



Collective Scientific Assessment “ Impacts of plant protection products on biodiversity and ecosystem services ” Dissemination and impact on public action

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Submitted on 12 Jan 2024

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Collective scientific assessment
Plant protection products
Biodiversity
Ecosystem services



INRAE



Collective Scientific Assessment « Impacts of plant protection products on biodiversity and ecosystem services »

Dissemination and impact on public action

Laure Mamy and Stéphane Pesce, INRAE

Scientific Coordinators of the collective scientific assessment
(together with **Wilfried Sanchez, Ifremer**)



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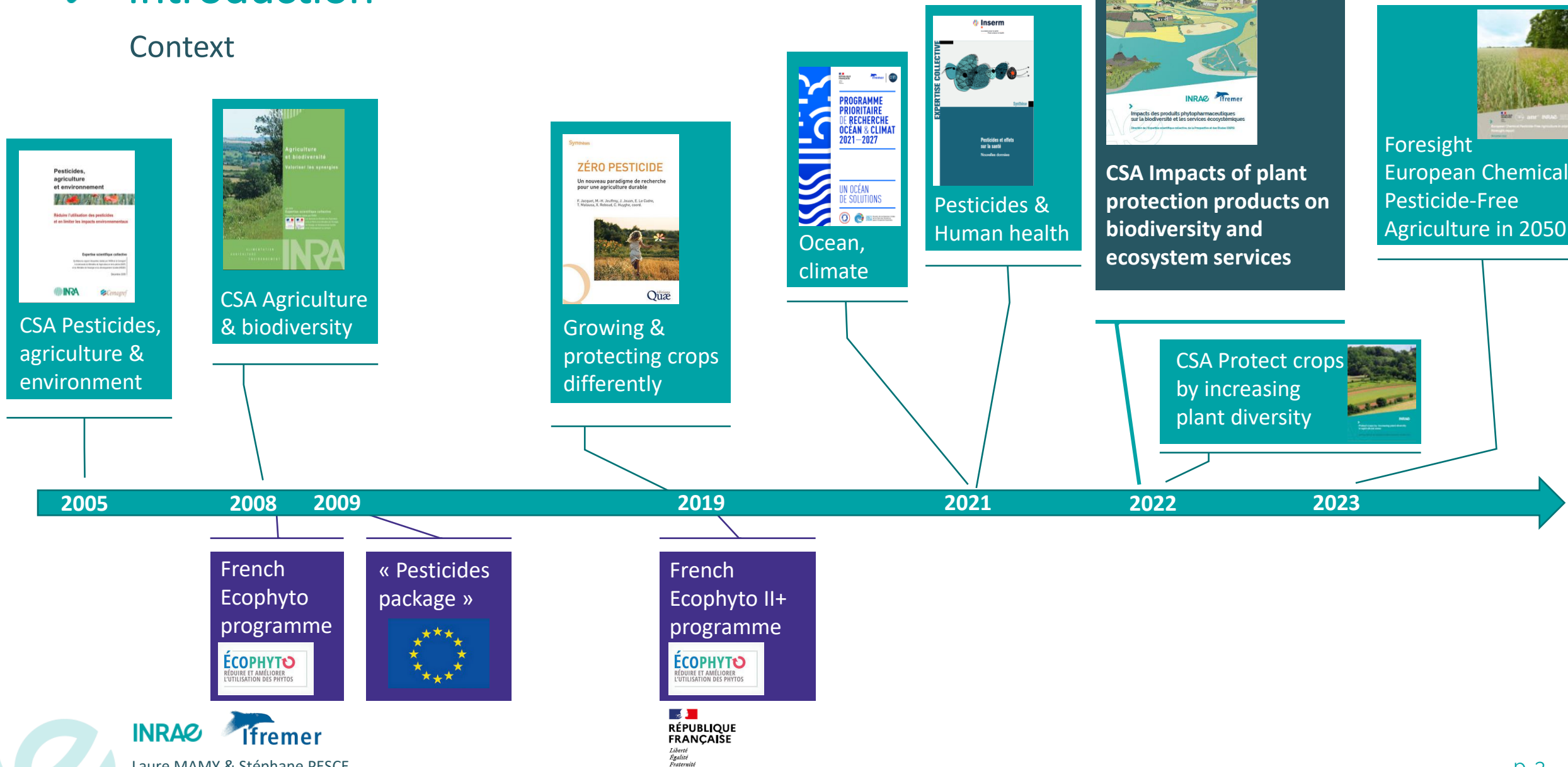




➤ Introduction: Context, objectives, implementation, deliverables

➤ Introduction

Context



➤ Introduction

Context

- Preservation of biodiversity and ecosystem services is critical for sustainable development and human well-being
 - Unprecedented erosion of biodiversity observed for many years
 - Chemical pollution, including plant protection products (PPPs), is one of the main cause of biodiversity decline (IPBES, 2019)
- **French collective scientific assessment “Impacts of PPPs on biodiversity and ecosystem services”**



<https://www.inrae.fr/en/news/impacts-plant-protection-products-biodiversity-and-ecosystem-services-findings-inrae-ifremer-collective-scientific-expert-report>

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Laure MAMY & Stéphane PESCE

PEER-Alternet webinar - January 11, 2024

➤ Introduction

Objectives of the CSA

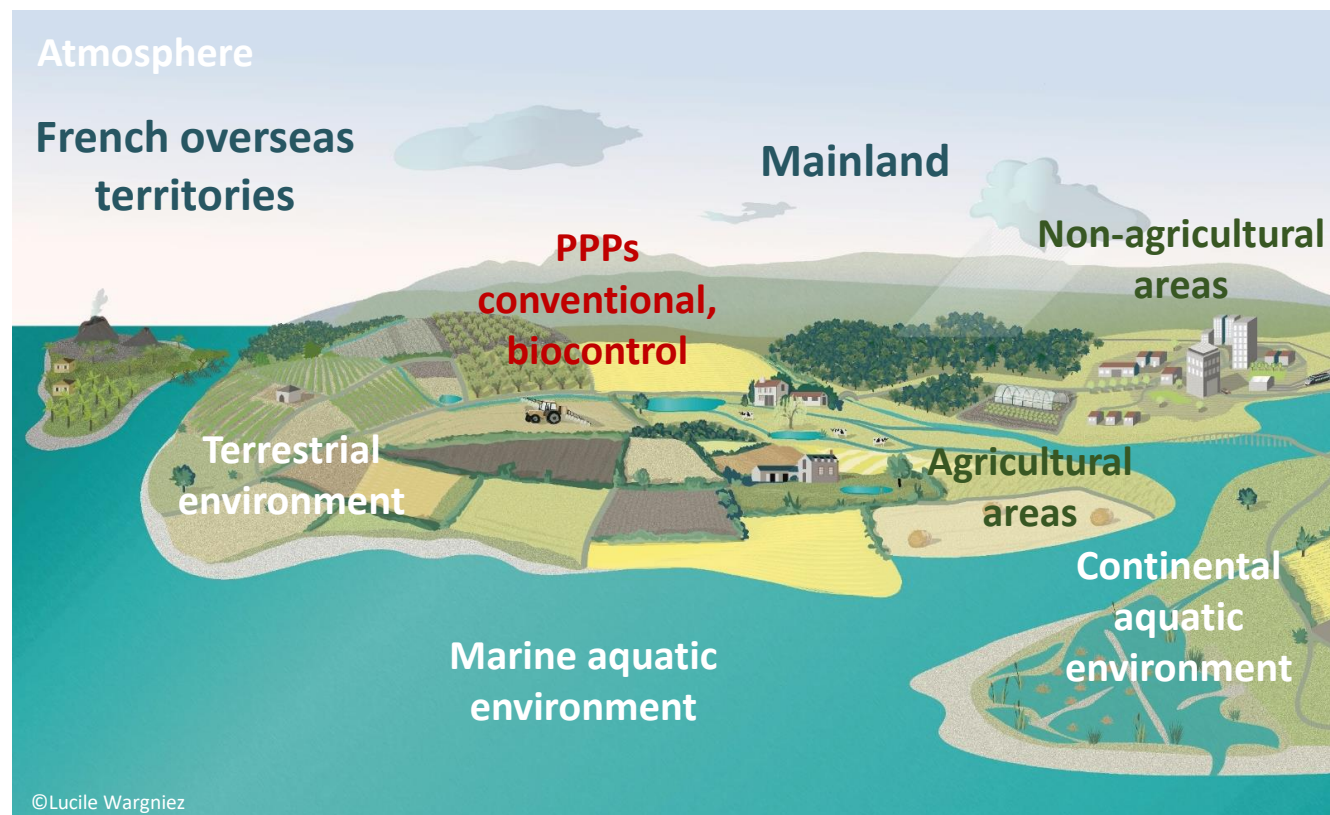
- **To review scientific knowledge on the impacts of PPPs on biodiversity and ecosystem services along the source-to-sea continuum**

- **To inform public and risk assessment authorities:**
 - Improvement of evaluation procedures
 - Improvement of PPPs monitoring following their placing on the market
 - Risk management
 - Research needs



➤ Introduction

Scope of the CSA



- Approved and banned PPPs
- Transformation products
- Adjuvants and co-formulants

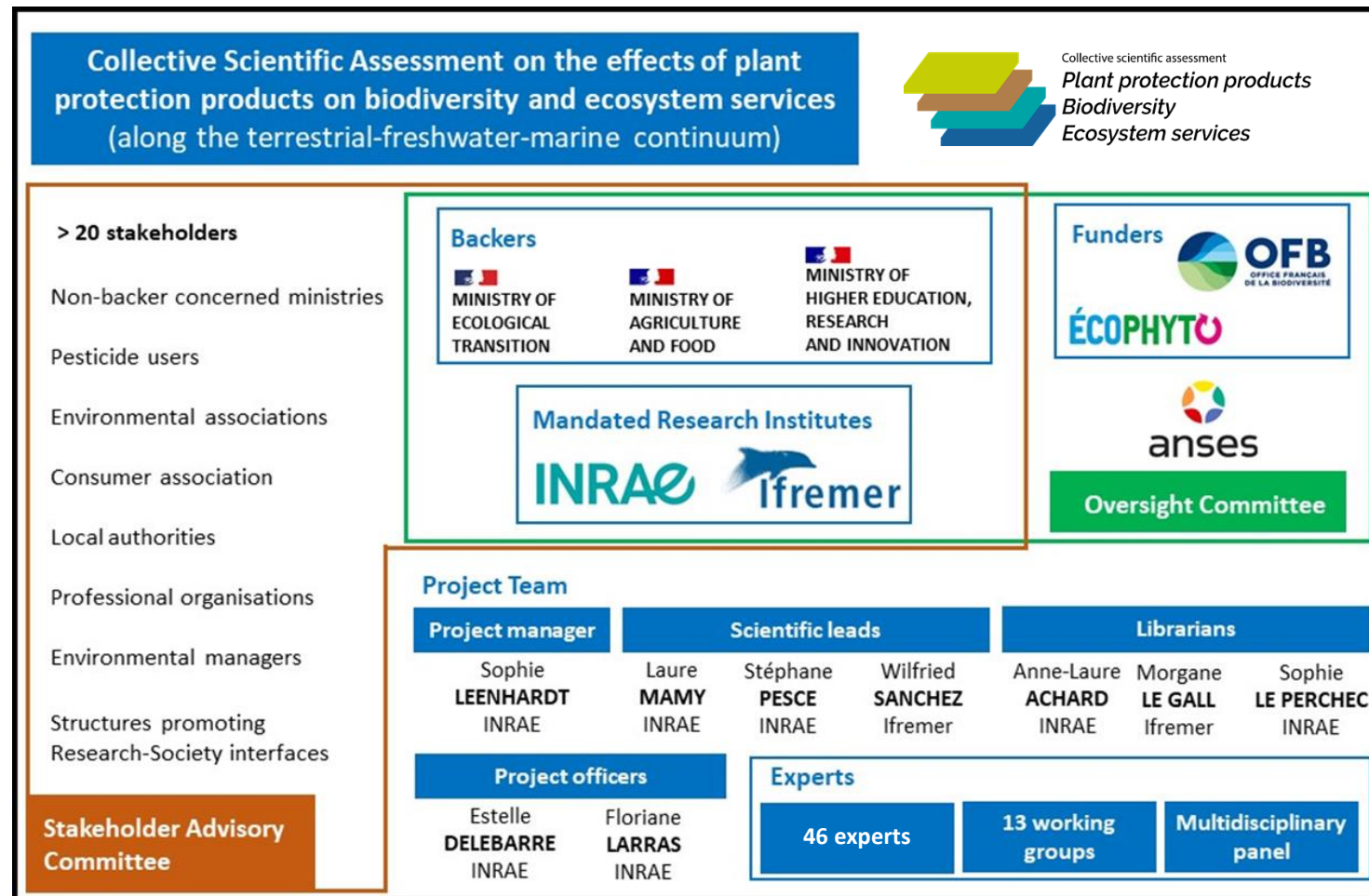
❗ Excluded from the CSA:

- Agricultural practices and cropping systems limiting the use of PPPs
- Groundwater
- Industrial discharges

➤ ~ 4 500 cited references

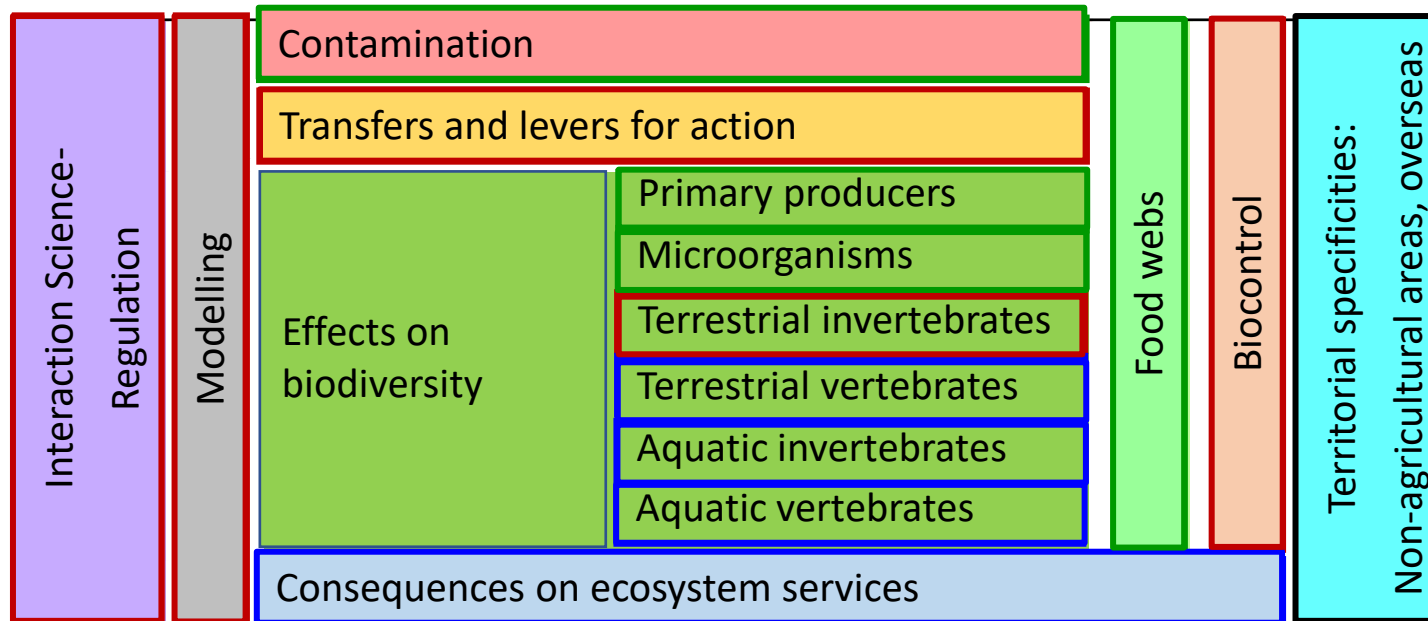
> Introduction

Implementation



> Introduction

Thematic summaries – Working groups (13)



Coordination of working groups:

Laure Mamy

Stéphane Pesce

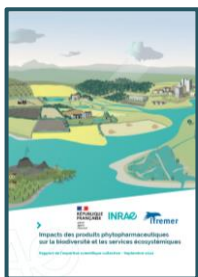
Wilfried Sanchez

Cross-cutting issues

➤ Introduction

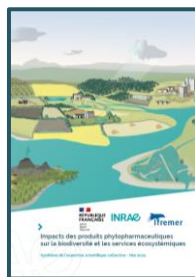
Deliverables

Main report (Fr)
1400 p



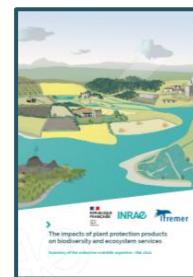
<https://hal.inrae.fr/hal-03777257/>

Synthesis (Fr)
120 p



https://www.inrae.fr/sites/default/files/pdf/PestiEcotox_Synth%C3%A8se_Experts_V12_rev2.pdf

Summaries (Fr & En)
12 p



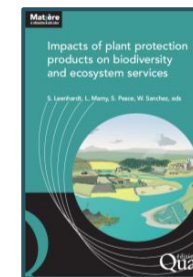
French:

https://www.inrae.fr/sites/default/files/pdf/ExpertiseCollectivePestiEcotox_R%C3%A9sum%C3%A9.pdf

English:

https://www.inrae.fr/sites/default/files/pdf/2022_05_02_PestiEcotox_R%C3%A9sum%C3%A9_anglais_web_0.pdf

Books (Fr & En)
180 p



French:

<https://www.quae-open.com/produit/216/9782759236572/impacts-des-produits-phytopharmaceutiques-sur-la-biodiversite-et-les-services-ecosystemiques>

English:

<https://www.quae-open.com/produit/224/9782759237494/impacts-of-plant-protection-products-on-biodiversity-and-ecosystem-services>

Public final seminar



> 600 attendants
(hybrid format)



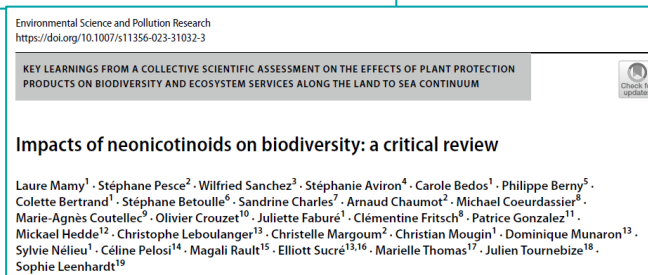
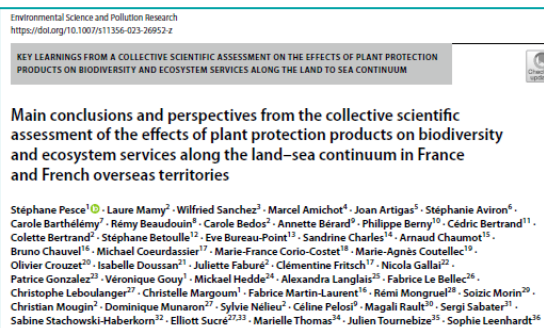
Laure MAMY & Stéphane PESCE
PEER-Alternet webinar - January 11, 2024

➤ Dissemination of the main conclusions (to scientists, stakeholders, students and the general public)



➤ Scientific articles and conferences

Scientific articles in peer reviewed international journals



9 published articles

2 articles in revision

6 articles under review

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PEER-Alternet webinar - January 11, 2024

Presentations and posters in national & international scientific conferences



Natural Products
& Biocontrol 2022

> 15 communications

THE CONVERSATION

SCIENCE
& PSEUDO-SCIENCES



TECHNIQUES
DE L'INGÉNIEUR

PHYTOMA
La santé des végétaux

YEARBOOK
Santé et Environnement

9 published articles

Presentations in national and international seminars and webinars



PARC
Partnership
Assessment
Risks
Chemicals

oekotoxzentrum
centre ecotox



➤ Interactions with various stakeholders

Plenary meetings (n=3) with a
stakeholder advisory committee
(during the collective assessment)

Consultative body that includes representatives of the main actors in society likely to be concerned by the conclusions of the CSA (e.g., environmental and consumer associations, local authorities, professional organizations, economic stakeholders in the agrifood and environmental sectors, scientific interest groups)



Guest conferences for public & private
organizations and associations



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➤ Dissemination to students and the general public

Media and social networks



Print media

>120 articles



TV and radio

>25 interviews & breaking news



Web media

>160 articles



Social networks

> 2000 mentions

Conferences to the general public



Lectures in MSc Courses



Presentation to high school students





➤ Interactions with policy makers and public health and environmental managers



➤ Contributions to parliamentary debates



French National Assembly

Commission of Inquiry into the causes of France's inability to achieve the objectives of successive plans to control the impact of plant protection products on human and environmental health (July-December 2023)

>120 interviews including:

- **1 Scientific Coordinator** of the collective scientific assessment (Stéphane Pesce, INRAE)
- **3 Scientific Experts** (Céline Pélosi, INRAE; Christian Mougin, INRAE; Fabrice Le Bellec, CIRAD)



July 13, 2023

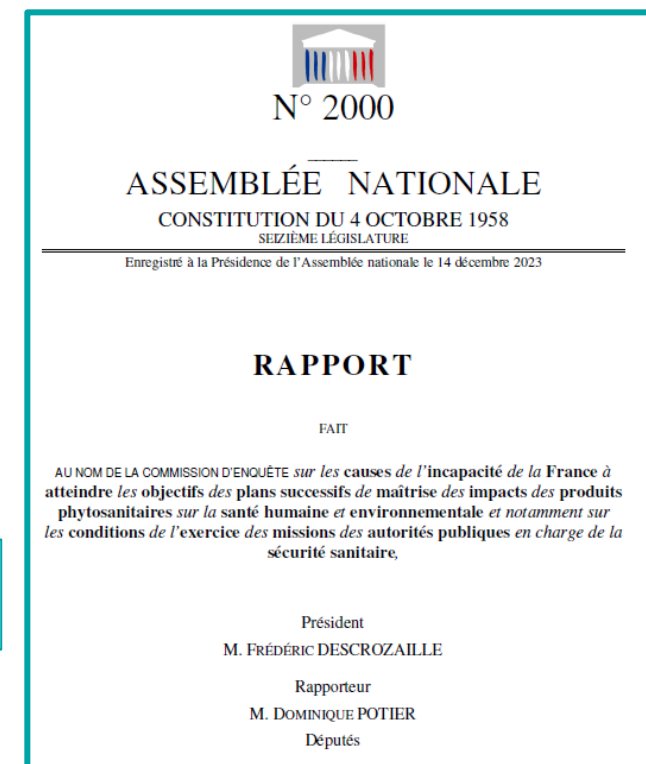


July 20, 2023



October 5, 2023

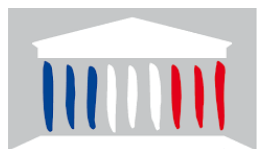
Report published on
December 14, 2023



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PEER-Alternet webinar - January 11, 2024

➤ Contributions to parliamentary debates



ASSEMBLÉE
NATIONALE

French National Assembly

Other commissions and workshops

Workshop “Weaknesses and consequences of pesticide assessment”

December 8, 2022

Interview of 2 Scientific Coordinators of the collective scientific assessment
(Laure Mamy, INRAE & Wilfried Sanchez, Ifremer)



Commission for Sustainable Development and Spatial Planning

Information mission on the dynamics of biodiversity in agricultural landscapes and the assessment of related public policies

July 6, 2023

Interview of 2 Scientific Coordinators of the collective scientific assessment
(Stéphane Pesce, INRAE & Wilfried Sanchez, Ifremer)



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Laure MAMY & Stéphane PESCE
PEER-Alternet webinar - January 11, 2024

➤ Interactions with national decision-makers and health & environmental managers

Consultations and interviews for current
and future national plans



**4th National Plan for Health and
Environnement**



Ecophyto 2030
(in process of implementation)



Phytopharmacovigilance scheme
*(collection and analyses of monitoring
data on PPPs)*



4th National Plan for Chlordecone

Participation to a European Conference



“Chemical Products:
Better protection of health
and the environment”

May 11-12, 2022





➤ Impact on public action



Just wait and see...

> Acknowledgments



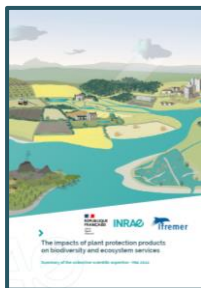
- **Experts***
- Librarians: Anne-Laure Achard, Morgane Le Gall, Sophie Le Perchec
- Floriane Larras, Estelle Delebarre
- Illustrations: Lucile Wargniez
- Graph designer: Sacha Desbourdes
- Scientific Directions of INRAE, in particular Thierry Caquet, and of Ifremer
- INRAE-DEPE, in particular Sophie Leenhardt and Guy Richard
- Press and communication services of INRAE and Ifremer
- ANSES
- Oversight Committee, Stakeholder Advisory Committee
- Backers: Ministry of Ecological Transition; Ministry of Agriculture and Food; Ministry of Higher Education, Research and Innovation
- Funding: OFB



* Laure Mamy (coord.) (INRAE), Stéphane Pesce (coord.) (INRAE), Wilfried Sanchez (coord.) (Ifremer), Marcel Amichot (INRAE), Joan Artigas (Univ. Clermont), Stéphanie Aviron (INRAE), Carole Barthélémy (Univ. Aix Marseille), Rémy Beaudouin (INERIS), Carole Bedos (INRAE), Annette Bérard (INRAE), Philippe Berny (VetAgro Sup), Cédric Bertrand (Univ. Perpignan), Colette Bertrand (INRAE), Stéphane Betoulle (Univ. Reims), Eve Bureau-Point (CNRS), Sandrine Charles (Univ. Lyon), Arnaud Chaumot (INRAE), Bruno Chauvel (INRAE), Michael Coeurdassier (Univ. Franche-Comté), Marie-France Corio-Costet (INRAE), Marie-Agnès Coutellec (INRAE), Olivier Crouzet (OFB), Isabelle Doussan (INRAE), Juliette Faburé (AgroParisTech), Clémentine Fritsch (CNRS), Nicola Gallai (ENSFEA), Patrice Gonzalez (CNRS), Véronique Gouy (INRAE), Mickael Hedde (INRAE), Alexandra Langlais (CNRS), Fabrice Le Bellec (CIRAD), Christophe Leboulanger (IRD), Christelle Margoum (INRAE), Fabrice Martin-Laurent (INRAE), Rémi Mongruel (Ifremer), Soizic Morin (INRAE), Christian Mougin (INRAE), Dominique Munaron (Ifremer), Sylvie Nélieu (INRAE), Céline Pelosi (INRAE), Magali Rault (Univ. Avignon), Sergi Sabater (Univ. Girona), Sabine Stachowski-Haberkorn (Ifremer), Elliott Sucré (CUFR), Marielle Thomas (Univ. Lorraine), Julien Tournebize (INRAE)

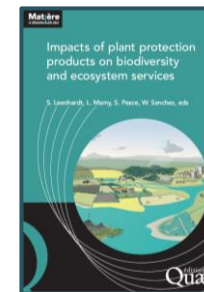


➤ To know more about the scientific collective assessment



English Summary: https://www.inrae.fr/sites/default/files/pdf/2022_05_02_PestiEcotox_R%C3%A9sum%C3%A9_anglais_web_0.pdf

English Book: <https://www.quae-open.com/produit/224/9782759237494/impacts-of-plant-protection-products-on-biodiversity-and-ecosystem-services>



Scientific articles:

2021

- Pesce et al. (2021) Collective scientific assessment as a relevant tool to inform public debate and policymaking : an illustration about the effects of plant protection products on biodiversity and ecosystem services. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-021-14863-w>

2022

- Larras et al. (2022) A critical review of effect modeling for ecological risk assessment of plant protection products. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-022-19111-3>
- Larras et al. (2022) A meta-analysis of ecotoxicological models used for plant protection product risk assessment before their placing on the market. Sci Tot Environ <https://doi.org/10.1016/j.scitotenv.2022.157003>

2023

- Morin and Artigas (2023) Twenty Years of Research in Ecosystem Functions in Aquatic Microbial Ecotoxicology. Environ Toxicol Chem <https://doi.org/10.1002/etc.5708>

In press

- Bérard et al. Improved assessment of the impacts of plant protection products on certain soil ecosystem services requires better consideration of terrestrial microalgae and cyanobacteria. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-023-31198-w>
- Mamy et al. Impacts of neonicotinoids on biodiversity: a critical review. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-023-31032-3>
- Pesce et al. Main conclusions and perspectives from the collective scientific assessment of the effects of plant protection products on biodiversity and ecosystem services along the land–sea continuum in France and French overseas territories. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-023-26952-z>
- Pesce et al. Linking ecotoxicological effects on biodiversity and ecosystem functions to impairment of ecosystem services is a challenge: an illustration with the case of plant protection products Environ Sci Pollut Res <https://doi.org/10.1007/s11356-023-29128-x>
- Pesce et al. Recommendations to reduce the streetlight effect and gray areas limiting the knowledge of the effects of plant protection products on biodiversity. Environ Sci Pollut Res <https://doi.org/10.1007/s11356-023-31310-0>



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