNTRIES ON 5  
CONTINENTS

1,529

CONTRACTS WITH  
1,061 CLIENTS



# NEWS SCIENTIFIC HIGHLIGHTS

## PLANT PRODUCTION

### Agrolabs Digitals, a tool for digitally transforming the agricultural and livestock sector

On 16 May, we presented Agrolabs Digitals, a tool for digitally transforming the agricultural and livestock sector to make it more efficient, competitive and sustainable. These are spaces for experimenting and testing new technologies, featuring agricultural plots and farms equipped with sensors and a digital platform for processing data and offering services to the sector.

The Agrolabs will be distributed across the IRTA centres in Girona, Lleida, Tarragona and Barcelona, focusing on extensive crops, fruit trees, pigs, cattle and aquaculture. The aim is to encourage stakeholders to adopt technologies like IoT, Big Data and AI, to help optimise resources and improve decision-making. The project aims to overcome barriers such as training and technology validation, ensuring greater efficiency, sustainability and competitiveness for the sector.



### We are launching the first agrovoltaic energy pilot project in orchards in Catalonia

In April 2024, the Department of Climate Action, Food and the Rural Agenda, through the IRTA, launched the first agrovoltaic energy pilot project in orchards in Catalonia to improve agricultural competitiveness and climate change adaptation.

With a cost of €813,389, financed by the Climate Fund, the project will last five years and study the coexistence of solar panels and crops in an apple orchard in Mollerussa. A total of 322 photovoltaic panels have already been installed over 2,880 m<sup>2</sup>, producing up to 165 kW. The shade generated could favour fruit production in hot climates. The guidelines guarantee that the agricultural activity will be maintained, establishing a minimum of 60% of the reference yield.



### The NOVATERRA project makes strides towards reducing the use of plant protection products in olive and vine cultivation

The international NOVATERRA project, led by the IRTA, has been looking into how to reduce the use of plant protection products in vineyards and olive groves without affecting yield or quality. Over a four-year period, a consortium of 23 organisations has conducted trials in five countries, combining natural products, precision agriculture and better soil management. The results, presented at our site in Caldes de Montbui, at IRTA Torre Marimon, have demonstrated the viability of these strategies, which include biocontrol, nanoparticles, pheromones and mass trapping. Smart vision technologies and ecological infrastructures have also been tested. With a budget of €5.5 million, NOVATERRA is a step towards more sustainable agriculture, and at the IRTA we are committed to applying these techniques to other crops in the future.



### Moving towards more sustainable and salt-resistant rice cultivation

The 28th IRTA Rice Field Day, held in Amposta on 29 August, brought together 300 professionals from all over Spain to address challenges facing the sector, including salt-resistant rice cultivation and sustainable fertilisation using satellite imagery. The conference was attended by the Minister of Agriculture, Livestock, Fisheries and Food, Òscar Ordeig, and our CEO, Josep Usall. Mar Català, an IRTA researcher, highlighted the importance of applied research and knowledge transfer.

Studies on biodiversity, carbon sequestration and pest control were also presented. The Rice FertiSAT project focused on the efficient use of nitrogen. Ordeig stressed the importance of keeping the whole sector united in the search for technological solutions.





## RegAssist, the irrigation assistance network for optimising water use in Catalonia

On 8 May, we presented RegAssist, a support network for improving irrigation efficiency and water resource management. The initiative combines new technologies and the assistance of technical teams distributed all over Catalonia's main agricultural areas. RegAssist collects field data to create real-time simulations of soil water status, helping technicians and producers make informed decisions. It will also provide advice to irrigation communities, cooperatives and public institutions on how to optimise water use.

## STELLAR™, the second apple variety adapted to hot climates, presented at the IRTA Fruit Festival in Mollerussa

The 29th IRTA Fruit Festival, held on 23rd and 24th October in Mollerussa, reaffirmed its status as the leading event for the sector. At this 29th edition, we presented the new STELLAR™ apple variety, developed in collaboration with the Hot Climate Partnership. This apple, adapted to warmer climates, ripens earlier than Gala and offers exceptional colour, texture and flavour.

The Agriculture Minister, Òscar Ordeig, highlighted how STELLAR™ exemplifies the importance of innovation in the future of the primary sector. Josep Usall, IRTA's CEO, emphasised that this variety is the result of more than twenty years of research and will help the sector adapt to climate change.

In addition, the Tutti® poma, another innovation from the varietal improvement programme, was presented, along with the Agrolabs Digitals project, which promotes the digitalisation of agriculture in Catalonia. During the meeting, there were eight presentations and eight field demonstrations on digital technologies and agricultural management. With more than 1,500 attendees and 100 companies taking part, the event established itself as a platform for innovation and technology transfer, reaffirming our commitment to the fruit sector.



## Citrus IPM Advisory Group launched to improve plant health in Catalonia

The Catalonia Plant Health Hub, promoted by IRTA and the Department of Climate Action, Food and Rural Agenda, created the Citrus IPM Advisory Group in Amposta in May with the aim of improving plant health in citrus cultivation. This group, made up of leading experts, will work together to tackle the challenges of managing the pests and diseases that affect these crops.

During the launch meeting, the Hub's operations were presented and the tools and strategies needed to improve plant health management were discussed. One of the highlights was the lecture by Meritxell Pérez Hedo, a researcher at the Valencian Institute of Agricultural Research (Institut Valencià d'Investigacions Agràries; IVIA), who talked about defence induction as a method for combating pests in citrus fruits.

This new network of professionals will be a key tool in the ongoing progress towards greater sustainability and health in citrus crops in Catalonia.

## The AgriRegenCat and AgriCarboniCat projects explore how to apply regenerative and carbon sequestration practices

The AgriRegenCat and AgriCarboniCat projects, funded by the Catalan Climate Fund, are researching agricultural techniques to improve soil health and combat climate change.

The initial results, presented on 18 July, show the benefits of using organic fertilisers to retain more carbon in crops, such as apple trees, and reveal that tillage can be minimised in vegetable and cereal crops without any loss of productivity. It has also been found that cover crops increase biodiversity and reduce erosion.

These preliminary results are paving the way for more sustainable farming practices in the future, which could reduce the use of chemical fertilisers, improve crop resistance and lower carbon dioxide emissions. The projects are being carried out in collaboration with the CREAM and the University of Lleida, with plans to disseminate the findings.





## ANIMAL PRODUCTION

### Introducing the Ovihuec.dat project to restore traditional mountain landscapes

In April 2024, the Ovihuec.dat project was presented at the Conselh Generau d'Aran site, in the presence of various officials and with the support of Fundació Biodiversidad. Funded by a budget of almost two million euros, this project aims to restore traditional mountain pastures in Vilamòs by creating a publicly owned flock of sheep and goats.

In addition to revitalising the landscape, the project promotes economic diversification by exploring ways to market meat and dairy products. New technologies are being integrated to improve animal welfare and modernise the livestock sector, promoting the recovery of ancestral knowledge. It is also aimed at preventing forest fires and improving biodiversity in the Vall d'Aran. The project is funded by the European Union through the Recovery, Transformation and Resilience Plan.



### IRTA organises the “Red to green meat” conference to debate the main challenges in the meat sector

On 22 March, 2024, as part of the Alimentaria trade fair, we organised the “Red to green meat” conference to discuss the challenges facing the industry as it moves towards more sustainable production, bringing together representatives from the meat sector, including Grupo Jorge, Vall Companys, AECOC and Premier Pigs.

At this round table, we highlighted how important science and technology are for achieving high-quality, efficient and eco-friendly meat production. We also pointed out that, although the sector has made great strides, there is still work to be done to communicate more clearly and transparently the efforts being made to combat misinformation and improve public perception.

We also emphasised the importance of digitalisation and technological innovation as tools to improve efficiency and sustainability in all production processes. In this sense, the IRTA is committed to keep providing innovative solutions, with an eye on the future of the meat sector and its ability to adapt to social and regulatory demands.

### The Beef Fattening Innovation Forum Celebrates 10 Years of Commitment to Research

The 10th Beef Fattening Innovation Forum, held at the IRTA Fruitcentre, brought together key players in the sector to address the industry's challenges and needs. Organised by the IRTA and the Department of Climate Action, Food and the Rural Agenda, the meeting promoted research into improving animal welfare, meat quality, and environmental sustainability. By improving livestock farming practices to reduce the sector's environmental impact, the forum is committed to ensuring more sustainable meat production.



### The Porc d'Or Awards recognise excellence in pig farming in Córdoba and Zaragoza with more than 80 honours

The Spanish pig farming sector held two major award ceremonies with the Porc d'Or Awards. On 5 July, the Córdoba Conference Centre hosted the Porc d'Or Ibèric Awards, attended by 400 professionals from the sector. The Castile and León and Extremadura regions received the most awards, with a farm in Salamanca winning the Maximum Productivity prize. Meanwhile, on 29 November, Zaragoza hosted the 31st edition of the Porc d'Or de Capa Blanca Awards, attended by more than 1,000 people. Galicia led the way with 13 awards, followed by Catalonia with 12 and Aragon with 8. As organisers of the awards, the IRTA presented the Premi Porc d'Or amb Diamant (Golden Pig with Diamond Award) to the Ponte Coirós farm (Coren), the One Health Award to Granja Bendoiro (Nudeza) and the Sustainability Award to Celanova (Coren). These awards ceremonies reaffirm our commitment to excellence and innovation in the pig sector.







## IRTA celebrates the World Rabbit Congress 2024 (WRC) in Tarragona, an international benchmark for the rabbit farming sector

In October, we organised the 13th World Rabbit Congress in Tarragona, bringing together more than 300 international experts to share their knowledge and discuss the current and future challenges facing rabbit farming. Although rabbit meat is a high-quality nutritional source, the sector is facing a decline in consumption and rising production costs, factors that threaten the viability and continuity of many farms. During the congress, we also addressed the future ban on cages in the European Union by 2027 and the economic and animal welfare implications this entails.



## 50 new European sturgeon released into the Ebro River to restore their population

On 11 December, 2024, the second pilot release of 50 European sturgeons was carried out in the Ebro River as part of the European project "LIFE MIGRATOEBRE". This action follows the first release of 44 specimens in December

2023. The project, coordinated by the Centre for Mediterranean River Studies at the University of Vic – Central University of Catalonia (UVic-UCC) in collaboration with the IRTA and other institutions, aims to bring back the European sturgeon, a species that became extinct in the Ebro River in the mid-20th century. The released sturgeons, born in captivity and acclimatised at the IRTA facilities, will be monitored for six months to study their behaviour in the river. This initiative contributes to the conservation of a critically endangered species, which is currently only found in the Garonne and Dordogne river basins in the Atlantic.



## The 14th LCA Food Conference in Barcelona focuses on food sustainability and brings together experts from around the world

The 14th LCA Food Conference, held in Barcelona in September 2024, brought together participants from around the world to discuss the environmental impact of food. The event began with an activity linked to Els Castells, human towers, a Catalan tradition. Over three days, experts shared projects and developments in Life Cycle Assessment (LCA), with special emphasis on nutritional LCAs, eco-labelling and the impacts of fishing and aquaculture. The conference broke attendance records, including a large number of students, and ended with visits to several IRTA sites.

### FOOD INDUSTRIES

## Girona plays host to over 200 experts focused on the challenges facing the meat sector in southern Europe

At the end of September, Girona hosted the 6th Meat and Alternative Protein Forum, a leading event that brought together over 200 experts from the meat sector, scientists and food technology professionals. As organisers, together with Interempresas Media, we highlighted the essential role of meat in our diet, its social perception and the challenges facing the sector in light of new consumer trends.

Our CEO, Josep Usall, stressed the importance of innovation and reflection on sustainability, as well as the sector's impact on society. The conference included presentations by our researchers, one of whom was Maria Font, who discussed the relationship between emotions and food consumption. There was also a talk on smart processing, led by Elena Fulladosa. Lastly, Ricard Bou discussed biotechnology applied to the use or valorisation of by-products to obtain value-added compounds or ingredients.





# **We promote plant-based drinks and alternative proteins that utilise native Catalan varieties**

The LIQVEG project promotes the production of plant-based drinks and alternative proteins using cereals and legumes native to Catalonia. Funded by the Catalan Rural Development Programme, it uses more affordable pasteurisation technologies to promote sustainability and local production, contributing to a more sustainable agri-food industry in line with European trends in plant-based protein.



# **IRTA participates in the 5th World Summit of Regions on Food Security and Sovereignty, held in Barcelona**

The IRTA took an active role in the 5th World Summit of Regions on Food Security and Sovereignty, held in early October in Barcelona under the slogan "Fam Zero". The summit brought together experts from around the world to address issues ranging from climate change and food loss prevention to gastronomic culture.

Our CEO and researcher Jaume Casadesus were key participants in the round tables, as were Maria Devant and Joan Bonany, who took part in the plenary session on sustainable food production. We highlighted the key role of regions in the agroecological transition, where global policies connect with local stakeholders. In addition, Casadesús presented solutions for efficient water use and August Bonmatí spoke about best practices for reducing greenhouse gas emissions.

This summit was a great opportunity to share knowledge and establish partnerships to move towards more sustainable agri-food systems.



# **IRTA Pirineu is launched, a new channel for promoting high mountain research**

In 2024, we launched IRTA Pirineu, a new initiative that allows us to bring together all the research projects we are developing in the Pyrenean region. Through the Instagram profile created specifically for the project, we share news about various lines of research in biodiversity, sustainability, technologies applied to the livestock sector, climate change, and the social and cultural dynamics of the area.

IRTA Pirineu currently hosts two outstanding projects: Smartwel-graz, which promotes grazing management and animal welfare in Pallars Sobirà; and Ovihuec.dat, focused on landscape recovery and forest prevention in the Vall d'Aran. With this initiative, we want to create a knowledge and innovation hub, fostering collaboration between researchers, institutions, companies and local communities, with the aim of improving the quality of life and sustainability of the region.



## **INSTITUTIONAL**



# **Our Strategic Plan 2024-2027 addresses the major challenges for the future**

During the first quarter of 2024, our CEO, Josep Usall, gave an internal presentation of the 2024-2027 Strategic Plan, which marks a step forward in building our institution's future. While touring all the IRTA centres, he addressed the key challenges ahead, including climate change resilience, sustainable production, the One Health approach, and digitalisation. Over the next four years, we will focus on eight scientific objectives to promote a more sustainable and healthier future.

# **Commemorating the 25th anniversary of IRTA-CReSA and the 40th anniversary of Mas Badia**

In 2024, we will celebrate two important dates: the 40th anniversary of IRTA Mas Badia, a pioneer in agricultural research, on 5 December; and the 25th anniversary of CReSA, a benchmark in animal health, on 11 December. At IRTA Mas Badia, we lead agricultural research in Girona, notably in the creation of apple varieties adapted to climate change. Meanwhile, at CReSA, dedicated to animal health and zoonoses, we contribute to global health through international and innovative projects, which have been essential in combating diseases such as bird flu and African swine fever. Both centres, which enjoy the support of the public and private sectors, are looking to the future with a commitment to sustainability and innovation.





# DISSEMINATION IN THE SECTOR

2024 was a year of intense development and knowledge transfer activity. Over the course of the year, **we increased our presence at major events**, such as the 29th Mollerussa Fruit Festival, which attracted 1,700 attendees, and the 28th Rice Field Day, which drew nearly 200 attendees.

In the animal sector, the BIO-UPRISE project on soil microbiology and biofertilisers attracted 105 attendees, while the Catalan dairy sector update conference brought together 50 participants (80% NPS). **We also organised a day of reflection and action** with the X\_AgriTech network, a meeting on agricultural innovation with 55 attendees.

In 2024, we also increased the number of users accessing the Transfer website to 14,700, representing a 14% increase compared to 2023. Visits also increased by 23%, reaching 132,000. However, a commitment has been made **to move from Knowledge Transfer to Dissemination to the Sector**, a strategy aimed at improving the impact of the knowledge generated.

This year, we also analysed and **added value to the indicators requested from the participants in the activities**. According to the Net Promoter Score (NPS), IRTA has obtained an overall rating of:

**+59%**  
♥ NET PROMOTER SCORE (NPS) GLOBAL

## OUTSTANDING ACTIVITIES IN EACH AREA

👤 Attendees    ♥ Net Promoter Score (NPS)

🍏 **1700** ♥ **+60%**  
XXIX Fruit Growing Meeting

🍏 **198** ♥ **+79%**  
XXVIII Rice Field Meeting

🥛 **50** ♥ **+80%**  
Catalan dairy sector update

🐷 **105** ♥ **+70%**  
BIO-UPRISE project: microbiology of the soil and biofertilisers





## 1 NEW PLANT VARIETIES

## 63 PLANT VARIETY REGISTRATIONS





# OUR NETWORK



1 FEBRUARY

In February, we participated in the event "Three driving forces in the Catalan agri-food sector", organised by the Catalan Institute of Agricultural Studies at the Institute of Catalan Studies in Barcelona. The event paid tribute to three key figures in the sector: Jordi Maymó, Josep Tarragó and Jordi Peix, whose careers have all left their mark on the Catalan agri-food sector. Our CEO, Josep Usall, recalled the legacy of Josep Tarragó, who was at the helm of the IRTA for almost thirty years and played a key role in the creation and consolidation of the institution. His work and vision helped make the IRTA a benchmark in agri-food research and innovation.



12 JUNE

At Torre Marimon, we welcomed a visit from the Diputació de Barcelona, with Xesco Gomar, Deputy President of the Natural Spaces and Green Infrastructure Department and member of the IRTA Board of Directors, and Carlos García, the Department Coordinator. Together with our CEO, Josep Usall, and the Director of Institutional Relations at that time, Rosa Cubel, we shared our projects and explored new collaborations in line with the 2030 Agenda.



8 OCTOBER

In October, the IRTA once again took part in the 15th edition of Fruit Attraction, one of the key international fairs for the fruit and vegetable sector. We officially presented the STELLAR™ apple, a new variety adapted to hot climates, accompanied by Morgan Rogers, CEO of VentureFruit; Josep Usall, CEO of the IRTA; Emma Brown, Director of Plant Breeding at Plant and Food Research; and Jaume Armengol, President of FruitFutur.

2024

12 MARCH

At the Girona Gastronomic Forum, the Department of Climate Action, Food and Rural Agenda of the Government of Catalonia, PRODECA, the IRTA, and Fruit Futur presented the new Catalan apple Tutti®. This is the first outcome of the Hot Climate Partnership, a genetic improvement programme promoted by Plant & Food Research, FruitFutur, and the IRTA, which is opening up new growing opportunities for the fruit sector.



17 APRIL

The Director General for Climate Change and Environmental Quality, Mireia Boya, and the IRTA's CEO, Josep Usall, accompanied by the Director General for Agriculture and Livestock, Elisenda Guillaumes, and the Director of Territorial Services of the Department of Climate Action in Lleida, Dolors Vila, visited the first pilot project for photovoltaic energy in orchards in Catalonia.



8 MAY



On 8 May, we presented the RegAssist network in Mollerussa, an initiative designed to help the agricultural sector optimise irrigation and water resource management, particularly in conditions of drought and climate uncertainty. This event was part of a technical visit by Carmel Mòdol, Secretary for Food at the Department of Climate Action, Food and Rural Agenda and member of the IRTA Board of Directors, who highlighted that "the Government wants to work with the IRTA to provide assistance to the sector and stay ahead of future situations".

29 AUGUST



On 29 August, we held the 28th Rice Field Day in Amposta, attended by around 300 professionals from the sector. We presented the latest advances for addressing the challenges of climate change, including the development of more salt-tolerant varieties and smart fertilisation. The event was closed by the Regional Minister for Agriculture, Livestock, Fisheries and Food, Òscar Ordeig, who highlighted the strategic role of the agri-food sector.

15 OCTOBER

The conference "Planeta Agro: la voz del mundo rural" (Planet Agro: the voice of the rural world), organised by AgroBank, CaixaBank and the Diari de Girona, brought together experts to discuss sustainability and drought. Representatives from the IRTA, NOEL, CaixaBank and the University of Girona took part. Josep Usall highlighted sustainability as an opportunity to innovate and promote solutions that help the sector tackle social, economic and environmental challenges.

29 NOVEMBER



During the Porc d'Or de Capa Blanca Awards, held in Zaragoza, Josep Usall, on behalf of IRTA and the organising committee, presented a very special recognition to Rosa Cubel, who for many years has been committed to promoting the BDporc and Porc d'Or Awards.

2025



# COMMUNICATION TO SOCIETY

At IRTA we believe that knowledge must be shared. As a public research centre, we are committed to making the results of our work available to everyone, not only for transparency, but also to bring science closer to society. Understanding how the world around us works helps us make more informed decisions and encourages critical thinking. That is why we get involved in activities that are open to the public, with the aim of sparking curiosity, generating debate and contributing to a more informed society that is better prepared for the challenges of the future.

## The IRTA visits schools to raise young people's awareness of science

On 11 February, the International Day of Women and Girls in Science, our female researchers once again took part in the #100tíficas campaign, an initiative that connects female scientists with schools to raise awareness of the role women play in research. We believe that introducing science to younger generations is essential to spark their curiosity, promote critical thinking and inspire future researchers.



Twenty of the IRTA's female researchers visited schools across Catalonia to talk about a wide range of areas in agri-food research. Julia Vergara talked to Year 6 students about why girls tend to be less interested in scientific subjects. Georgina Alins explained how regenerative agriculture contributes to the Sustainable Development Goals (SDGs). Elena Garcia introduced the world of microorganisms and the importance of researching new drugs to combat pathogens. Marta Cerdà, meanwhile, conducted an experiment with the students so that they could see the bacteria that live on different surfaces as well as on our bodies.



Other researchers, including Marina Sibila, Silvia Fornalè and Nuria Panella, gave talks on microbiota, plant improvement and meat quality.

With initiatives like this, we reaffirm our commitment to scientific outreach and help build the science of the future.

## Open day at Torre Marimon for European Researchers' Night

On 28 February, at Torre Marimon (Caldes de Montbui), we held an open day as part of European Researchers' Night. More than 100 people attended and were able to explore various areas of our research. In the Ruminants laboratory, we discussed antibiotic resistance during a guided tour and a game about antimicrobials. We also explained our work in the field of animal welfare, focusing on calf health and nutrition. Outside, people enjoyed a walk through the forest, learning about stone pines and the different uses for wood. We also talked about climate change, measuring the impact of pH on grapes and sugar content. Sustainability was another key topic, with an activity on producing biogas from organic waste. For kids, we organised a special workshop, offering a unique experience for the whole family.







## IRTA launches the “Find the livestock” game to learn about the herds in the High Pyrenees

In summer 2024, we launched the ‘Find the livestock’ game, a family activity designed to teach people about the mountain herds in the High Pyrenees in a fun way. This initiative is part of the Smartwelgraz project, led by the Animal Welfare Programme and the University of Córdoba.

Participants can obtain an explorer's passport to follow routes around the High Pyrenees and photograph horses and cows. For each photograph taken, participants receive stamps at various information points, and the more stamps they collect, the more rewards they can get at Llavorsi Natural Park. The aim of the game is to highlight the fundamental role that herds play in land management, as well as to demonstrate the relevance of new technologies for improving animal welfare and livestock farming in the Pyrenees.



**136**  
NEWS ITEMS  
PUBLISHED  
ON THE  
WEBSITE

**329,534**  
VISITS TO THE WEBSITE  
**603,220**  
PAGES VISITED

**112**  
ACTIVITIES  
**4.625**  
ATTENDEES

**1,171**  
APPEARANCES  
IN THE MEDIA



**104**  
PRESS  
RELEASES  
AND CALLS  
SENT

**1.349**  
PRESS IMPACT OF  
TECHNICAL PUBLICATIONS



**49,942**  
followers

in

↑20%

**13,451**  
followers

X

↑1%

**4,860**  
followers

▶

↑5%

**3,803**  
followers

📷

↑43%

**3,651**  
followers

f

↓5%

OUR IMPACT IS GROWING,  
ALTHOUGH SOME  
PLATFORMS ARE LOSING  
THEIR IMPETUS WITH  
THE ARRIVAL OF NEW  
TRENDS.



# 10

## IRTA-OWNED CENTRES

### BARCELONA

- 1 Torre Marimon
- 2 CReSA
- 3 Cabrils

### TARRAGONA

- 4 Mas Bové
- 5 La Ràpita
- 6 Amposta

### LLEIDA

- 7 Fruitcentre
- 8 Agrònoms

### GIRONA

- 9 Monells
- 10 Mas Badia

# 2

## PARTNER CENTRES

### BARCELONA

- 1 Centre for Research in Agricultural Genomics (CRAG)
- 2 Centre for Agro-food Economics and Development Research (CREDA)

# 6

## EXPERIMENTAL SITES AND FARMS

### LLEIDA

- 1 Les Borges Blanques Experimental Site
- 2 Mollerussa Experimental Site
- 3 Gimènells Experimental Site
- 4 Alcarràs Experimental Farm

### GIRONA

- 5 Monells Cattle Farm (EVAM)
- 6 IRTA Building C in Monells





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