European Scientific Conference

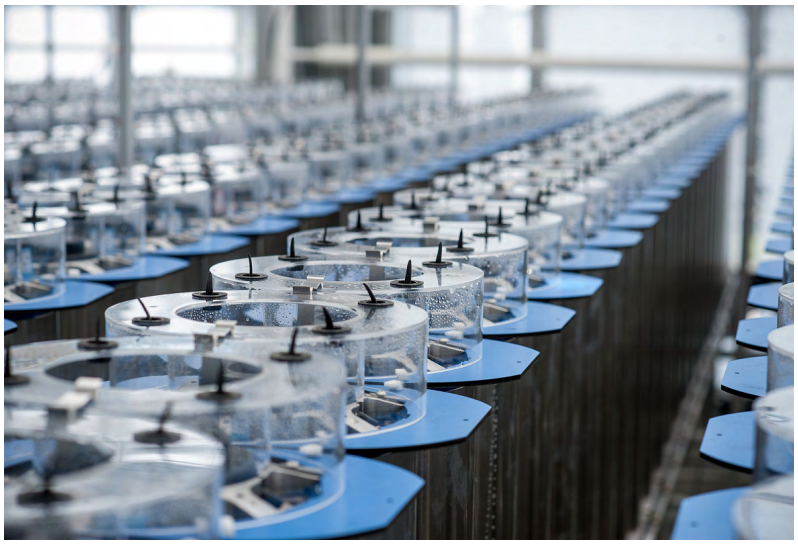
Towards Pesticide Free Agriculture

"What research to meet the pesticides reduction objectives embedded in the European Green Deal?"

2 & 3 June 2022 | Dijon (France)

PESTICIDE-FREE AGRICULTURE: A NEW RESEARCH PARADIGM

Agriculture is facing immense challenges, including climate change, food security, biodiversity decline and the degradation of natural resources. Crop protection in European agriculture still relies heavily upon chemical pesticides for weed, insect and disease control. To tackle these challenges, in 2019 the European Union launched the Green Deal, which includes the "Farm to Fork" and "Biodiversity 2030" strategies. These two strategies set ambitious targets for food and agriculture, such as cutting the use of chemical pesticides by half by 2030.



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Research has a crucial role to play in supporting efforts to reach this target without creating risks for food sovereignty. By setting the goal of pesticide-free agriculture, research can direct its efforts towards rethinking scientific strategies and exploring new scientific fronts. This new paradigm must allow research to produce breakthrough innovations in order to speed up the transition to a food system that is less dependent on chemical pesticides while ensuring that everyone has access to sustainable, healthy food.

RESEARCH STAKEHOLDERS HEED THE CALL

Well aware of the need to extend efforts to reduce pesticide use beyond national borders, INRAE launched **the initiative "Towards a Chemical Pesticide-free Agriculture".** This initiative, which today brings together 34 members from 20 European countries, has an ambitious goal. (Alternatives to chemical pesticides: 24 European research institutes undertake an ambitious roadmap)

At the national level, the French government has shored up this goal through a priority research programme **"Growing and Protecting Crops Differently"** (PPR-CPA). The programme's 10 research projects have cleared the way for new fronts and opportunities for research to explore.

These two key research initiatives have come together to host the European scientific conference "Towards a Chemical Pesticide-free Agriculture" on 2 and 3 June in Dijon, France.

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A CLOSER LOOK AT THE EUROPEAN ALLIANCE "TOWARDS A CHEMICAL PESTICIDE-FREE AGRICULTURE"

European Research Alliance
ERA Pesticide Free
Towards a chemical pesticide free agriculture

Knowing that research has a crucial role to reduce resolve the existing environmental and health issues », INRAE decided in 2018 to spearhead a new research approach. The Institute has put forward a complete paradigm change with a new, ambitious vision of agriculture without chemical pesticides.

At the european level, this research approach has resulted in **the initiative "Towards a Chemical Pesticide-free Agriculture"**, launched by INRAE. This initiative was first built around a French-German collaboration between the partners of the Leibniz Centre for Agricultural Landscape Research (ZALF) and the German Federal Research Centre for Cultivated Plants (JKI), but several series of events held in Europe since 2018 have led to a consensus within the European scientific community: research should evolve towards a pluridisciplinary approach that involves all value chain actors to address societal and environmental challenges and propose solutions to make crop production efficient without pesticides. This consensus resulted in the signature on 23 February 2020 of a Memorandum of Understanding by 24 research organisations from 16 European countries. The memorandum, signed during the Paris International Agricultural Show, formalised the official creation of the European Research Alliance "Towards a Chemical Pesticide-free Agriculture" based on a shared vision. The Alliance has gradually expanded, and now has 34 members from 20 European countries.

A CLOSER LOOK AT THE PRIORITY RESEARCH PROGRAMME "GROWING AND PROTECTING CROPS DIFFERENTLY"

CULTIVER
PROTÉGER
autrement

Launched in 2019 by the French Ministry of Higher Education, Research and Innovation and the General Secretariat for Investment, the priority research programme "Growing and Protecting Crops Differently" (PPR-CPA) is endowed with a €30 million fund for 10 research projects for a period of six years.

This programme, which is financed by the French National Research Agency (ANR) and coordinated by INRAE, aims to produce knowledge to develop new crop production and protection practices. The programme's goal is to identify alternatives to using plant protection products by drawing from agroecological, biocontrol, genetic and prevention techniques in order to "grow and protect crops differently". What sets this programme apart is the underlying desire to support long-term research projects in areas of science that have been insufficiently explored. This collective research strategy will lead to significant advances in the development of new practices and agricultural systems that do not use pesticides.

As part of its scientific outreach activities, the PPR-CPA organises events each year that seek to strengthen dialogue between researchers and professionals on the programme's topics and to bring together international scientific communities. In October 2021, in Paris, the PPR-CPA held its first international conference on social sciences to support pesticide policies. In 2022, the programme and its 10 research projects are fully involved in the European scientific conference "Towards a Pesticide-free Agriculture".

COMING TOGETHER IN DIJON

Dijon, the historic capital of the Duchy of Burgundy, is located in the heart of a listed UNESCO World Heritage site and enjoys a renowned reputation for culture and gastronomy in France and Europe. Surrounded by Burgundy vineyards to the west, the Saône river plain to the east and the Langres plateau to the north, the local area boasts a rich and diverse landscape and agriculture.

© Alex GORBI

Local stakeholders are leading Dijon's commitment to its agricultural interests. They connect through networks such as the FoodTech Dijon-Bourgogne-Franche-Comté and are supported by the Vitagora and Agronov innovation hubs. To tackle the challenge of reducing pesticide use in agriculture, other major stakeholders are also hard at work: research and educational institutions, including INRAE's Burgundy-Franche-Comté centre, the Université de Bourgogne, and the Institut Agro Dijon, as well as professional sector players (farmers, cooperatives, seed producers, suppliers, processors and more).

As one of the 24 chosen stakeholders from the French government's call for interest "Territoires d'innovation de grande ambition" [Innovative territories with grand ambitions], Dijon Métropole will lead the creation of a model of environmentally friendly agroecological production and the sharing of resources between the city and agricultural world. Those interested can get a deeper look at the different strategies managed by Dijon Métropole during the **Sciences & Society Event on 2 June at 6 pm at the Palais des Ducs.**

Finally, INRAE's Dijon centre, which conducts innovative agroecological experiments, provides a particularly good example of the key role played by France and INRAE in pesticide reduction and groundbreaking research. As such, Dijon is a prime area to host this conference and convey the importance of the French and European challenges that stem from pesticide use.

A CLOSER LOOK AT THE EXPERIMENTAL RESEARCH IN AGROECOLOGY AT INRAE

THE BURGUNDY-FRANCHE-COMTE CENTRE IN DIJON

As a European leader in research on agroecological cropping systems, INRAE's Burgundy-Franche-Comté centre is currently conducting field experiments on 140 hectares of its Epoisses Experimental Unit (U2E) in Bretenière. The site, located 10 km outside Dijon, has been home to the CA-SYS platform since 2018. This unique experimental platform for agroecological research is co-run by the U2E Unit and the Joint Research Unit for Agroecology.

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CA-SYS Platform

Collaborative platform for experimenting agroecology

Scientific animation
- Stéphane CORDEAU, Agroecology Joint Research Unit
- Violaine DEYTIEUX, Experimental unit Domaine d'Époisses

Research topics
- Breeding and evaluation of plant ideotypes
- Study of plant/microbe interactions
- Role of spatial processes for functional biodiversity and biological control
- Design and evaluation of agroecological systems

Some figures
- 10 - 15 crop species
- 125 ha of experiment, including 7 ha of factorial experiment
- 10 ha of flower and grass strips
- 3.4 km of hedges
- 10 scientists and engineers
- 20 technicians

Missions

The CA-SYS platform aims to:
- Design and evaluate **innovative agroecological systems**;
- Study the **transition** from current farming systems towards agroecological systems;
- Breed new **varieties** adapted to agroecological conditions, for example tolerant to stressors and better benefiting from beneficial plant-microbe interactions;
- Understand the **ecological processes** underlying the functioning of agroecological systems;
- Develop and adapt **experimental methods** for studying agroecological systems and produce knowledge under agroecological conditions.

Overarching goals

Design arable pesticide-free farming systems by enhancing the services provided by **cultivated and wild biodiversity** to reduce the reliance on external inputs while maintaining/increasing cropping system sustainability.

Assessment of multiple performances (economic, social, environmental) of highly disruptive agroecological systems

- Production of knowledge to develop these systems;
- Evaluation of the feasibility and performances of highly innovative agroecological systems.

Agroecological principles structuring the platform

- **Increasing plant diversity** in fields (mixtures of species/varieties), in time (crop succession), in space (landscape management of crops and semi-natural habitats);
- **Farming without pesticides** by combining alternative and agroecological technics for pest management;
- **Acting at the landscape scale** by designing the spatio-temporal arrangement and management of fields and semi-natural habitats (hedges, flower and grass strips).

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Exploring a diversity of agroecological systems

Two main agricultural strategies are tested: plowing/secondary tillage-based systems (occasional plowing, false seedbed, mechanical weeding) vs. conservation tillage/agriculture systems (permanent no-till or rotational no-till).

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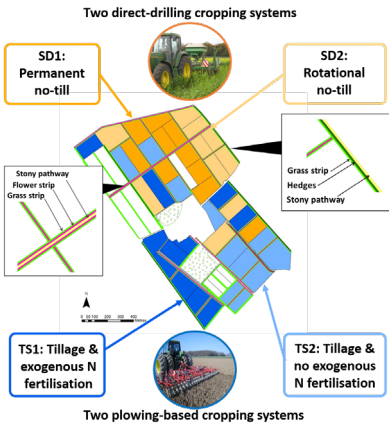


A coherent landscape design strategy resulting in a mosaic of adjacent fields with diverse cropping systems and a network of semi-natural habitats

- Testing the effect of a homogeneous landscape **vs.** a composite landscape of farming practices on biological regulation processes

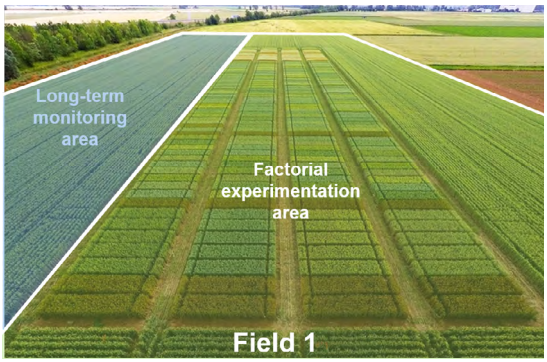
Implementation in summer 2018
First results are under analysis. Some difficulties in the management of agroecological systems have already been identified and adaptations are necessary.

Routinely collected data

- Farming practices
- Yield and quality
- Crop growth
- Mains pests and damages
- Weeds and yield loss
- Beneficial organisms and level of pest biocontrol
- Soil microbial diversity (and soil carbon stock in some fields)

Renewing experimental approaches

Factorial experiments are nested in the fields dedicated to system experiment.



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- System experiment to design and evaluate agroecological systems
- Factorial experiment to better understand ecological processes (e.g. plant/beneficial microorganism interactions), or to test the effect of some practices (e.g. testing cover crop termination methods), or to breed varieties adapted to agroecological management

© violaine DEYTIEUX

Interacting with stakeholders

Farmers, advisors, technicians, engineers, teachers and researchers have been involved in the design of the platform, participating in meetings and workshops for the co-design of agroecological systems. They are still involved in the life of the platform, via workshops on specific themes or visits, to benefit from their expertise.

- Explain our agronomic logic and reasoning to manage the systems
- Discuss some adaptations, extrapolations of the results to other production situations
- Produce resources to support agroecological transition
- Communicate with farmers, students and public decision-makers

Burgundy-Franche-Comté
INRAE Research Centre

Experimental Unit Domaine d'Époisses (U2E)
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2 & 3 June
2022 | DIJON

EUROPEAN SCIENTIFIC CONFERENCE

TOWARDS PESTICIDE FREE AGRICULTURE

" What research to meet the pesticides reduction objectives embedded in the European Green Deal?"

On 2 and 3 June 2022, INRAE – the French National Research Institute for Agriculture, Food and Environment – is hosting a European scientific conference in Dijon, France, to explore the following question: "How can research help achieve the pesticide-reduction objectives in the European Green Deal?"

As part of the official programme of the French Presidency of the European Union, this conference will review current scientific reflections in European research with a view to changing a food system that is heavily dependent on chemical pesticides. The ultimate goal is to meet the ambitious targets set out in the European Green Deal. In particular, the conference will draw from the priority research programme "Growing and Protecting Crops Differently" and the European Research Alliance "Towards a Chemical Pesticide-free Agriculture".

Over the course of two days, high-level researchers from different European countries will come together to discuss the latest scientific advances and the scientific fronts that research is exploring to achieve the ambitious objective announced in the "Farm to Fork" strategy to reduce pesticide use by 50% by 2030.

Many areas of research and innovation will be addressed, including genetics and plant breeding, chemical and microbial ecology for new biocontrol methods, agronomy for useful diversification in crop protection, digital technology, robotics and agricultural equipment for new cultivation methods and decision support systems, and social sciences to support the creation of stakeholder strategies and public policies. National and European institutional actors as well as civil society actors are also invited to this event to add to discussions at the political and societal levels.

This large-scale event is an opportunity to bring together a diverse group of stakeholders, researchers, professionals and decision-makers from all over Europe, to compare their ideas and approaches, and thus to rethink together the scientific paths that will lead the transition towards an agriculture that no longer relies on huge quantities of chemical pesticides.

With this conference, INRAE hopes to bring greater momentum at the European level to efforts to solve the major challenge of transitioning to pesticide-free agriculture.

The conference will be an in-person event.

https://fr-tpfagri2022.colloque.inrae.fr/

AFTER THE CONFERENCE

Bringing together leading scientists from various disciplines during this European-wide event has a twofold aim:

- present a situational analysis of scientific production and the scientific fronts that research is exploring to free itself from the current system, which is heavily reliant on chemical pesticides;
- demonstrate the role of research in addressing the ambitious measures supported by the European Green Deal to achieve a sustainable ecological transition across the continent.

To support continuity in the discussions and ensure these objectives are met, several activities are planned.
Researchers who present their papers during the plenary and thematic sessions will be invited to publish scientific articles in a special edition of the journal *Agronomy for Sustainable Development*. There are also plans to organise a series of events as part of the next presidencies of the European Union. Finally, in addition to creating a policy brief on research needs to submit to the European Commission, a hearing will be held at the European Parliament to present the conclusions of the conference.

THE PROGRAMME IN DETAIL

DIJON EXHIBITION AND CONVENTION CENTRE | DIJON CITY HALL | EPOISSES EXPERIMENTAL UNIT IN BRETENIÈRE

The event programme, created with the support of the High-Level International Scientific Committee, is divided over two days and will focus on supporting dialogue between researchers from different disciplines as well as between researchers, professionals and public policymakers.

On 2 June at 6 pm at the Palais des Ducs, a special event organised by Dijon Métropole will be held on the major issues in agriculture and food to give researchers and locals a chance to connect.

Thursday 2 June

09.00-09.30: **Welcome** *(Palais des Congrès, Dijon)*

Johanna MORILLON

Master of ceremonies

09.30-10.30: **Opening ceremony**
- **Marie-Guite DUFAY,** President of the Bourgogne-Franche-Comté Region
- […], French Minister in charge of Agriculture (TBC.)
- **Janusz WOJCIECHOWSKI,** Commissioner for Agriculture (TBC.)

10.30-12.30: **Plenary session**
- **Florence JACQUET**, *"Pesticide-free agriculture as a new paradigm for research"*
- **Riccardo BOMMARCO**, *"Ecological innovation and redesign for pesticide free crop production"*
- **Monica HÖFTE**, *"From chemical crop protection to bio-inspired plant health management"*
- **Frank ORDON**, *"Resistance Breeding – cornerstone for meeting future challenges"*
- **Robert FINGER**, *"Economics and Policy of Pesticide-free Agriculture"*

12.30-14.00: ***Lunch break/ Posters session***

14.00-16.00: **Parallel thematic sessions**
- Cropping systems (x3)
- Genetics and breeding of new cultivars for new services
- Bio-inspired management of Crop Health
- Agrifood system transformation
- Towards pesticide free perennial crops
- Public policies for a transition towards pesticide-free agriculture

16.00-16.30: ***Coffee break/ Posters session***

16.30-17.30: **Panel discussion**
- **Szilvia BENCZE,** Research Leader, Research Institute of Organic Agriculture , OMKi, Hungary
- **Violette GIESSEN**, Professor in the Department of Environmental Sciences, Wageningen University, The Netherlands
- **Philippe REIGNAULT,** Director of Plant Health, ANSES (French Agency for Food, Environmental and Occupational Health & Safety), France
- **Christian HUYGHE**, Scientific Director of Agriculture, INRAE, France
- **Jennifer LEWIS,** Executive Director, International Biocontrol Manufacturers Association, IBMA Global, Belgium
- **Frank EWERT,** Scientific Director, Leibniz Centre for Agricultural Landscape Research, ZALF, Germany
- **Emilio RODRIGUEZ-CEREZO,** Deputy Head of the Unit Economics of Agriculture at the Joint Research Centre (JRC), European Commission, Seville, Spain
- **Lucius TAMM,** Leader of the Department of Crop Sciences, Research Institute of Organic Agriculture, FiBL, Switzerland

17.30-17.45: **Statement from a major player in the agri-food value chain**
- **Agnès D'ANTHONAY,** Director of Public Affairs and Sustainable Development – Kronenbourg (Carlsberg Group)

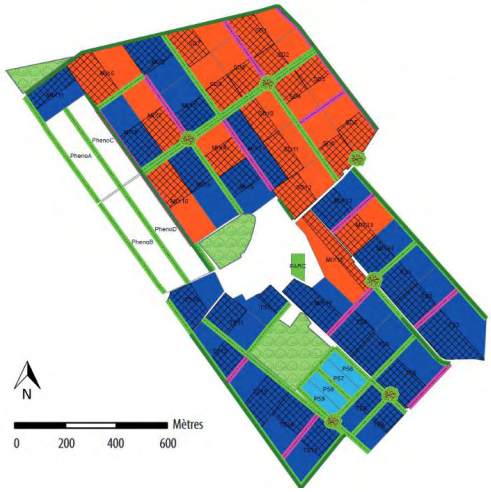
17.45-18.00: **Conclusion**
- **Philippe MAUGUIN,** INRAE, CEO
- **Jean-Eric PAQUET**, European Commission Director-General – Directorate "Research and Innovation" (RTD)

18.00-19.30: **Science and society meeting** (Palais des Ducs)
Dijon Métropole will invite local residents to take part in a Science & Society event inside the Palais des Ducs. The event will include several round tables on the major issues in agriculture and good.

Evening: ***Cocktail reception*** *(Palais des Ducs)*

Friday 3 June

09.00-14.00: **Visits to the CA-SYS platform - INRAE Experimental Farm in Dijon-Bretenière**
On 3 June, a group visit of this experimental platform will be organised for participants. The visit will include explanations in the field of experiments conducted by the platform, poster presentations, an exhibition of mechanical weeders and other experimental equipment (while stationary), and discussions with the INRAE scientists running the experiments.



KEYNOTE SPEAKERS

Robert FINGER
Professor of Agricultural Economics and Policy
ETH Zürich

Riccaro BOMMARCO
Professor of agricultural entomology
Swedish University of Agricultural Sciences

Monica HÖFTE
Head of the Laboratory of Phytopathology
Ghent University

Frank ORDON
President
Julius Kühn-Institut (JKI)

Florence JACQUET
Scientific director of the Growing and Protecting Crops Differently Research Programme

FRANCE22

An event organised in the context of the French Presidency of the Council of the European Union

LIST OF SPEAKERS AND THEIR SCIENTIFIC PAPER FOR EACH TOPIC

AGRIFOOD SYSTEM TRANSFORMATION

1/ Szilvia BENCZE, OMKI (Hungary): "Return of ancient wheats, emmer and einkorn – a way of the peaceful war for a more sustainable living and farming

2/ Marie-Hélène JEUFFROY, INRAE (France): "Design workshops for pesticide-free cropping systems and decision-support tools: learning from 12 case studies"

3/ Chloé SALEMBIER, INRAE (France): "An approach to detect and overcome cognitive fixations to innovate in crop protection"

4/ Olivier MORA, INRAE (France): "Building scenarios of chemical pesticide-free crop protection strategies with a disruption approach: lessons and perspective for research by 2050"

5/ José Luis VICENTE-VICENTE, ZALF (Germany): "Agroecological characterisation in Community-Supported Agriculture (CSA) farms: using the Agroecology Criteria Tool (ACT) to characterise pesticide-free farms for agri-food system transformation"

6/ Margarita C. HADJISTYLLI, MOA (Cyprus): "From fork to farm: a retrospective approach from pesticide residues to sustainable use of pesticides towards agri-food transformation"

BIO-INSPIRED MANAGEMENT OF CROP HEALTH

1/ Cyril ZIPFEL, University of Zürich (Switzerland): "Capitalizing on the plant own immune system to improve crop disease resistance"

2/ Jürgen GROSS, JKI (Germany): "Novel trends on semiochemicals and semiophysicals for pesticide reduction in integrated pest management"

3/ Joaquín POZO DENGRA, Biorizon Biotech (Spain): "Biopesticides based on microalgae via circular economy approach (EMFF-ALGAENAUTS Project)"

4/ Felix WÄCKERS, Biobest Group (Belgium): "The power of small: How the next big thing in biocontrol might be something minute"

5/ Szabolcs TOTH, UNI Mate (Hungary): "Entomopathogenic nematodes contribute to replace synthetic soil insecticides for suppressing populations of the maize pest Diabrotica virgifera virgifera in Europe"

6/ Claire PRIGENT-COMBARE, CNRS, INRAE (France): "Protecting crops against the parasite weed of the Orobanche and Phelipanche species through integrated plant protection strategies"

CROPPING SYSTEM (PART 1)

1/ Andrea RADICI, INRAE (France): "A transboundary perspective for managing (re-)emerging airborne pathogens in agriculture"

2/ Caroline COLNENNE-DAVID, INRAE (France): "Pesticide-free cropping system: performances, learnings and technical locks from a field trial"

3/ Nicolas MUNIER-JOLAIN, INRAE (France): "Demonstrating that reducing the reliance on pesticide is possible, based on networks of pioneer farmers. Experience of the DEPHY network in France and perspectives with IPMWORKS at the EU scale"

4/ Silke DACHBRODT-SAAYDEH, JKI (Germany): "Levers and potential for pesticide use reduction by Integrated Pest Management - experiences at different spatial scales"

5/ Jacob C. DOUMA, WUR (The Netherlands): "Intercropping suppresses plant disease - a global meta-analysis"

6/ Muriel MORISON, INRAE (France): "Introducing biodiversity in fields and their surroundings to promote biological regulation and reduce the use of pesticides: illustrations in arable crops"

CROPPING SYSTEM (PART 2)

1/ Nathalie COLBACH, INRAE (France): "Co-production of knowledge, tools and solutions for agroecological weed management"

2/ Sandie MASSON, Agroscope (Switzerland): "Building a weed management steering tool helping farmers to combine alternative methods to herbicides in the Swiss farming context"

3/ Edith GABRIEL, INRAE (France): "Going beyond the current paradigm of Epidemiosurveillance using Machine Learning"

4/ Virginie BARBOSA & Anne KALOUGUINE, LNE (France): "Competitions for autonomous agriculture: an original experimental tool in the French ROSE challenge and the European METRICS-ACRE competition"

5/ Sebastian PREIDL, JKI (Germany): "Crop protection: Use of land cover classification products derived from satellite data for crop distribution pattern analysis"

6/ Zita KRIAUČIŪNIENĖ, Vytautas MAGNUS University Agriculture Academy (Lithuania): "Non- Chemical Weed Control in the Winter Oilseed Rape Crop"

CROPPING SYSTEM (PART 3)

1/ Kathrin GRAHMANN, ZALF (Germany): "Crop diversification to reduce chemical plant protection products: Preliminary findings from the landscape laboratory patchCROP"

2/ Davide BELLONE, INRAE (France): "Does integrating agricultural techniques foster agroecological crop protection through bottom-up effect and indirectly through top-down regulation by natural enemies?"

3/ David MAKOWSKI, INRAE (France): "How meta-analyses can help identify farming practices to reduce pesticide use and support European policy makers"

4/ Stefan LORENZ, JKI (Germany): "Modelling effects of altered management practices on risks associated to pesticide use for small freshwaters"

5/ Maude QUINIO, INRAE, TELECOM France (France): "Online Epistemic Communities in agriculture to enhance the design of pesticide-free cropping systems"

6/ Jean-Marc MEYNARD, INRAE (France): "Genealogy of approaches to reduce pesticide use"

GENETICS AND BREEDING OF NEW CULTIVARS FOR NEW SERVICES

1/ Jean-Benoît MOREL, INRAE (France): "MoBiDiv: Mobilizing and Breeding Intra and inter- specific crop Diversity for a systemic change towards pesticide-free agriculture"

2/ Didier MERDINOGLU, INRAE (France): "Update on INRAE-ResDur: The French program for breeding for durable resistance to downy and powdery mildew in grapevine"

3/ William BILLAUD, INRAE (France): "Change of paradigm for breeding disease resistant cultivars robust to varying environments: estimators of the robustness of plant immunity and promising genes for the future"

4/ Albrecht SERFLING, JKI (Germany): "Prebreeding of wheat - Improving resistance to fungal pathogens to reduce the use of fungicides"

5/ Andreas STAHL, JKI (Germany): "Improving resistance level to important phytopathogenic fungi in winter wheat - What we can learn for the future from 50 years of breeding history?"

6/ Safia MEDIENE, AgroParisTech (France): "A functional ecology approach to co-design crop mixtures"

PUBLIC POLICIES FOR A TRANSITION TOWARDS PESTICIDE-FREE AGRICULTURE

1/ Benoît GRIMONPREZ, University of Poitiers (France): "Providing a legal framework for green-pesticides"

2/ Niklas MÖHRING, Marie Skłodowska-Curie Fellow, CEBC-CNRS (France): "Context-dependent adoption behavior of farmers in pesticide-free production systems"

3/ Edoardo BALDONI, JRC (EU): "Evidence of pesticide dependence in perennial crops: an empirical test based on Italian FADN crop-level data"

4/ Jesus BARREIRO-HURLE, JRC (EU): "Economic and social dimensions of an exit from pesticides: a review of studies anticipating impacts based on agro-economic models"

5/ David BOHAN, INRAE (France): "Why does France not meet its pesticide reduction targets? Farmers' socio-economic trade-offs when adopting agro-ecological practices"

6/ Yann RAINEAU, University of Bordeaux (France): "French winegrowers Willingness To Pay for conditional green insurance"

TOWARDS PESTICIDE-FREE PERENNIAL CROPS

1/ Lucius TAMM, FIBL/JKI (Switzerland/Germany): "Progress on the development of novel plant protection tools as alternatives to copper use in organic and agroecology farming systems"

2/ Ainara PEÑALVER-CRUZ, L'Institut Agro/Universidad de Talca (France/Chile): "The hedgerow Pyracantha coccinea: A potential strategy to control Eriosoma lanigerum in apple orchards"

3/ Emilio GIL MOYA, Universitat Politècnica de Catalunya (Spain): "Research, extension and training: a good combination to reduce the amount of pesticides in fruit and vineyards"

4/ Marc VOLTZ, INRAE (France): "Ripp-Viti project: Building sustainable cropping and landscape management strategies to limit pesticide pollution risks in Mediterranean vineyards"

5/ Denis THIERY, INRAE (France): "Disrupting pest reproduction is an alternative to pesticides: the case of grape production"

6/ Esther FOUILLET, INRAE (France): "Identifying trajectory of practices and performances in a context of pesticide use reduction in vineyards: Case of the DEPHY-Network"

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