IRTA

ACTIVITY REPORT 2022

Generalitat de Catalunya

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2022

Generalitat de Catalunya

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SCIENTIFIC LEADERSHIP FOR A BETTER FUTURE

In recent years, climate change and the increased mobility of people and goods have led to the emergence of new risks for crops and the livestock sector that could endanger the production and quality of foodstuffs.

TERESA JORDÀ
Minister of Climate Action, Food and Rural Agenda of Catalonia and President of IRTA

The Department of Climate Action, Food and Rural Agenda is committed to promoting energy, climate and biodiversity, agri-food, the rural agenda, and maritime policy through dialogue and understanding between worlds that have historically been very disparate.

In 2022, we began to work on the roll-out of the Climate Change Law, which kicked off with the presentation of the Catalan Strategy for Adaptation to Climate Change (ESCACC30) and will continue as we work towards the approval of the National Energy and Climate Plan 2030 and the Decarbonisation Plan 2050. Thanks to Climate Fund resources (160 M€) we have been able to fund several research projects aimed at bringing the country up to date in terms of the energy transition through a distributed, participatory and territorially cohesive energy model; our goal is to reverse the loss of biodiversity and the degradation of ecosystems, guaranteeing that the Catalan population has physical and financial access to a healthy, safe and high-quality food supply. Of these projects, I would like to highlight the two that are being spearheaded by IRTA, regenerative agriculture and carbon farming, two examples of how our country's primary sector can be the key to mitigating climate change and how the search for and generation of knowledge is a driving force for transformation.

We have many challenges ahead of us, such as protecting the soil, preparing for drought and ensuring that we implement sustainable production models. There is no doubt in our minds that the primary sector is making a firm commitment to facilitating the transformation and complying with the European Green Deal as well as the Farm to Fork strategy (Estratègia del Camp a la Taula), and that it is supported by the IRTA, a strategic centre for Catalonia. Among the projects to be developed over the coming years are the Biogas Plan and the promotion of bioenergy as well as the implementation of Sustainable Agricultural Production, with the aim of ensuring that 50% of the country's production has this certification by 2030.

The Climate Action Department trusts IRTA as the leading agri-food research institution in our country, allowing us to work together to provide scientific responses to current needs. After reading this annual report, I can only feel pride and recognition for this research centre that I have the honour of presiding over, and which since its creation has worked tirelessly to guarantee a better future for our agri-food sector and to make it strong, adapted and resilient to the climate emergency, with the ability to produce high-quality, healthy products.

WE RECOVER AND PROTECT EVERYTHING THAT IS ESSENTIAL

You hold in your hands the result of a year packed with exciting projects, passionate challenges and exhausting work, in which we have committed ourselves to keep working for a sustainable environmental, social and economic future, and in which we have chosen research and innovation as our driving force, and the sector and society as our travelling companions. However, the present and the future often make us forget the basics, the things that sustain us and form the basis for the functioning of an entire ecosystem. **We are referring to the soil, the great forgotten for many years. So fragile and yet so vital, it has been, and will be, the focus of many research projects that we have launched in 2022** and that we will continue to implement, with the support of the Department of Climate Action, Food and Rural Agenda, and together with the production sector, which is increasingly aware of what an important role it plays.

I am sure you have often heard that "soil is life", and it is. It concentrates a microcosm full of elements and organisms that coexist in harmony and form the primary substrate that feeds crops and pastures. Now that we have more tools and more knowledge, we can more precisely target agricultural practices that favour its biodiversity and improve its potential, like maintaining plant cover and increasing the use of organic fertilisers, so that agriculture can also restore the fertility of the soil and, in turn, combat climate change by increasing carbon sequestration. This is the purpose of regenerative agriculture and carbon farming, two of the cornerstones that we have consolidated this year and which, added to the numerous projects we already have underway on the use of livestock manure as a fertiliser, have laid the foundations for boosting our research activities aimed at restoring soil health, both in terms of its physical structure and its biodiversity and chemical composition, through natural processes.

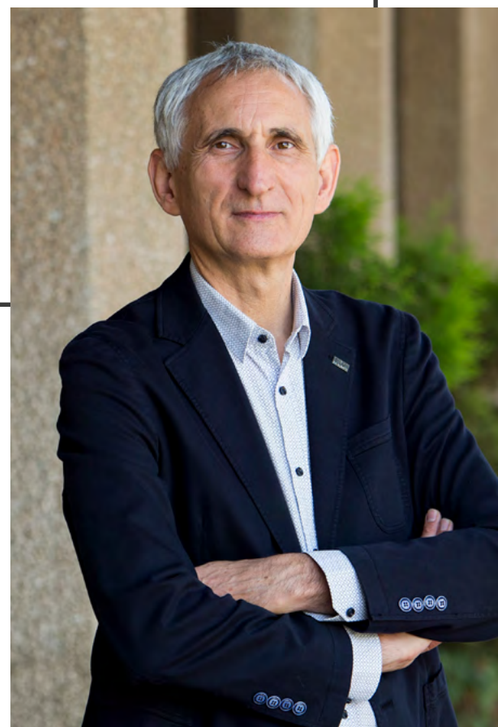
One of IRTA's great values and potentials that make it unique is, on the one hand, our holistic and complementary experience, with specialists in all scientific disciplines in the agri-food field; and on the other hand, our ability to generate targeted knowledge and transfer it efficiently to the production sector. These facts allow us to continue working towards a healthy soil that will provide us with improved production and more ecosystem services in terms of the various crops, soil and climate conditions in Catalonia.

However, in 2022, our research went far beyond soil health. All our research programmes have been working hard to keep achieving their objectives, under the umbrella of sustainability, food safety, animal and plant health, bioeconomy, technology and many other highly pertinent aspects.

We have worked on more than 430 research projects of various types and have more than 1,600 contracts with companies all over the world, as well as publishing 421 SCI articles and participating in more than 840 knowledge transfer activities involving almost 60,000 attendees. All this is an overwhelming volume of activity that has been made possible thanks to the effort and commitment of the entire IRTA team and its collaborators.

For this reason, I invite you to read the following pages and look back at 2022 to see a summary of the work that has been carried out in the laboratories, the field, the farm and the office; this is the work that we enjoy the most: researching, generating knowledge and, among all of us, caring for our people and our planet.

JOSEP USALL RODIÉ
CEO of IRTA



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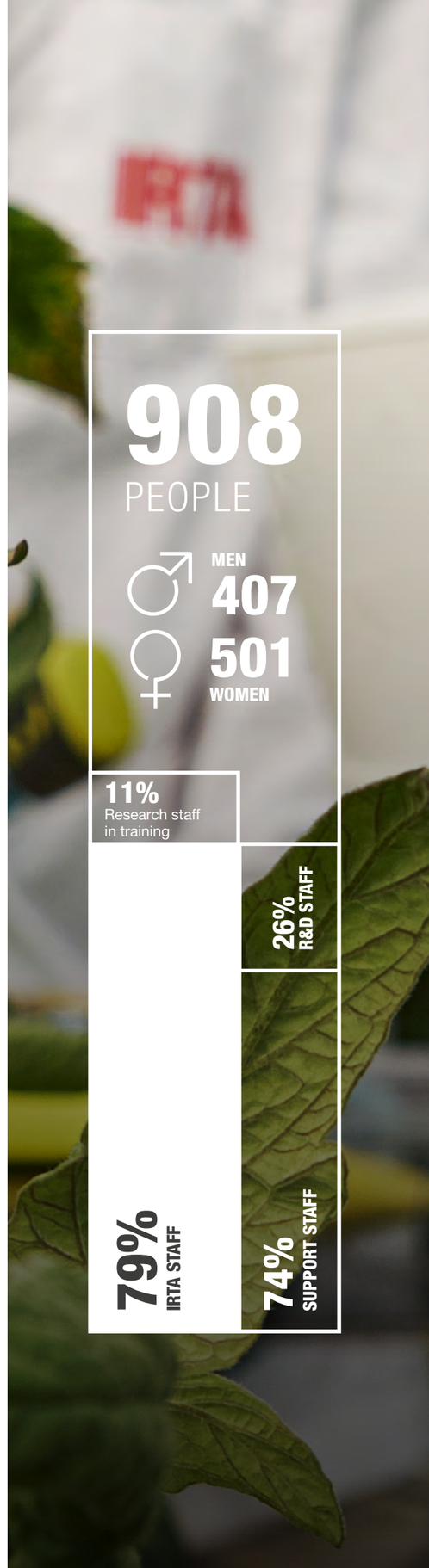


STRATEGIC SCIENTIFIC INITIATIVES

IRTA has defined five strategic scientific initiatives that are intended to be promoted transversally through the different research programmes. By implementing them, IRTA contributes to transforming traditional food systems into sustainable ones, and **helps to achieve the United Nations Sustainable Development Goals (SDGs)**.

MILESTONES ACHIEVED IN 2022 FOR EACH INITIATIVE

INCREASING PROTEIN PRODUCTION

Coordinator: Massimo Castellari, researcher in the Food Functionality and Safety programme.

There is a need to respond to the growing demand for protein production, both for human and animal consumption, by incorporating alternative protein sources.

- The workshop "Use of alternative proteins in food & feed production" was organised with the participation of international speakers.
- A proposal was prepared for investment in infrastructures to set up a future Centre for Innovation in Alternative Proteins.
- Two PhD students, co-funded by the Scientific Direction, were recruited to promote collaboration between IRTA research programmes.

STRENGTHENING PLANT HEALTH

Coordinator: Cinta Calvet, researcher in the Sustainable Plant Protection programme.

Climate change and globalisation have led to the appearance of new risks to crop health in the form of emerging pests and diseases. To control these, we must urgently find solutions compatible with the reduction of conventional pesticides and plant protection products, which can have negative effects on human health, lead to a loss of biodiversity, and contaminate natural resources.

- The Plant Health Innovation Hub was set up with the development of the PECT AgroBioFood Ponent project.
- Contacts were forged with institutions in Catalonia dedicated to plant health research and management in order to analyse the global situation in the field.
- Two PhD students, co-funded by the Scientific Direction, were recruited to promote collaboration between IRTA research programmes.

BIOECONOMY

Coordinator: Francesc X. Prenafeta, researcher in the Sustainability in Biosystems programme.

We must continue to move towards an efficient, sustainable and circular economic model based on the use of local and renewable resources that benefits the climate, the environment and human health. To make this possible, a very wide-ranging and interdisciplinary vision integrating biotechnology, digitisation and the socioeconomics of agri-food systems is required to reduce both food waste and food loss.

- We helped draft the 2022-2024 Action Plan for Catalonia's Bioeconomy Strategy (EBC2030).
- We participated in various events designed to promote the bioeconomy, including the International Pork Farming Symposium (SEPOR 2022) and the benchmark conference in Catalonia on Bioeconomy, Innovation and Technology (BIT Lleida 2022).
- Two PhD students, co-funded by the Scientific Direction, joined the project to research microbial inoculums to develop innovative biofertilisers and the prolongation of post-harvest melon conservation for more sustainable production.

REDUCING THE USE OF ANTIMICROBIALS IN ANIMAL PRODUCTION

Coordinator: Virginia Aragón, researcher in the Animal Health programme.

Increasing antimicrobial resistance and the emergence of new resistance mechanisms are a threat to the health of humans and animals as they diminish the ability to treat infectious diseases.

- IRTA's ability to work on this initiative was presented to the Directorate General for Agriculture and Livestock of the Department of Climate Action, Food and Rural Agenda.
- An international workshop on immunostimulation as an alternative to the use of antibiotics was organised as part of World Antibiotic Awareness Week.
- Two new PhD students were recruited, co-funded by the Scientific Direction, to promote collaboration between IRTA research programmes.

IMPLEMENTING SMART AGRI-FOOD SYSTEMS

Coordinator: Joan Bonany, specialist in the Fruit Production programme.

Through digital technologies we can improve the efficiency of farms as well as the environmental and economic sustainability of agriculture, livestock, aquaculture and the food industry.

- Two PhD students, co-funded by the Scientific Direction, were recruited to work in different areas of smart agri-food systems.
- We helped draw up the White Paper on Artificial Intelligence applied to the agri-food sector.
- Two researchers were recruited to the programmes on Efficient water use in agriculture and Genomics and biotechnology for applying artificial intelligence to irrigation management and genetic selection in fruit trees, respectively.
- We worked with various Generalitat de Catalunya departments on the New Space initiative, contributing the example of the Internet of Things (IoT) for irrigation management, using the Enxaneta satellite and the 5G Area to identify and develop the application of this technology in the agri-food sector.

BUDGET

57,851,001
EUROS OF INCOME

↑13.96%
COMPARED TO 2021

INCOME

33%
STRUCTURAL CONTRIBUTION FROM THE GENERALITAT DE CATALUNYA

36%
RESEARCH AND INNOVATION PROJECTS

27%
CONTRACTS AND SERVICES WITH COMPANIES

4% OTHERS

SCIENTIFIC PRODUCTION

27,909
CITATIONS

21
DOCTORAL THESES DEFENDED

20
BOOKS OR BOOK CHAPTERS

421
SCIENTIFIC ARTICLES
PUBLISHED IN JOURNALS OF THE WEB OF SCIENCE CORE COLLECTION

58%
ARTICLES WITH INTERNATIONAL CO-AUTHORS

75%
ARTICLES PUBLISHED IN Q1 JOURNALS

439
COMPETITIVE PROJECTS

	TOTAL	TOTAL IN CATALONIA	TOTAL IN THE REST OF SPAIN	TOTAL AT INTERNATIONAL LEVEL
		159	220	60
ACTIVE PROJECTS IN 2022	314 ↑78	131 PROJECTS ↑54	125 PROJECTS ↑17	58 PROJECTS ↑7
GRANTS TO RESEARCH STAFF	125 ↑24	28 GRANTS ↑8	95 GRANTS ↑16	2 GRANTS =

29.9% started in 2022

42.4% started in 2022

47
COUNTRIES FROM 5 CONTINENTS

3.7 M€
VALUE OF NEW BUSINESS WITH INTERNATIONAL COMPANIES

1,613
CONTRACTS WITH 1,089 CLIENTS

200 INTERNATIONAL CLIENTS	**361** CLIENTS FROM THE REST OF SPAIN	**528** CATALAN CLIENTS

↑↓ All changes compared to the previous year.

SCIENTIFIC NEWS

PLANT PRODUCTION

Sowing wild flowers between crops to **combat pests**

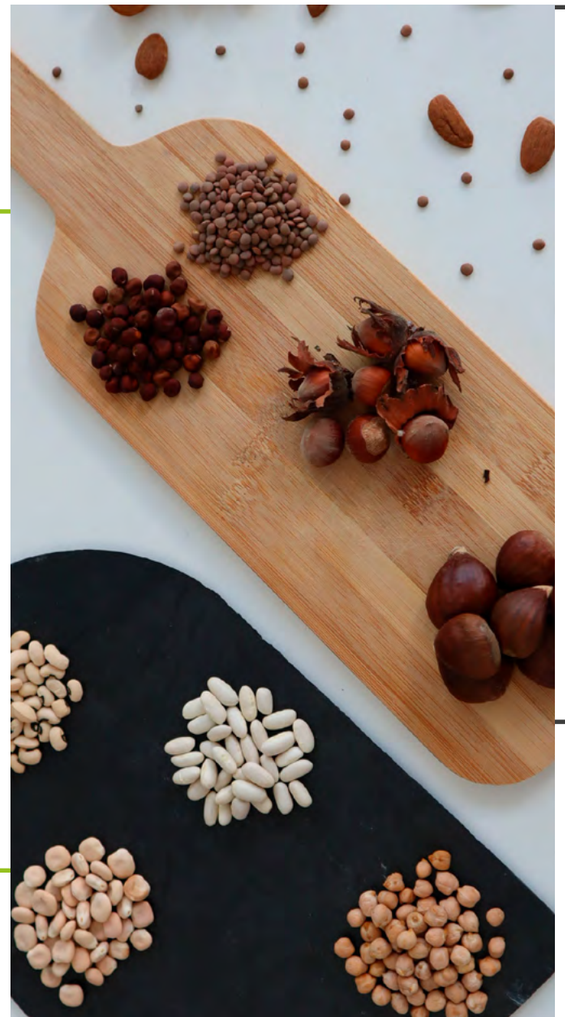
IRTA is testing how effective chamomile, marigold, chard and rocket are in attracting pollinators and insect predators of pests. Its aim is to turn agricultural spaces into biodiversity refuges that increase the presence of insects beneficial to crops and favour the biological control of pests. It is a strategy that would help rationalise the use of phytosanitary products and facilitate sustainable pest management.

Public awareness campaign launched to control the plague of **brown marmorated stink bug** in the Baix Llobregat area

IRTA, the Department of Climate Action, Food and Rural Agenda and Barcelona Provincial Council promoted the campaign "El Bernat és aquí!" to prevent the brown marmorated stink bug (*Halyomorpha halys*) damaging crops in Baix Llobregat, particularly in the Agricultural Park. Informational materials were produced to be distributed in the Barcelona and Girona counties.

Three genes involved in **melon ripening** identified

This study was carried out by researchers from IRTA's Genomics and Biotechnology programme and the CRAG, and was published in the journals *Frontiers in Plant Science* and the *Journal of Experimental Botany*. The research will make it possible to develop new varieties of this fruit with a longer shelf life, thereby helping to reduce food waste.



Ganxet beans and Reus hazelnuts used to make new **plant-based products**

A project led by IRTA will add value to fifty local varieties of pulses and nuts linked to Mediterranean culinary cultures in order to transform them into alternative plant-based products. Dairy analogues, flours for baking and pasta, and traditional ready meals will be made using processes like fermentation and technologies such as 3D printing or turbo-cooking, with the aim of preserving their nutritional properties and the bioactive compounds typical of the Mediterranean diet.

The vineyards of the Penedès D.O. will need between one and two times **more water** by 2030, and up to four times more by the end of the century

A team from IRTA's Fruit Production programme, the Catalan Water Agency and EURECAT presented the results of the SECAREGVIN project, which evaluated the feasibility of irrigating the area. The information presented by the various experts showed that irrigation will not be a definitive or sustainable solution and, if it is applied, it will only be applied very sporadically and with an established pattern.

Drones to apply **phytosanitary products** efficiently and minimise environmental impact

The Phytodron task force was set up to promote and regulate the use of crop protection products with the aim of helping to meet the objectives of the European Green Deal. Drones are the most suitable way of applying pesticides to small plots, areas that are difficult to access, and mountainous terrain, but their effectiveness and the drift associated with them are unknown. IRTA took part in this project to study this system on a Raimat vineyard in Lleida.

Regenerative agriculture for a **healthier soil**: identifying techniques for beneficial interactions

At the end of the year, IRTA, in collaboration with CREAF and the University of Lleida, launched AgriRegenCat and AgriCarboniCat, two research projects financed by the Climate Fund of the Department of Climate Action, Food and Rural Agenda to improve the health and ecosystem services of Catalan agricultural soils. The impact on soil health and biodiversity of a set of techniques, including mulching, organic fertilisation and reduced soil tillage, will be monitored across a network of farms producing the most representative crops in Catalonia. The research is aimed at understanding the microbiological processes involved in carbon sequestration and developing predictive models of this key cycle for reducing greenhouse gas emissions.

Drought in recent months could affect winter **cereal production**

In March, experts from IRTA's Sustainable Field Crops programme warned that wheat and barley crops were suffering from water stress due to low levels of rainfall in December, January and February. This lack of water during the tillering period could limit the number of ears per unit area, although the most important damage caused by the shortage of water was from the stalk development stage onwards, prior to heading. Genetic selection and improvement could help to produce productive varieties that are resistant to water shortage.

Irrigated crops in Lleida have needed **14% more water** this year than the average over the last five years

The experts from the Efficient use of water in agriculture programme calculated this from meteorological and satellite data to find out the irrigation water demand for crops this season, which has been marked by drought, heat waves and a lack of rainfall. They warned that it was key to make a rational and efficient use of irrigation water in the coming season. The team is developing a tool that irrigators will be able to use to determine the water demand of crops in real time, compile a history and predict water requirements up to the end of the season.

ANIMAL PRODUCTION

A **smart trap** classifies mosquitoes by sex and gender based on their **buzzing**

The team of experts in entomology and arboviruses from IRTA's Animal Health programme and the company Irideon S.L. have developed the first optical sensor attached to a trap that automatically and reliably classifies captured mosquitoes according to gender and sex. It uses an optical sensor with artificial intelligence that has been trained by recording the flight of more than 4,300 mosquitoes over two years. It has proved effective for both the tiger mosquito and the common mosquito, two species of major public health concern as they can transmit diseases such as dengue fever and West Nile virus. The sensor is the only one in the world with these technical capabilities and will speed up the surveillance and control of diseases transmitted by these insects.

Porc d'Or Ibèric and Porc d'Or de capa blanca **awards** held

On 7 October, the Roman Theatre in Mérida hosted the 6th edition of the Porc d'Or Ibèric awards, which recognise the best Iberian pig farms and farmers in Spain.

On 25th November, in Toledo, the 29th edition of the Porc d'Or awards was held to recognise white-coated pigs.

These prizes are awarded on the basis of several production criteria for breeding sows, animal health and welfare and environmental aspects.

Metropolitan **wild boars** carry **antibiotic-resistant** intestinal bacteria

A study by IRTA's Animal Health programme and the Wildlife Ecopathology Service (SEFaS) at the University of Barcelona revealed that wild boars in the Barcelona Metropolitan Area carry *Campylobacter* bacteria and, to a lesser extent, *Salmonella*, both of which are resistant to at least one type of antibiotic. According to the analyses, bacteria are transmitted from humans to wild boar, probably through food leftovers, as well as through contact with domestic animals. The study stressed that further epidemiological management of wildlife is needed to reduce public health risks.

The **Life Agriclose** project ends with new strategies for improving the **management of 20% of the total livestock manure** generated in Catalonia

The project, coordinated by the Department of Climate Action in collaboration with IRTA, research centres, universities and companies, was set up to generate strategies and tools to make use of livestock manure in the immediate surroundings of farms, and contribute to combating climate change by reducing ammonia and greenhouse gas emissions. The solutions are adapted to each specific location and promote the concept of proximity fertilisation, which considers the products that come from the treatments to be a good agricultural fertiliser.

Producing one kilo of **veal** in Catalonia needs **two to three times less water** than the global average

The team from IRTA's Ruminant Production programme published the Guide for optimising the use and treatment of drinking water in calf fattening with regard to water consumption in the various systems for producing fattening calves on Catalan farms. The publication should help the livestock sector to become more sustainable.

The work was carried out within the framework of the operational group GOTA, led by IRTA and in collaboration with BonÀrea Agrupa, NANTA-Grupo Nutreco, Sinual, the Association of Cattle Producers of Alcarràs and Asoprovac.

Monitoring animal welfare via geolocation, a new tool for extensive livestock farmers in the Pyrenees

IRTA's Animal Welfare team launched a pilot test on cows, mares and sheep in the Pallars Sobirà region to detect sick, pregnant or predator-affected animals based on movement patterns and temperature.

From the data generated by the devices, they obtained information on the intensity of the grazing and the route, so that the farmer could redirect the animals to other areas and rebalance both the use of resources and the animals' diet. The data could also warn of the presence of bears and even create systems to direct them away.

An alliance to **save fan mussels**, an urgent response by scientists to the pandemic that is ravaging the Mediterranean

Researchers from IRTA's Marine and Continental Waters programme are participating in the European Life PINNARCA project to conserve and restore populations of this bivalve, which is at critical risk of extinction following the mass mortality caused by a parasitic protozoan in 2016.

The actions, planned for a number of areas along the Mediterranean coast, include censuses of survivors, comparative genomics, captive breeding and reintroduction in optimal areas. The Ebro Delta is one of the last refuges of the species due to its low salinity conditions.

Microplastics in the Ebro Delta to be measured using **artificial intelligence**

A team from IRTA's Marine and Continental Waters programme are developing a *machine learning* model to identify the types of microplastics that exist in the main aquatic environments around the Delta as well as their concentrations. These particles of synthetic origin can alter the natural ecosystem cycles and introduce toxic elements into the food web. The model will be based on water and sediment samples from five lagoons and one rice paddy.

A **biosensor** connected to a mobile phone makes it possible to detect toxins linked to **food poisoning** in fish and shellfish

IRTA and the URV are developing a methodology for the device so that it can immediately and reliably identify ciguatoxins and tetrodotoxins, natural substances produced by microorganisms that can be found in fish and shellfish.

The recent appearance of these toxins in Europe, possibly influenced by climate change, has put food safety authorities on the alert and tools are needed to detect them quickly and effectively.

New manual on bivalve disease management and biosecurity

This document was published as part of the European VIVALDI project, which includes tools and good practices for reducing the impact of diseases that affect mollusc production in Europe and preventing outbreaks. The project was led by the French Research Institute for the Exploitation of the Sea (Ifremer), in collaboration with IRTA and more than twenty institutions from ten different European Union countries involved in the production of oysters, mussels and clams.

New hormone therapy manages to treat **reproductive dysfunctions** in farmed fish

Researchers from IRTA's Aquaculture programme and the company Rara Avis Biotec have designed a protocol to induce the reproduction of captive adult flathead grey mullet. This was the first study on a teleost species using recombinant gonadotropin hormones to induce the early stages of gametogenesis up to courtship and the fertilisation of high-quality eggs and larvae. This breakthrough closes the biological cycle of fish in captivity, replacing the capture of juvenile fish and reducing the environmental impact. The treatment can also be applied in the conservation of threatened or endangered fish species with reproductive dysfunction.

FOOD INDUSTRIES

Phytoplankton-enriched pasta, bread and vegetable spreads to feed the population of the **future**

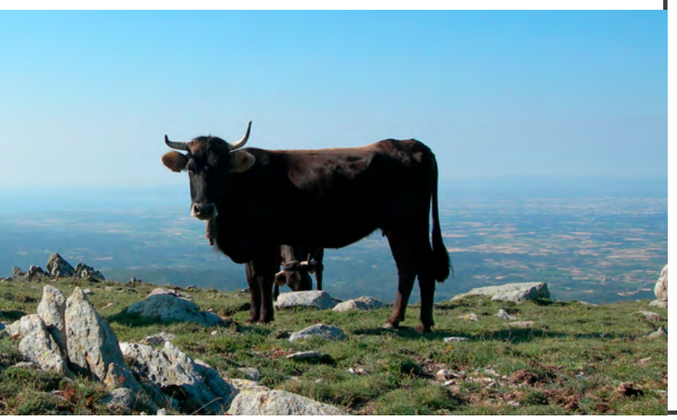
IRTA is coordinating the European ProFuture project with the aim of scaling up the cultivation of four microalgae species and bringing new products to market that appeal to consumers. The efficient growth and high nutritional value of this food make it a winning alternative in the face of rising global demand for more sustainable protein. The industry aims to lower the price and refine the organoleptic traits of microalgae to democratise its consumption.

A tool will help decide the **use-by date** and **best-before date** of foods based on scientific criteria

The BESTDATE project aims to help reduce food waste by establishing the correct date marking for foodstuffs. In the absence of easy-to-interpret tools available to processors, commercial rather than scientific requirements are sometimes prioritised when defining date markings. Similar products are available on the market with different date markings; this confuses consumers and leads to 10% of food losses.

The Albera cow, an **endangered breed** with culinary potential

The cross-border ALBERAPASTUR project aims to restore the economic viability of the breed and promote livestock farming as an ally for fire prevention. The Albera cow is adapted to living in mountain forests and is one of the most powerful natural brush cutters. There is just one herd of 400 cows left in the Alt Empordà region. The IRTA's Food Quality and Technology programme team is working to revive the value of the meat with maturation and cutting strategies.



KNOWLEDGE TRANSFER

In 2022, we organised more activities and they had a greater impact. We returned to our face-to-face format, encouraging a 360º experience of round tables, debate sessions and workshops. Furthermore, we also consolidated the online channel and launched a hybrid format. As a result, we have broadened the scope of our audience with participants from all over Catalonia. This year, we featured a day in each area.

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:

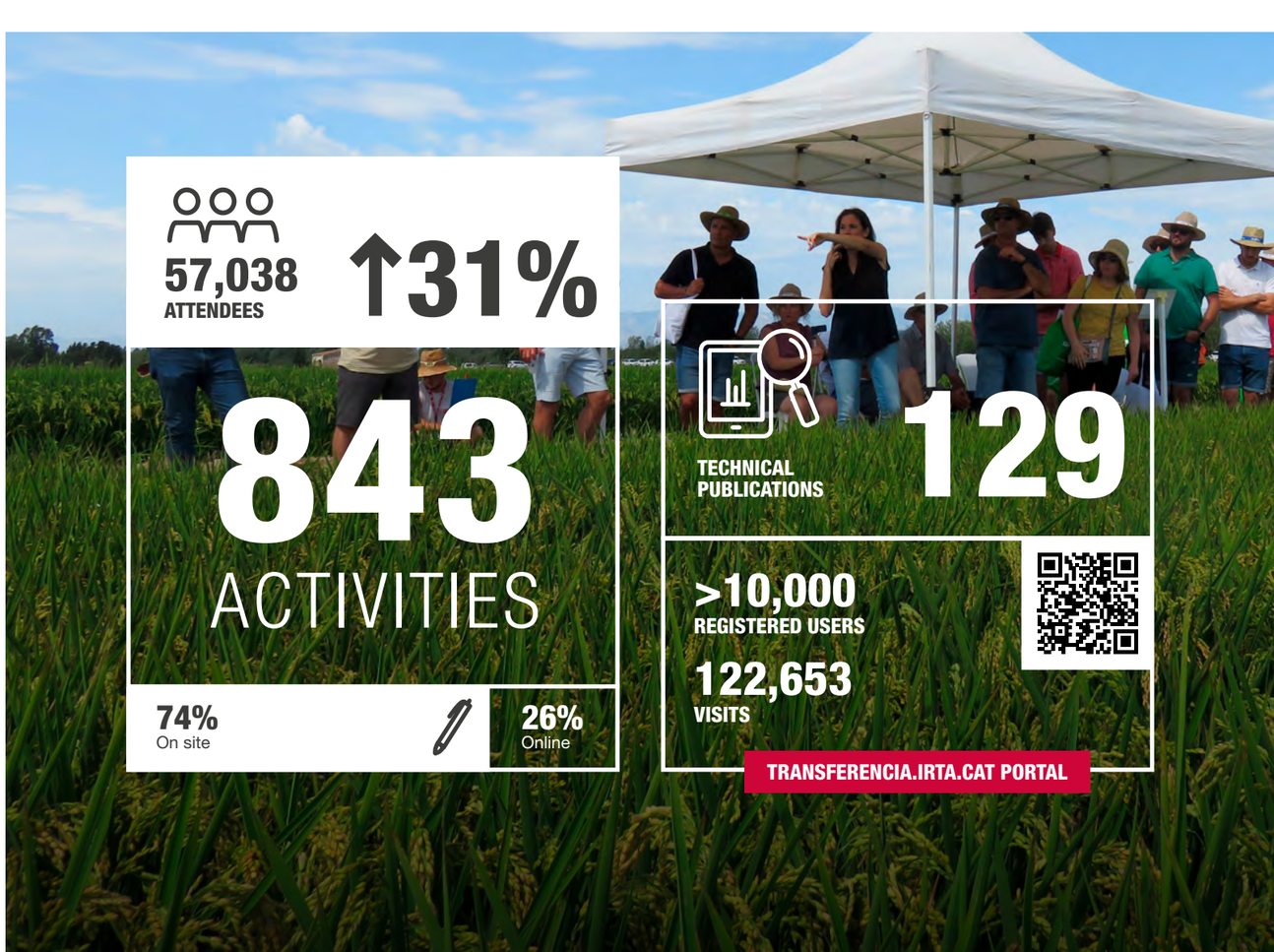
♡ +57%

219 ♡ **+83%**
XXVII Rice Field Day

176 ♡ **+59%**
Animal Production Conference: Co-creating the future of animal production

85 ♡ **+50%**
Applications of alternative sources of protein in the agri-food sector

Attendees ♡ Net Promoter Score (NPS)



INDUSTRIAL PROPERTY

IRTA applied for:

3 **NEW PATENT REGISTRATIONS**

5 **NEW PLANT VARIETIES**

IRTA has:

13 **PATENTS (5 HAVE BEEN LICENSED)**

66 **PLANT VARIETY REGISTRATIONS**

1 **GRAFT**

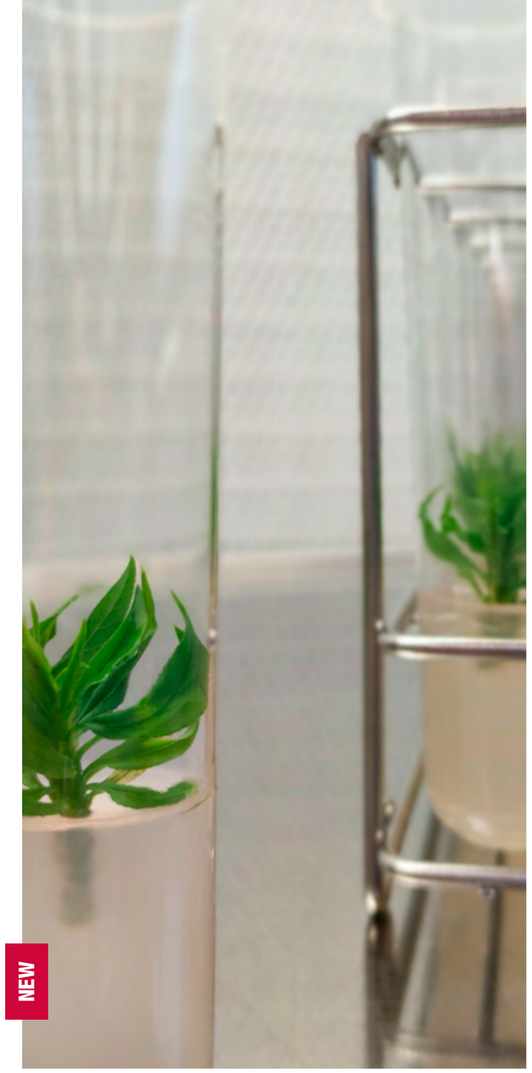
4 **APPLE TREES**

5 **ALMOND TREES**

10 **GERANIUMS**

16 **CEREALS**

30 **PEACH TREES**

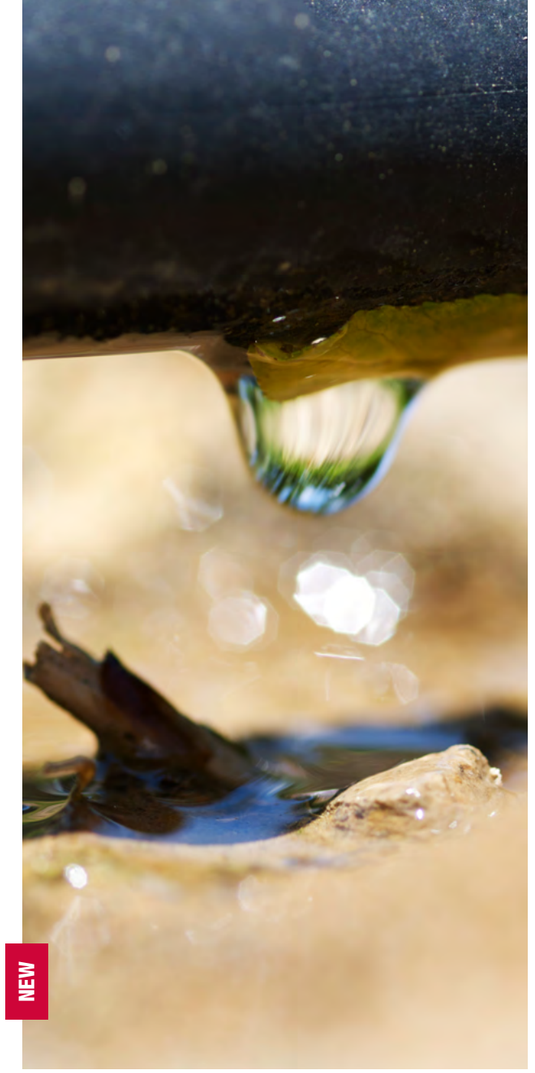


NEW

INTENSIA, a new almond rootstock "adapted to the new times"

On 22 September IRTA presented a new **almond-peach rootstock for intensive and super-intensive crops** at the XIV Almond Tree Day. It is highly productive, **drought-tolerant, water-efficient, adapted to Mediterranean soils** and compatible with the main varieties. Until recently, the almond sector was focused on the search for more vigorous varieties, but in recent years the emphasis has shifted towards high-density planting.

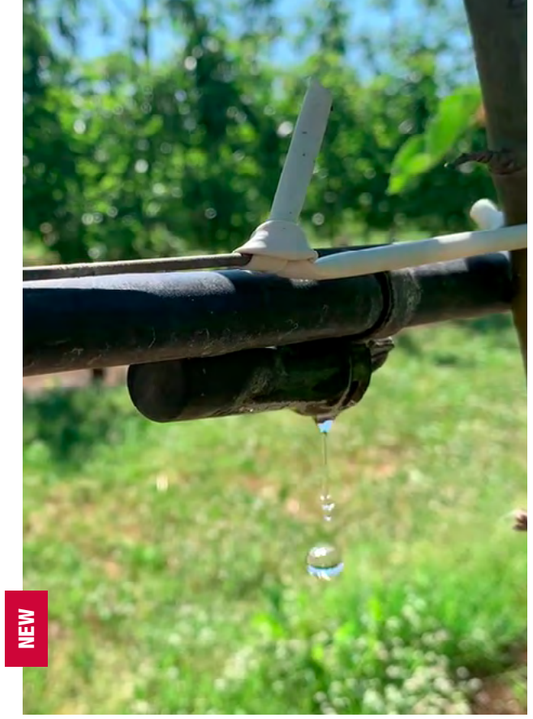
Now, the aim is to plant trees with higher productive efficiency, in other words, trees that consume less water, are adapted to Mediterranean soils and which are drought tolerant. For this to be possible, the key is no longer the variety but the variety-rootstock combination.



NEW

IrriDesk, irrigation on demand

IRTA has developed a digital tool that combines the latest **crop monitoring and simulation technologies to provide precision irrigation**. An algorithm integrates data from meteorology, remote sensing and sensors installed in the plots. It can operate automatically, from data acquisition in the field, through processing and assimilation into a **digital twin**, to decision making and transmission to the irrigation system controller. It has been tested on a variety of stone and seed fruit crops, almond trees, olive trees, citrus trees, vines, as well as extensive crops and market garden vegetables. When water allocations are limited, it also helps to improve irrigation management. It is marketed through other platforms through which it connects to sensors and irrigation controllers.



NEW

WaterCrop, a smart irrigation system

To **efficiently irrigate fruit orchards**, a digital tool has been developed that not only saves energy and time for the farmer, but also makes irrigation recommendations, with the farmer being ultimately responsible for adopting these. The system also launches **automatic irrigation instructions** that communicate directly with the plot's irrigation scheduler.

To make the **recommendations**, it takes into account the meteorological conditions of the area, the characteristics of the crop and the data obtained from the various sensors distributed around the plot. It has been developed and tested on stone fruit crops in the province of Girona, although it can be used in any temperate climate zone around the world.

INSTITUTIONAL RELATIONS

2022

28 FEBRUARY

Mobile World Capital Barcelona, Vall Companys Group and IRTA present the keys to consolidating a benchmark agri-food hub in southern Europe.

10 MARCH

The Catalan Business Foundation visits the Fruitcentre.

A delegation from the government of Lower Saxony visits IRTA.

13 APRIL

The Andorran Ministry of the Environment, Agriculture and Sustainability signs a memorandum of understanding with IRTA designating it as a reference centre for agri-food research in Andorra.

30 APRIL

22 JULY

IRTA and the Association of Agricultural Engineers renew their collaboration agreement, with the aim of promoting research and the profession in the field of agricultural engineering and organising joint activities.

SEPTEMBER

As a result of the collaboration agreement between CERCA and LUKE, the scientific director of IRTA, Jordi Garcia-Mas, was one of the members of the CERCA delegation that visited Finland to visit different research and innovation organisations linked to the Finnish government.

Members of the Natural Resources Institute of Finland (LUKE) visited IRTA a few days later.

2023

IRTA held institutional roundtables involving the counties of Girona, Lleida, Camp de Tarragona and Terres de l'Ebre with the aim of informing local agents of the activities it carries out and understanding their research and innovation needs.

OCTOBER AND NOVEMBER

SOCIETY

As a public research institute, we have the duty and commitment to transmit the knowledge we generate to the public, not only as an act of transparency, but also to promote scientific culture in society and contribute to a critical spirit and informed decision-making. For this reason, we continue to participate in a wide range of activities aimed at the general public.

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DISSEMINATION ACTIVITIES

We throw open the doors of our centres

In October 2022, the staff of the Ruminant Production and Food Quality and Technology programmes organised an open day at **IRTA Monells** on the subject of milk research, as part of **European Research Night**, with the support of the University of Girona (UdG).

Four activities were held related to the use of antibiotics, the production of energy from cow manure, the transition of calves born on dairy farms to fattening farms, a yoghurt tasting and a children's workshop. In addition, on 30 November, an open day was held at **IRTA La Rápita**, as part of **World Aquaculture Day**.

Science, fundamental in the **transformation of education**

On 11 February, as part of the **International Day of Women and Girls in Science**, twenty IRTA researchers took part in the **#100tífiques** (#100 women in science) event, promoted by the Barcelona Institute of Science and Technology (BIST) and the Catalan Foundation for Research and Innovation (FCRI). Simultaneous talks were given to students in the sixth year of primary education and first year of ESO, with the aim of highlighting the strategic role of women in research and promoting STEM vocations. Also at this school stage, two female researchers were chosen to participate in the **CientífiKs en Joc** project, a virtual educational programme run by the Generalitat de Catalunya's Department of Research and Universities and aimed at students in the fifth year of primary education, in which participants choose a female scientist as the star of their video game.

20 IRTA RESEARCHERS AT #100TÍFIQUES

2 IRTA RESEARCHERS AT CIENTÍFIKS EN JOC

13 SCHOOL VISITS TO IRTA-CReSA

Once again, the IRTA-CReSA centre took part in the **Escolab** initiative, part of Barcelona City Council's Barcelona Science programme, aimed at secondary school students, in which they visit the centre and learn about the research being carried out. The scientific team from the Genomics and Biotechnology programme also participated once again in the **Science and Food Campus** organised by the Catalan La Pedrera Foundation, aimed at high school students. Also at this educational stage, a researcher from the Fruit production programme took part in a round table as part of the **Inspiracy Lleida** activity, dedicated to encouraging scientific vocations among young people.

Research is not over until it is **communicated**

In the 15th edition of the **Science Festival**, promoted by Barcelona City Council's Barcelona Science and Universities programme, one male and two female researchers from IRTA took part in this outreach activity, with a demonstration of interesting facts about hens' eggs and a micro-talk on prions.

In addition, for the first time, we participated in the **Children's Festival** at MonNatura Delta, a festival celebrating environmental education and awareness in the Ebro Delta, with a workshop looking at the macroinvertebrates typical of the wetlands and lagoons of the delta ecosystems.

In a more innovative format, two researchers took part in the **Pint of Science** outreach festival, which consists of holding talks on science in different bars throughout the country.

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↑11% **3,311** followers

NEW **1,557** followers

OUR SOCIAL MEDIA COMMUNITY CONTINUES TO GROW AND WE HAVE JOINED INSTAGRAM TO DISSEMINATE OUR RESEARCH AND REACH A WIDER AUDIENCE

140 NEWS ITEMS PUBLISHED ON THE WEBSITE

2,073 APPEARANCES IN THE MEDIA

192,784 ↑6% VISITS TO THE WEBSITE

586,075 ↑18% PAGES VISITED

97 PRESS RELEASES AND CALLS SENT

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 (CREDA)

6
EXPERIMENTAL SITES AND FARMS

LLEIDA
1. Les Borges Blanques Experimental Site
2. Mollerussa Experimental Site
3. Gimenells Experimental Site
4. Alcarràs Experimental Farm

GIRONA
5. Monells Cattle Farm (EVAM)
6. Pig Control and Evaluation Centre

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Generalitat de Catalunya

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