



INRAE

**Introducing
the French National Research Institute
for Agriculture, Food and Environment**

2021

Science for people,
life & earth

AE

INRAE

Our mission



The French National Research Institute for Agriculture, Food and Environment (INRAE)

came into being in January 2020, through the successful merger of the French National Institute for Agricultural Research (INRA) and the French National Research Institute of Science and Technology for the Environment and Agriculture (Irstea).

We operate under the joint authority of the **French Ministry for Higher Education, Research and Innovation** and the **French Ministry for Agriculture and Food**

Our mission is twofold

- to produce and share scientific knowledge contributing to solve major challenges in Europe and in the world concerning agriculture, food and the environment
- to build on our research in order to foster innovation, provide expertise, and lend support to public policy makers at international, European and national level

INRAE – a world leader in agriculture, food and the environment



“

"Humanity and the Earth are facing global challenges that call for new research objectives. As a public research institute, serving the common good, INRAE is fully committed to carry out science dedicated to life, humans, and the Earth that uncovers solutions to our most pressing concerns."

”

—— Philippe Mauguin ——
INRAE's CEO



Our roadmap: INRAE 2030



Looking to 2030, we have defined our scientific priorities and objectives for the next decade.

They arose from a collaborative, participative process that took place both internally and outside of our institution, welcoming contributions by international experts.

5

scientific priorities
(SPs)

SP 1 Responding to environmental challenges and their associated risks

SP 2 Accelerating agroecological and food transitions while answering socioeconomic challenges

SP 3 Building a bioeconomy based on the efficient circular use of resources

SP 4 Promoting a holistic approach to health

SP 5 Facilitating transitions by mobilizing data sciences and digital technologies

3

policy priorities
(PPs)

PP 1 Placing science, innovation, and expertise at the centre of society-policy dialogue

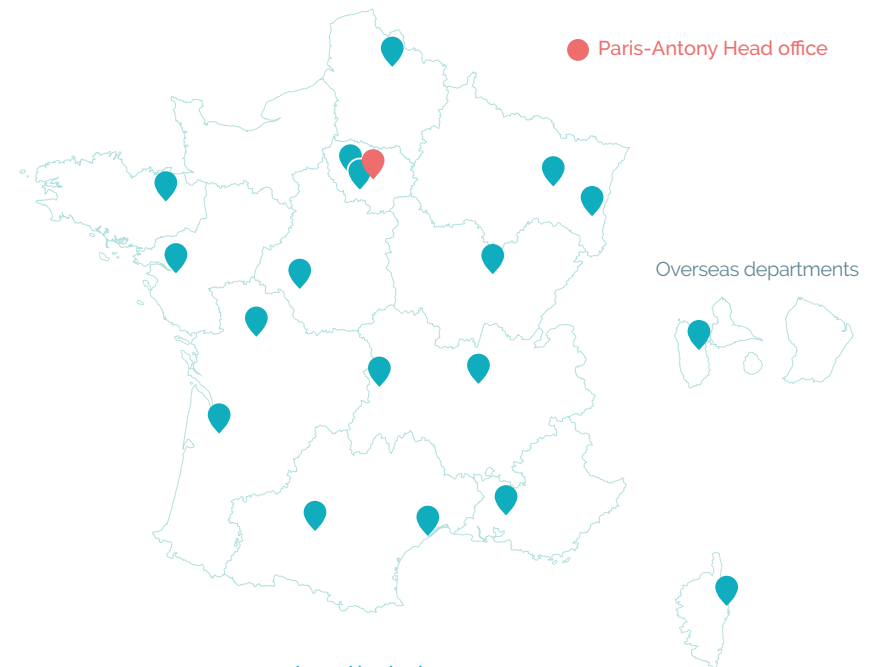
PP 2 Reinforcing our engagement with academic, European, and international partners

PP 3 Establishing social and environmental responsibility as a common objective

INRAE 2030
Building a sustainable future through
shared science and innovation



> Our eighteen research centres reflect INRAE's involvement locally at the heart of regional dynamics, carrying its commitment to the European Research Area and international collaborations.



Our organisation

-  **202 Research units**
-  **43 Experimental units**
-  **22 Service units**
-  **10 Metaprogrammes**

In order to meet the challenges facing both science and society, we are developing metaprogrammes, scientific coordination programmes, on topics requiring systemic interdisciplinary approaches.



14 research divisions

- | | |
|--|---|
|  Action & Transitions
Christophe Soulard |  Food, Bioproducts & Waste
Michael O'Donohue |
|  Agroecosystems
Philippe Hinsinger |  Human Nutrition & Food Safety
Lionel Bretillon |
|  Animal Genetics
Edwige Quillet |  Mathematics & Digital Technologies
Hervé Monod |
|  Animal Health
Muriel Vayssier-Taussat |  Microbiology & the Food Chain
Sylvie Dequin |
|  Animal Physiology & Farming
Françoise Medale |  Plant Biology & Breeding
Isabelle Litrico-Chiarelli |
|  Aquatic Ecosystems & Water Resources
Mohamed Naaim |  Plant Health
Marie-Hélène Ogliastro |
|  Ecology & Biodiversity
Catherine Bastien | |
|  Economics & Social Sciences
Pierre Dupraz | |



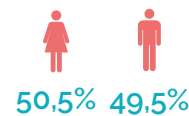
Our key figures

> 2020

Our people

- > 2,005 researchers
- > 3,179 engineers
- > 3,045 technicians
- > 1,850 PhD candidates
- > 2,029 interns

Our staff in 2020:
11,000+ people



- > 75% tenured staff
- > 25% contractual staff

HR Excellence label of the
European Commission

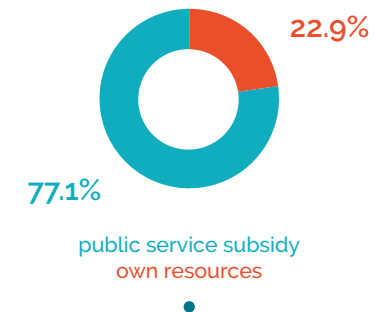


Equality and Diversity
at Work certification



Budget in 2021

€ 1045,44 million



More on partnerships and innovation in 2020

- > 15 innovation fields
- > 450+ partners
- > 380 new research contracts
with socioeconomic partners
- > 116 new disclosed inventions
and value-added results
- > 45 patent applications
- > 69 new licenced patents,
know-how, software & plant variety rights
- > 212 start-ups created since 1999



Our contribution to global challenges

> an integrated approach



The United Nations Agenda 2030 comprises 17 Sustainable Development Goals (SDGs).

INRAE is a top contributor (ranked 7th or less) worldwide on research concerning SDGs 2, 12, 13, 15 and is ranked 14th for SDG 6 clean water.*

Number of INRAE publications by SDG

(using Elsevier 2019 mapping in SciVal, WoS 2013-2018 data)



4,541 publications



2,440 publications



2,386 publications



1,932 publications



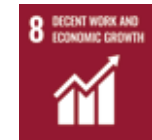
1,857 publications



1,284 publications



1,148 publications



974 publications

“

“INRAE has a responsibility to tackle this century's global challenges. With its integrated approach to agriculture, food and the environment, INRAE will be able to identify and develop solutions with multiple applications, which can, for example, facilitate the agroecological transition and the transition to healthier and more sustainable dietary regimes, while combatting climate change, land degradation, water scarcity and food insecurity.”

— Jean-François Soussana —
INRAE's Vice-President of International Policy,
member of the Intergovernmental Panel on
Climate Change (IPCC)

”

*using Elsevier 2019 mapping in SciVal, WoS 2010-2019 data

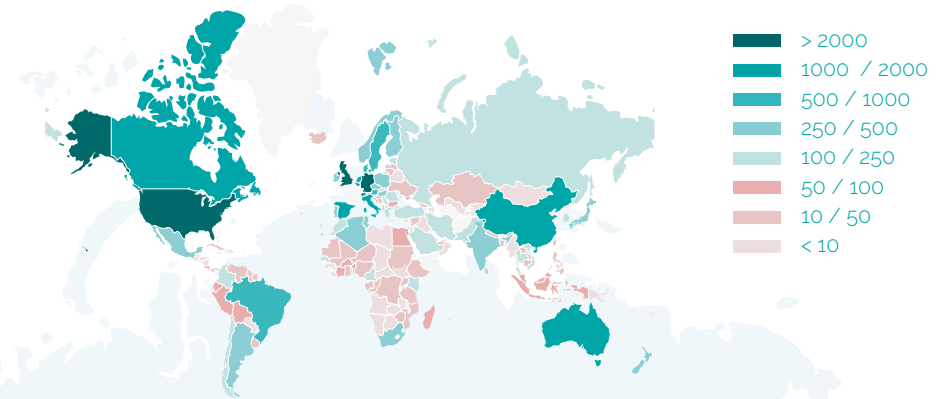
International scientific cooperation



working together with international students and scientists to respond to global challenges

Our co-publications with others in 150 countries around the world

(Web of Science Data, DipSo processing - DRI July 2021)

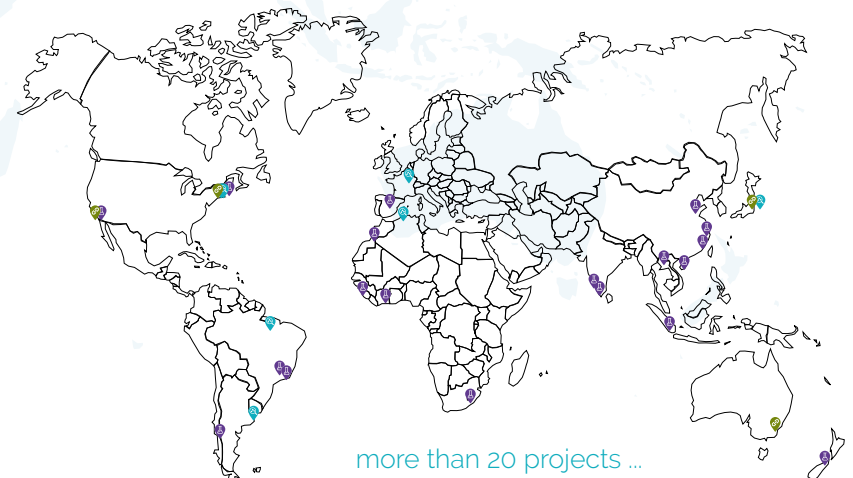


A set of instruments to structure international scientific cooperation

 **LIA** - International associated laboratories where scientists from INRAE and its international counterparts work together to build long-term shared projects of excellence

 **2RI** - International research networks focused on specific themes

 **JLC** - Joint linkage calls funded to foster new professional relationships and the creation of collaborations, with a specific focus on young scientists



International Research Initiatives (IRIs)



Bringing together the international scientific community on key issues and contributing to science-policy dialogue

We have the ambition to drive research initiatives

bringing together national, European and international partners on priority themes contributing to the 2030 Agenda: the International Research Initiatives (IRIs). An IRI is a shared vision, a roadmap, a strategic research agenda shared by an international community of researchers and the facilitation of this community.

An IRI aims to

Rally the international scientific community around major challenges and align research efforts on key issues;

Favor comparative approaches to achieve better complementarity and consistency;

Scale up scientific cooperation and production on key issues;

Build up funding opportunities at national, European and international levels.

Current IRIs

- Soils and Climate Change
- Intestinal Microbiota and Health
- PREZODE (Preventing Zoonotic Disease Emergence)
- Agroecological crop protection
- Forest and agroforest adaptation to climate change
- Agroecological transitions for food systems facing water scarcity and climate change



Advancing European research



Our scientific strategy is aligned with **European priorities** (Green deal, Horizon Europe). We have developed a leadership in European networks through Joint Programmes Initiatives and public-private partnerships at European level such as the Animal Task Force.

➤ **The 1st beneficiary of** Horizon 2020 Societal Challenge 2 "Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy" in 2019

➤ **A driving force** for a European roadmap on pesticide-free agriculture, behind the initiative «Towards Chemical Pesticide-free Agriculture» - **34** European research institutes from **20** countries

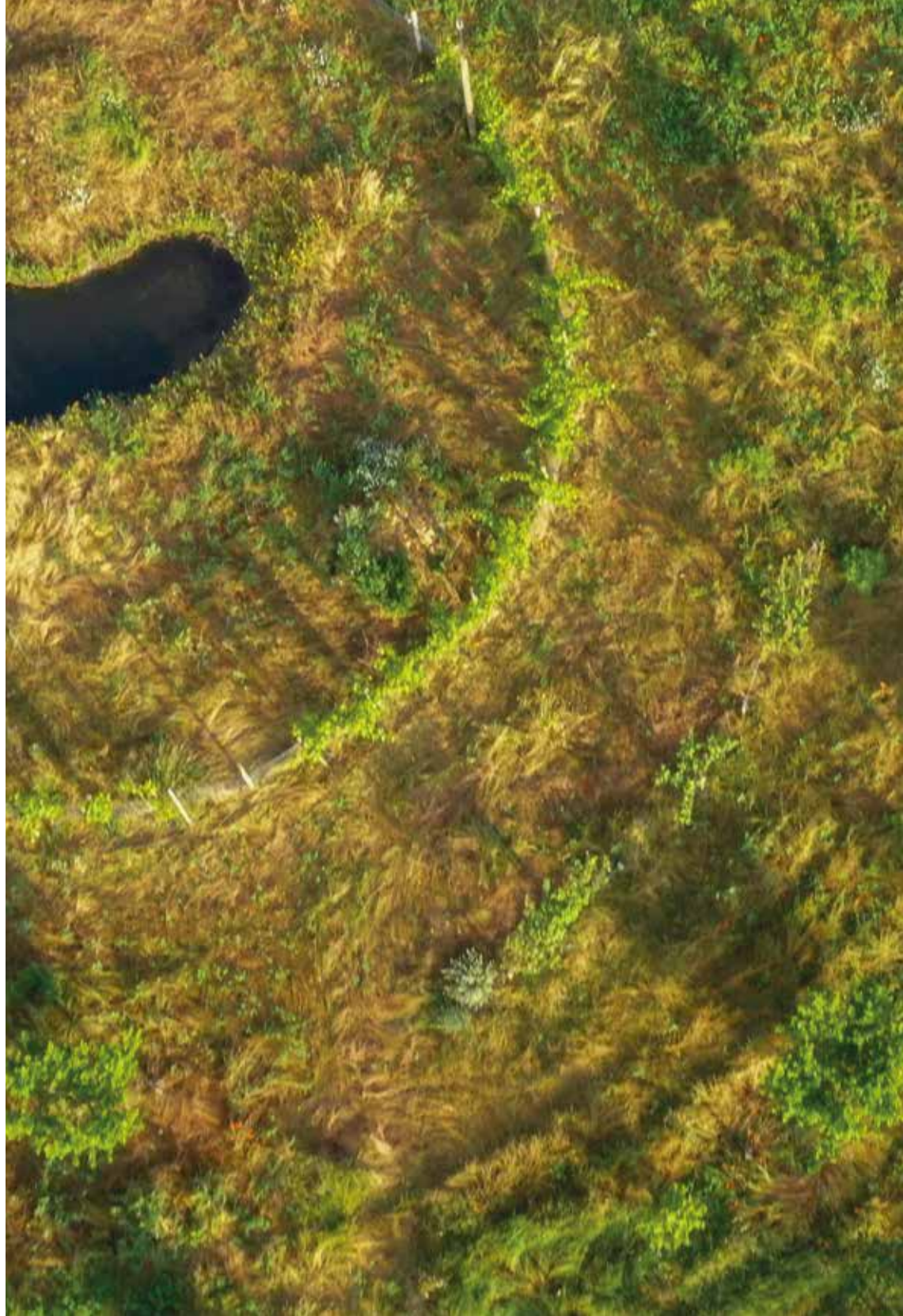
Our institute is very active in a range of **European projects**, as a coordinator and a partner, and contributes to leading European research infrastructures.

We are involved in

➤ More than **300 European projects** (H2020), coordinating 94

➤ **6 European infrastructures** (ESFRI), coordinating 1 – IBISBA.EU

➤ **6 European infrastructure projects coordinated by INRAE** - EPPN2020, AquaExcel 2020, VetBioNet, SmartCow, PigWeb, IBISBA 1.0.



Research infrastructures cover major thematic areas of our institute: Environment, Forest & land use, Agriculture, Human nutrition & health, Bioeconomy

INRAE's research infrastructures (RIs) supply scientific communities with data production and processing services,

Research infrastructures open to researchers from abroad



along with support for training, innovation and the development of technology. The RI's are also linked, internally and externally, to form a support framework at national and European levels.

Environment

- **ICOS**
Integrated Carbon Observation System
- **LIFE RI**
Living In Freshwaters and Estuaries
- **AnaEE**
Analysis and Experimentation on Ecosystems
- **IN-SYLVA-France**
Adaptive Forest Management
- **OZCAR and RZA**
Observation of Critical Zones and Drainage basins
- **Theia, PNDB, Dinamis**
National data infrastructure for Earth system science

Nutrition, bioeconomy

- **PROBE**
Platform for Profiling Properties of Food and Biobased Products
- **CALIS**
Consumers/Food/Health
- **IBISBA** (European, coordinated by INRAE)
Industrial Biotechnology Innovation and Synthetic Biology Acceleration

Resources, agronomy, phenotyping

- **RARe** (European)
Agricultural and Environmental Biological Resources Centers
- **EMERG'IN**
Emerging Infectious Animal and Zoonotic diseases
- **LiPh4SAS**
Livestock Phenotyping for Sustainable AgroecoSystems

OMICS

- **IR Génomique**
Genomics
- **BioinfOmics**
Bioinformatics for Omics
- **MetaboHUB**
metabolomics & fluxomics

Providing expertise and policy support

At INRAE we place great emphasis on giving society the scientific and technical knowledge,



tools and methods needed to clarify, design, implement and evaluate public policies. Our expertise contributes to the development and implementation of international agreements, as well as to European Directives, national and local policies.

At international, European and national level, **we provide support and expertise throughout the entire public policy lifecycle.**

➤ **INRAE provides scientific expertise and support to multilateral institutions** (FAO, World Bank, CGIAR, UNEP)



Our international experts tell us more

➤ **We are involved in a number of international initiatives**, emanating from our contributions to major international events (UN Climate Change Conferences, UN Biodiversity Conferences, World Water Forums)



Jean-François Soussana about working for the Intergovernmental Panel on Climate Change (IPCC)

➤ **18 framework agreements signed with public non-academic partners**

➤ **21 collective scientific assessments, foresight studies, and advanced studies** over the last 5 years



Roles, impacts and services provided by European livestock production



Agrimonde-Terra: to explore what the future holds for food security and land use

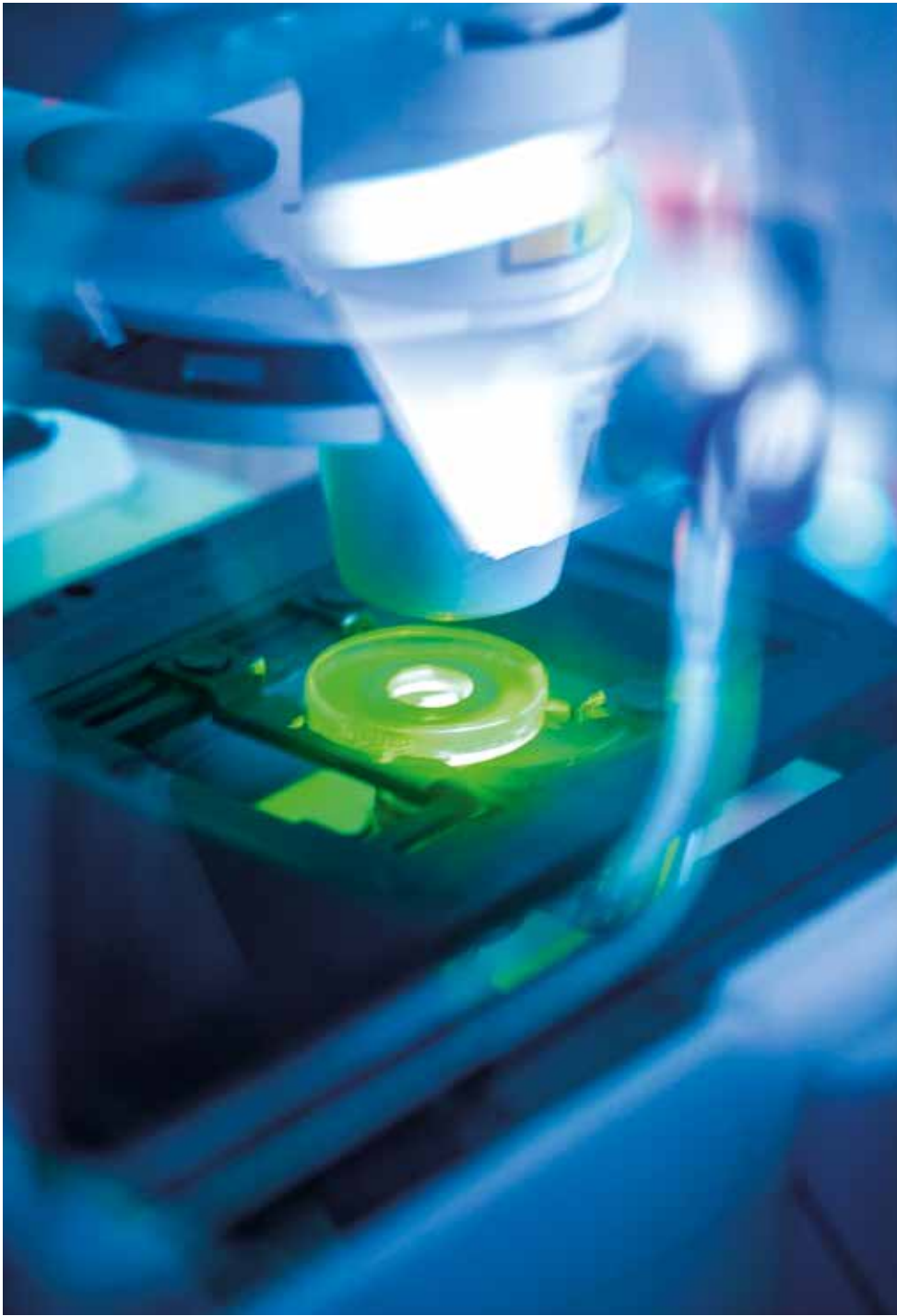


Storing carbon in soils: the potential in France (4 per 1000 initiative)

➤ **10 sustainable operational activities** to support public policies



Epidemiological surveillance platform





We are committed to science accessible to all, focused on **quality, transparency** and the **replicability of results**

Open science



Innovative peer review processes from methodology to the findings of our research

Digital infrastructures to manage and disseminate data and knowledge, in keeping with national and European policies

Building long-term relationships with non-profit organisations based on trust

Strong support given to participatory research.

Involving international peers

- ▶ to define our scientific orientations
- ▶ to assess our institution
- ▶ to select INRAE Awards recipients

They also take part in our Scientific and Ethics Committees.

Every year, our international jury selects the recipients of our INRAE Awards to honour their scientific excellence and expertise. Watch our 2020 recipients tell us about their work:



Organizational chart

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President
Philippe GILLET

ETHICS COMMITTEE

President (interim)
Michel Badré

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Join us:



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**RÉPUBLIQUE
FRANÇAISE**

*Liberté
Égalité
Fraternité*

INRAE

