

RESEARCH AND INNOVATION CENTRE

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The Research and Innovation Centre (CRI) is part of the **Fondazione Edmund Mach**, a major Italian institution operating in the agriculture, environment and food sectors.

The Foundation boasts **150 years of history**. Established in 1874 as the
Agricultural Institute of San Michele
all'Adige, since 2008 it has been
organised into three centres focussing
on **Research and Innovation**, **Education and Training**, and **Technology Transfer**.

Seven hundred people now work on the 14-hectare campus equipped with classrooms, greenhouses, offices and laboratories, all outfitted with cutting-edge equipment. The Foundation also has 120 hectares of fields for experimental and agricultural purposes, plus 65 hectares of forest.

ECOLOGICAL TRANSITION

To guide the process of change towards a more balanced and harmonious development model for natural and agricultural ecosystems, reducing the impact of humans on the environment, and favouring biodiversity conservation, energy efficiency and the sustainable use of resources.

The Centre follows strategic lines that represent important **challenges of our time**, developing knowledge and technological innovation to improve sustainability in Alpine environments and agroecosystems.

GLOBAL HEALTH

To develop an interdisciplinary approach to manage the unique interactions within ecosystems for the global health and well-being of humans, livestock, wildlife and environment.

STRATEGICCONCEPTS

DIGITAL REVOLUTION

To study and incorporate digital technology for the automation and guided evolution of agricultural systems for sustainability purposes. To develop and use digital tools to deepen our knowledge of ecosystems. To integrate big data into digital platforms to monitor natural and agricultural ecosystems.

BIG DATA

To generate and analyse large volumes of data using cutting-edge technologies. To apply mathematical, statistical and IT techniques for data integration, with the aim of a more holistic understanding of biological systems.

The Centre's research activities converge on 4 main themes according to a matrix organization, with 21 Units and 21 technical facilities that interact and support each other, both transversally and synergistically.

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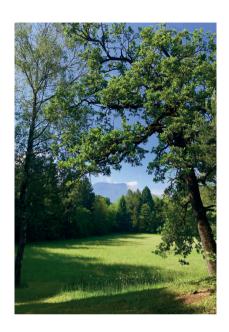
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THEMATIC AREAS



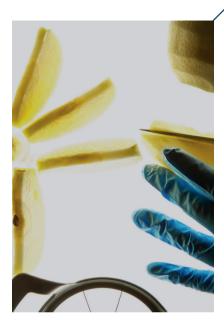
AGROSYSTEMS AND BIOECONOMY

Focuses on issues related to knowledge development for sustainable improvement of primary production and by-product use, with a view to promote a circular economy.



BIODIVERSITY, ECOLOGY, AND ENVIRONMENT

Studies and contributes to biodiversity protection by integrating basic and applied research. Promotes the sustainable use of agricultural and natural resources to balance the demands of modern societies with environmental protection.



FOOD AND NUTRITION

This thematic area carries out research and innovation activities aimed at the sensorial, technological and nutritional enhancement of agrifood products, to improve their quality, guarantee their origin, and meet consumer needs.



COMPUTATIONAL BIOLOGY

This involves developing and applying various computational, bioinformatic and statistical modelling approaches to understand complex biological processes as well as the interactions between organisms and their environment.

In national and international scientific landscapes, the Centre is noted as **multidisciplinary** and **transversal** while its highly skilled researchers address research topics by integrating **micro** and **macro** approaches.

WHY WE ARE UNIQUE



RESEARCH UNITS

AGROSYSTEMS AND BIOECONOMY Berry Genetics and Breeding

Bioeconomy

Digital Agriculture

Fruit Crop Genetics and Breeding Grapevine Genetics and Breeding Plant Biology and Physiology

Plant Biotechnology Plant Epigenetics Plant Protection

BIODIVERSITY, ECOLOGY AND ENVIRONMENT

Animal Ecology Applied Ecology

Conservation Genomics

Ecogenomics

Environmental Botany

Forest Ecology Hydrobiology

FOOD AND NUTRITION

Biotechnology of Natural Products

Metabolomics Sensory Quality Traceability

COMPUTATIONAL BIOLOGY Computational Biology

Approximately 300 people, including researchers, technologists, technicians, PhD students and visiting scientists, are dedicated to research. They are coordinated by the Scientific Director and supported by administrative staff.

The average age of this team is 46; 13% are non-Italian, while 43% of the Research Unit leaders are women.

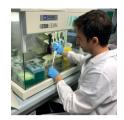
OUR HIGHLY-MOTIVATED, DYNAMIC STAFF







Aerobiology



Animal, Environmental and Antique DNA



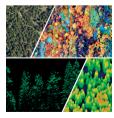
Development of Biofungicides and Biofertilizers



Hydrochemistry



Quarantine



Remote Sensing

TECHNOLOGICALFACILITIES



Bio-logging



Biomasses



Biotechnology of Fermentation



Biotremology



Computational Biology



Metabolomics



Microfluidics, Microdissection and Microscopy



Micrometeorology



Plant Phenotyping



Plant Tissue Culture



Sensory Analysis



Sequencing and Genotyping Traceability



Traceability



Varietal Identification and Grapevine Germplasm Valorization



Volatile Organic Compounds Analysis

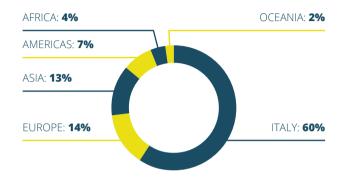
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We invest considerable time and resources in training the researchers of tomorrow. Since 2010, our **Doctoral Program** has been active and has trained 240 PhD students so far.

More than 50 partners, including universities and private companies, support this program. Its quality is guaranteed by participation in the European initiative **Euraxess** - **Researchers** in **Motion**

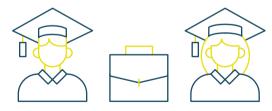
WE BELIEVE
IN THE **FUTURE**

CONTINENTS OF ORIGIN



EMPLOYMENT RATE

80%



Eighty percent of our postgraduates have stated they were employed in **prestigious research institutions or universities** within two years of graduation.

FOREIGN PARTNER UNIVERSITIES

Australia	1
Austria	2
Belgium	1
Denmark	1
Finland	1
France	7
Germany	7
Greece	1
Ireland	1
Israel	1
Lebanon	1
Netherlands	2
New Zealand	1
Norway	2
Poland	1
Serbia	1
Slovakia	1
South Africa	1
Sweden	2
Switzerland	1
United Kingdom	8
United States of America	

Every year our researchers publish more than **200 articles** in peer-reviewed scientific journals.

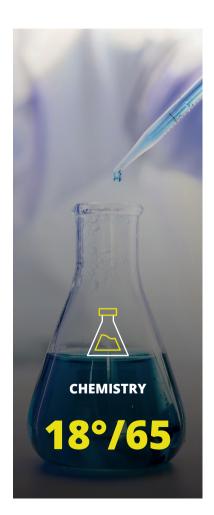
The quality of research has also been demonstrated by the **excellent placement** of Fondazione Edmund Mach among all institutions evaluated by the Italian National Agency for the Evaluation of University and Research Institutes (**ANVUR**).

RESEARCH RESULTS

RANKING OF FONDAZIONE EDMUND MACH AMONG ITALIAN RESEARCH INSTITUTIONS (2015-2019)









Financial resources arise from public funding, contracts and agreements with other institutions and companies, as well as from research projects funded by third parties.

The high success rate in awarding tenders suggests that the Centre is recognised nationally and internationally as a prestigious, reliable and charismatic partner for high quality research.

FUND-RAISINGCAPACITY

FUNDING BODIES	ITALIAN	EUROPEAN	PUBLIC + PRIVATE	PRIVATE COMPANIES	TOTALS
SUCCESSFUL PROPOSALS	39	40	13	11	103
SUBMITTED PROPOSALS	84	118	16	40	258
SUCCESS RATE	46%	34%	81%	28%	40%



PROJECTS 2018-2022

(excluding NRRP funds)

ca 25 Mln €



CONTRACTS 2018-2022

475 contracts signed for a value of

ca 7,2 Mln €

The Centre plays a **leading** role in planning the NRRP, participating in many activities, including the following four initiatives.

THE NATIONAL
RECOVERY AND
RESILIENCE PLAN
(NRRP)

NATIONAL CENTRE FOR AGRICULTURAL TECHNOLOGIES (AGRITECH)

Research and development of innovative technologies in the agricultural sector to improve the quantity and quality of production, ensuring sustainable adaptation to climate change. FEM will focus on production improvement through crop breeding in response to new health emergencies, climate change and related stressors, also exploring genetic resources to develop new varieties that are resilient and adaptable to changes.

2 NATIONAL BIODIVERSITY FUTURE CENTER (NBFC)

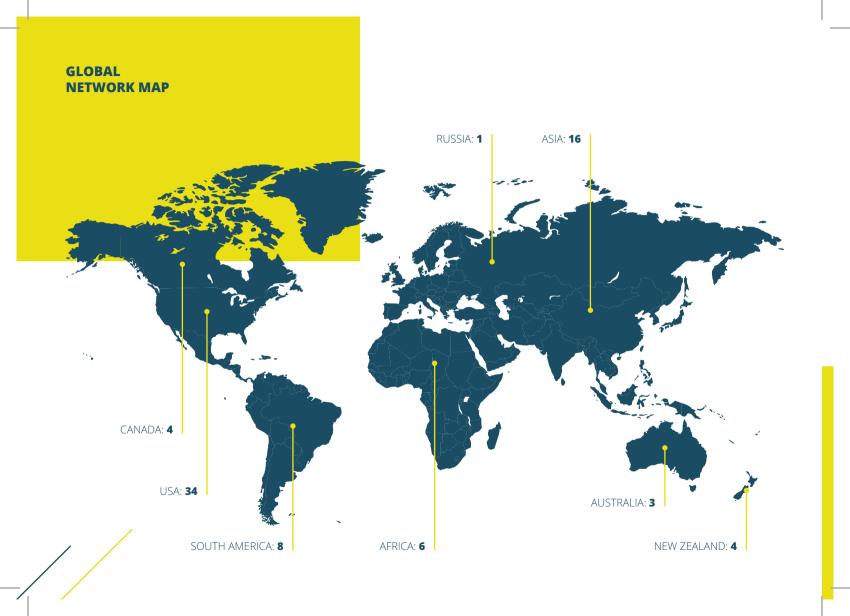
To monitor, preserve and restore functional biodiversity to mitigate the impact of human activities and climate change, and to support ecosystem services. FEM will use innovative field and laboratory-based approaches to study the biodiversity of Alpine ecosystems - from lakes and rivers to forests, alpine meadows and boreal zones - and across taxa: from microorganisms to trees and herbaceous plants, as well as invertebrates, fish, amphibians and large and small mammals.

RESEARCH AND INNOVATION NETWORK ON FOOD AND NUTRITION SUSTAINABILITY, SAFETY AND SECURITY (ONFOODS)

To develop and validate strategies for preventing waste, increasing the sustainability, circularity and security of supply chains, while at the same time, improving the quality of consumer diet and nutrition. FEM will apply new technologies for food quality and safety, processing novel functional foods and testing their quality and consumer acceptability.

INTERCONNECTED NORTH-EST INNOVATION ECOSYSTEM (I-NEST)

To rapidly enhance and extend the benefits of digital technologies to northeastern Italy in the key areas of manufacturing, agriculture, sea, mountain, construction, tourism, culture, health and nutrition. FEM will promote the digitisation of agronomic practices, the identification and development of decision support systems, and sustainable practices for the agricultural supply chain in a circular economy context.





A tight **network of research collaborations** (Italian, European, and international) to work in synergy.

Over 570 organizations and companies collaborate in multiple ways with the Centre.

EUROPEAN
NETWORK MAP



FONDAZIONE EDMUND MACH RESEARCH AND INNOVATION CENTRE

Via Edmund Mach 1 38098 San Michele All'Adige (TN) - Italy www.cri.fmach.it/en



