

Agrowise

Guidelines for farm-specific or crop-specific rules for mitigating pesticides impacts while ensuring sustainable agriculture

Workshop 1

24-25 September 2024 - Brussels



**Co-funded by
the European Union**

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Project Origin: Response to LIFE PLP 2023 Call

Aiming to develop guidelines to help Member States establish crop-specific and farm-specific rules for Integrated Pest Management (IPM) implementation

Recommendations for crop-specific rules on plant protection for farmers

Recommendations for voluntary practices, which may be funded by the CAP

Interaction of national competent authorities, research bodies and relevant stakeholder groups

Research Consortium: Advancing Innovative Approaches for Sustainable Agriculture

Uniting experts within the European alliance towards a productive pesticide-free agriculture in Europe

Institut Nationale de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)

Sveučiliste U Zagrebu Agronomski Fakultet (UNIZGFAZ) ;

Agriculture and Food Development Authority (Teagasc) ;

Leibniz-Zentrum fuer Agrarlandschaftsforschung (ZALF) ;

Julius Kuhn-Institut Bundesforschungsinstitut für Kulturpflanzen (JKI) ;

Sveriges Lantbruksuniversitet – Swedish University of Agricultural Sciences (SLU) ;

Universitatea de Stiinte Agronomice si Medicina Veterinara din Bucuresti (USAMV) ;

Alma Mater Studiorum – Universita di Bologna (Unibo) ;

Instytut Ochrony Roślin – Państwowy Instytut Badawczy (IOR-PIB);

Instytut Ogrodnictwa – Państwowy Instytut Badawczy (InHort);

INRAE

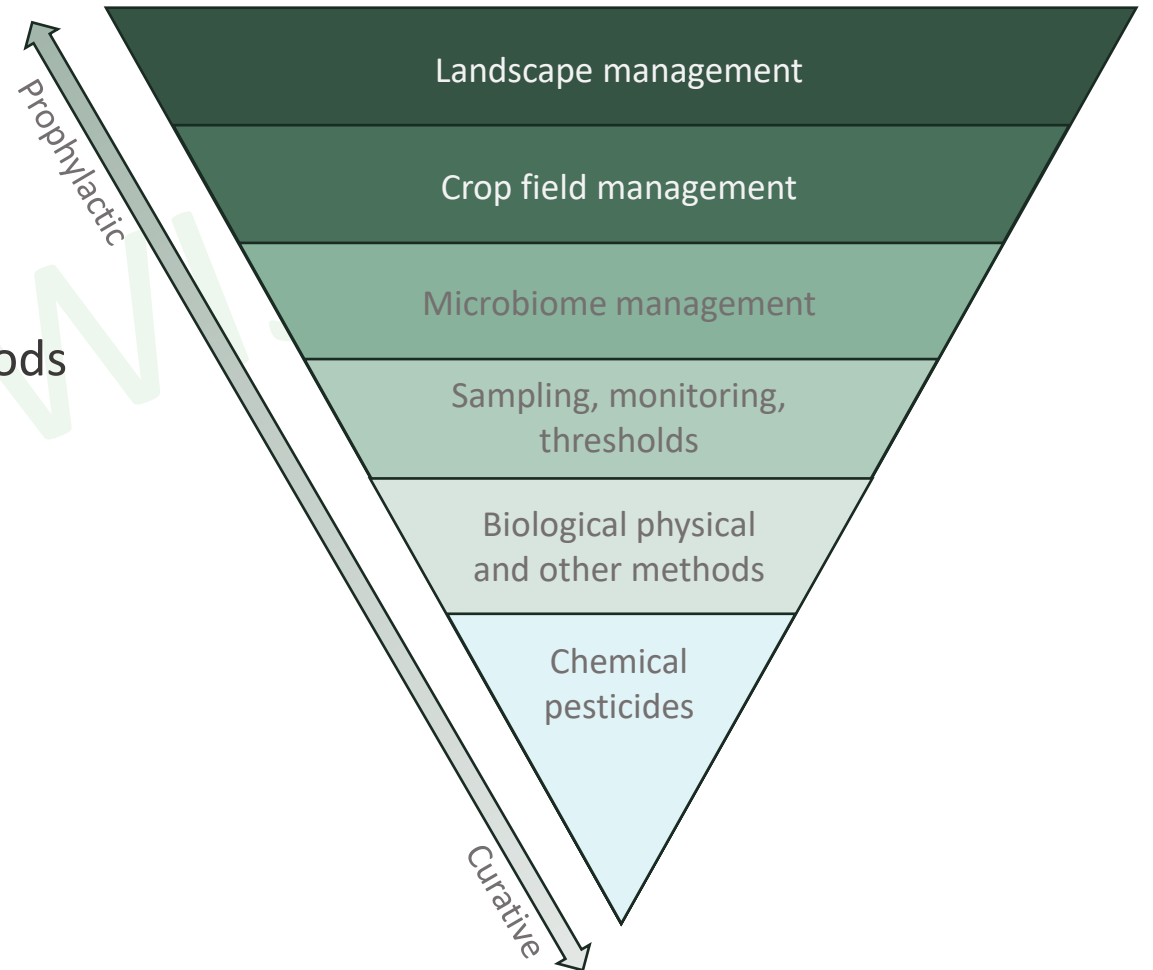


Project based upon SUD Directive 2009/128/CE

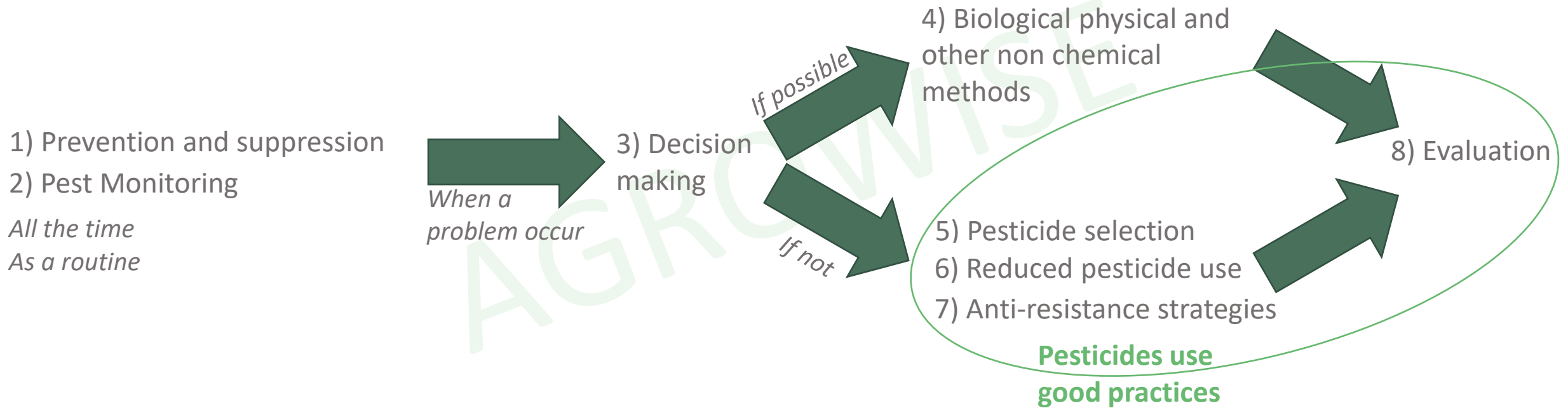
- This Directive establishes a framework to achieve a sustainable use of pesticides by :
 - reducing the risks and impacts of pesticide use on human health and the environment *and*
 - promoting the use of integrated pest management and of alternative approaches or techniques such as non-chemical alternatives to pesticides.
- Defining the 8 principles in Annex 3

The 8 principles of IPM implying...

- 1) Prevention and suppression
- 2) Pest Monitoring
- 3) Decision making
- 4) Biological physical and other non chemical methods
- 5) Pesticide selection
- 6) reduced pesticide use
- 7) anti-resistance strategies
- 8) evaluation

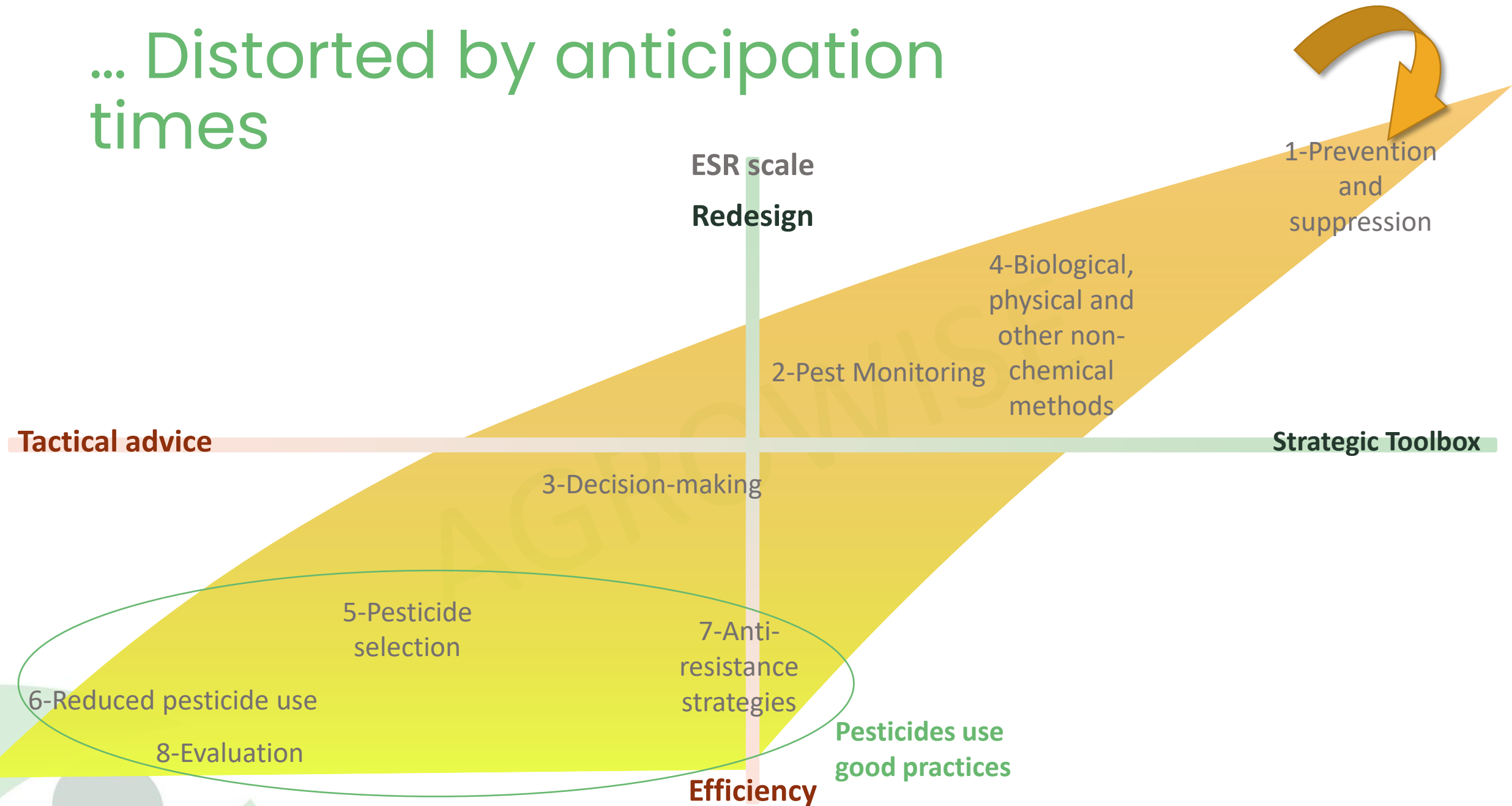


An implicit temporal dimension..



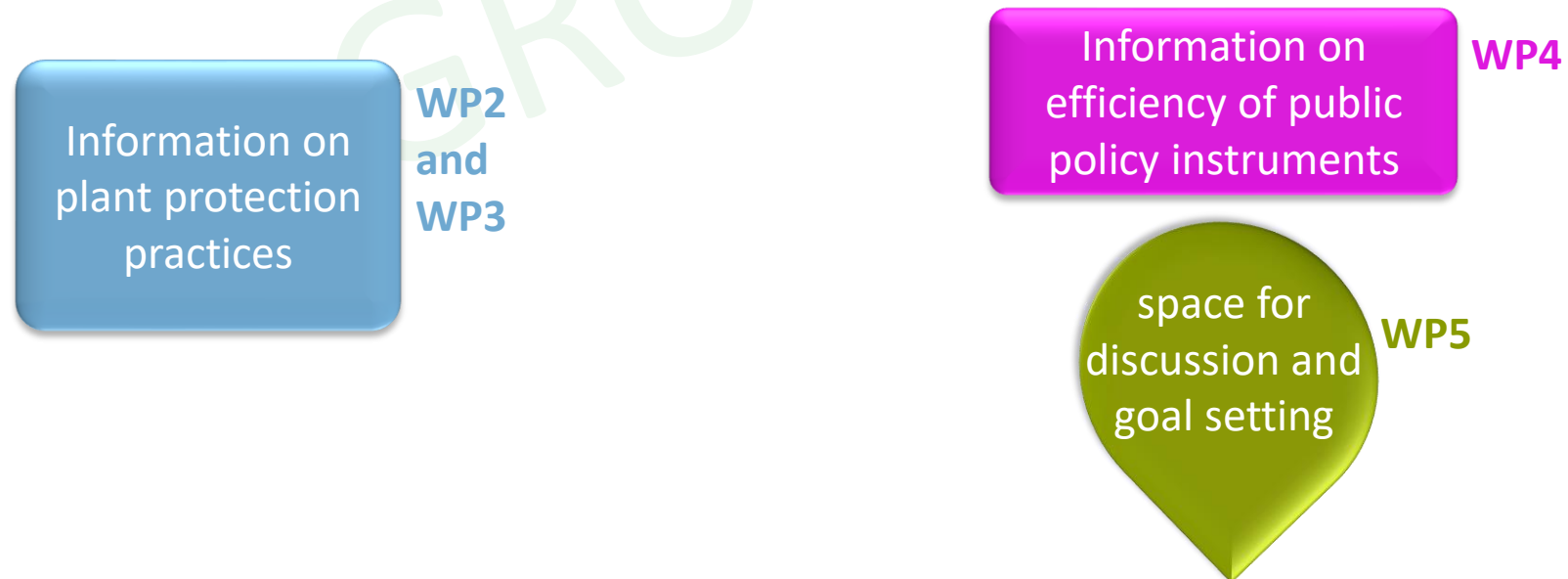
Adaptated from Index ACTA 2024
Protection des cultures

... Distorted by anticipation times

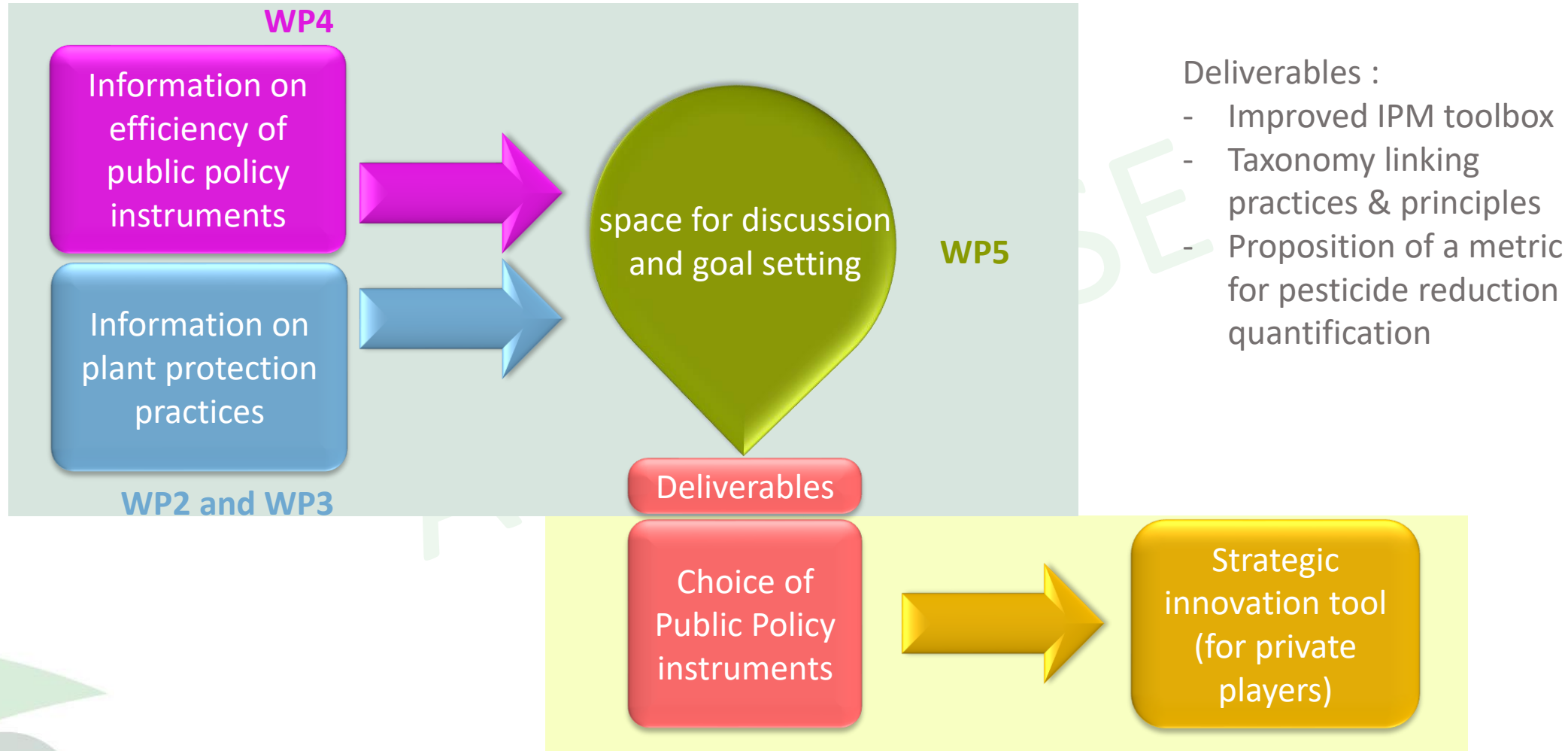


Project Structure: Two Strategic Pillars for Enhanced IPM Implementation

1. Structuring and Researching Data on Non-Chemical Plant Protection Practices
2. Mapping Direct and Indirect Measures for Enhanced Integrated Pest Management, in Collaboration with Working Groups



Structuring the AGROWISE project



Introduction of explicit orientation for public action gives stakeholders a degree of freedom to act

Agrowise Work Package 2

Harmonised and upgraded IPM toolbox with taxonomy of evaluated practices

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WP2 is led by the Swedish University of Agricultural Sciences (SLU)



SLU plant protection Network

Main responsables :

- Riccardo Bommarco (PI), Professor agricultural entomology
- Janina Heinen, PhD ecology
- Anna Berlin, Associate professor plant pathology

...with access to ~200 colleagues at SLU working on plant protection



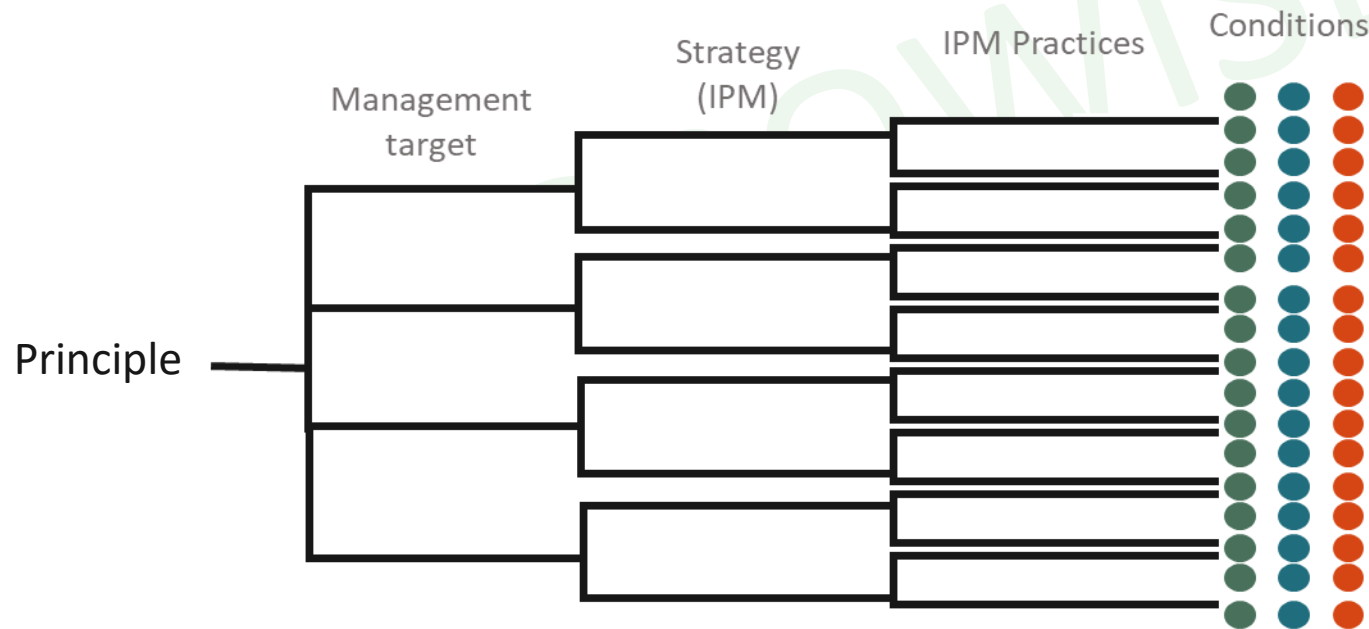
Swedish University of Agricultural Sciences



Task leaders

WP2 Mission

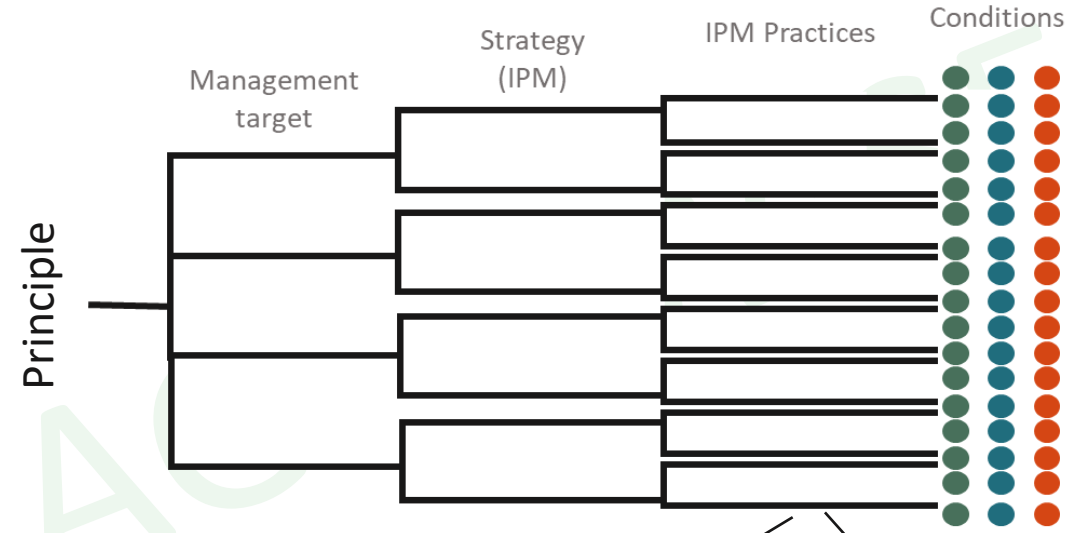
Organising the toolbox in order to allow for an operational link between a farmer's action the IPM principles and implementation of policy



WP2 Expected deliverables

Upgrade toolbox with additional IPM practices from FP7 and Horizon projects

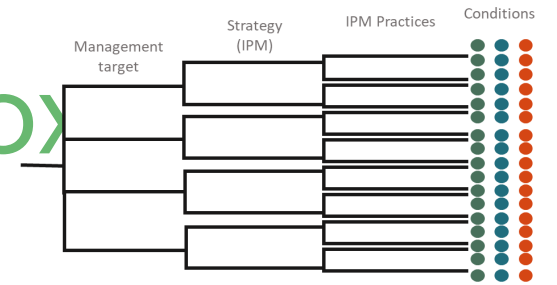
Taxonomy with harmonised nomenclature



Creating a standardized metric for pesticide use reduction

Evaluating the efficiency of practices to reduce pesticide use and risk

WP2 Expected impact of toolbox



- Support farmers and exchange experiences and innovation
- Link policy and practice
- Assist monitoring and harmonised evaluation of IPM across Member States

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Agrowise Work Package 3

Current state of implementation of IPM-based practices/systems, across Member States, focusing on 2 farm orientations

WP3 leaders background



Prof. Giovanni Dinelli: Full professor and Head of the Department of agricultural science and technology (DISTAL) in the University of Bologna. His research interests are focused on low-impact agricultural systems (organic farming), with particular emphasis on their environmental impact and effects on human health. He currently focuses his research on herbaceous crops (as cereals and legumes). He is involved in national and international research projects. He is the author of more than 200 publications in national and international journals with high impact factor.



Prof. Francesco Spinelli: Associate professor in Fruit Tree Production at the Department of Agriculture and Food Science (DISTAL). Research interests encompass the development of sustainable cultural management strategies of fruit trees grounded on the decipherment of crop ecological interactions and the study of alternative to chemical pesticides. Special attention has been given to the signaling network between plant and plant and among plant and microorganisms, both beneficial and pathogenic.

WP3 Starting point

Work Package 3: Current state of implementation of IPM-based practices/systems, across Member States, focusing on 2 farm orientations

Duration:

M1 – M18

Lead Beneficiary:

University of Bologna

1 Identify production guidelines for IPM practices in EU members states for the cultivation of:

- Autumn – winter cereals → wheat/barley
- Tree plants → apple and plum trees



2 Quantify the actual deployment of practices and systems, and quantify the total potential acreage for their implementation



SISTEMA DI QUALITÀ NAZIONALE
PRODUZIONE INTEGRATA

WP3 project motivation



Identify available data about implementation of IPM-based practices and systems



Quantify the actual deployment of practices and systems and quantify the total potential acreage for their implementation



Quantify the economy incidence of the deployment of practices and systems



Identify evidence of the deployment of these practices and systems by farmers



Identify the elements of context that could differentiate the efficiency of practices and systems that could be compulsory or optional in the different Member States

WP3 work package role – issued addressed

Based upon the lists of innovative IPM and agroecology-based practices and systems identified in WP2, and using the available databases, **the level of adoption will be estimated** by experts, according to a 1-5 scale, including a level of certainty

We will undertake an estimation of the acreage of each crop and cropping systems that is suitable for their overall implementation. In case of absence of available databases, the estimation will be conducted by **contacting growers' associations, extension services and national authorities.**

This will give info regarding the possible variation in the farming systems, with differences among countries. Combined with the pesticide reduction, it also gives information on the achievable reduction potential with the full implementation of the best practices.

WP importance to work with Member State representatives

Direct link between policymakers and the farming community

Deeper insights into local agricultural challenges, as they are in constant contact with farmers and rural communities

Ensure that legislation is tailored to address the unique needs of the region

WP3 UPDATED

1

We drafted a **unique document with the IPM farming practices** of all Italian regions gathered, as well as provided Italian agricultural area under IPM strategy

- We gathered IPM guidelines from all partners (except Ireland and France)
- At the end, an excel datasheets with all partners' information will be implemented

2

We also prepared a document (Excel file) with the **total surface area of farms** that operate in integrated production at national level

Thanks for your attention

Leaders /experts contacts

Prof. Giovanni Dinelli – giovanni.dinelli@unibo.it

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Dr. Elettra Frassinetti – elettra.frassinetti2@unibo.it

Dr. Giovanni Mian – giovanni.mian2@unibo.it

Dr. Camilla Tibaldi – camilla.tibaldi2@unibo.it

Alma Mater Studiorum – University of Bologna (Italy)

Agrowise WP 4

Guideline for farm-specific /
crop-specific rules for mitigating
pesticides impacts while ensuring
sustainable agriculture

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10 Institut, 8 Member States

- Institut Nationale de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)
- Sveuciliste U Zagrebu Agronomski Fakultet (UNIZGFAZ)
- **Irish Agriculture and Food Development Authority (Teagasc)**
- Leibniz-Zentrum Fuer Agrarlandschaftsforschung (ZALF)
- Julius Kuhn-Institut Bundesforschungsinstitut fur Kulturpflanzen (JKI)
- Sveriges Lantbruksuniversitet – Swedish University of Agricultural Sciences (SLU)
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- Instytut Ochrony Roślin – Państwowy Instytut Badawczy (IOR-PIB)
- Instytut Ogrodnictwa – Państwowy Instytut Badawczy (InHort)



The Teagasc mission is to support science-based innovation in the agri-food sector and wider bio-economy that will underpin profitability, competitiveness and sustainability.

This is achieved through the coupling of research and knowledge transfer

WP 4 Personnel in WP4

- Teagasc is WP leader
 - Inter-disciplinary team
 - Participants: INRAE (COO), FAZ (BEN), Zalf (BEN), JKI (BEN), SLU (BEN), USAMV (BEN), UniBo (BEN), InHort (BEN), IBPRS (BEN)
 - RICARDO AEA Ltd carrying out the sub tasks of WP4
- Background and motivations
 - Existing and on-going work on IPM and development of crop specific rules
 - Metric for IPM (EPIC, nationally funded)
 - IPM 2030
 - IPMorama.eu




Fiona
Thorne



Steven
Kildea



Ewen
Mullins



Research Article 

Received: 18 January 2019 Revised: 13 March 2019 Accepted article published: 29 March 2019 Published online in Wiley Online Library: 21 May 2019


(wileyonlinelibrary.com) DOI 10.1002/ps.5428


Measuring the unmeasurable? A method to quantify adoption of integrated pest management practices in temperate arable farming systems

Henry E Creissen,^{a,b*} Philip J Jones,^c Richard B Tranter,^c Robbie D Girling,^d Stephen Jess,^e Fiona J Burnett,^a Michael Gaffney,^f Fiona S Thorne^g and Steven Kildea^b

 European Journal of Agronomy 
Volume 96, May 2018, Pages 146-155

Development and validation of IPM strategies for the cultivation of cisgenically modified late blight resistant potato

Geert J.T. Kessel ^a , Ewen Mullins ^b, Albartus Evenhuis ^a, Jeroen Stellingwerf ^{b,c}, Vilma Ortiz Cortes ^b, Sinead Phelan ^b, Trudy van den Bosch ^a, Marieke G. Förch ^a, Paul Goedhart ^a, Hillko van der Voet ^a, Lambertus A.P. Lotz ^a

Show more 

WP4 objective ?

WP4 will define criteria to support the delivery of tangible guidelines for the Member States to define crop-specific rules; be they binding or optional

Objectives/Timeline ?

Farm-specific or crop-specific rules
(actions taken by a farmer to
protect his/her fields)

M1- M17

Public policy mechanisms
(promoting these farm-specific or
crop-specific rules)

- Identify and characterize the existing public policy instruments
- Analyze the strengths and weaknesses associated with each instrument in the context in which they are applied
- Identify specific types of rules that are well-suited for each instrument and the stakeholders on which these instruments can be effectively applied
- Develop guidelines for farm-specific binding rules for IPM implementation
- Develop guidelines for farm-specific optional scheme for low pesticide use and assess their compatibility with CAP eco-schemes

Three tasks to be completed (M1-M17)

Task 4.1

- **Compilation and Documentation of Existing Policy Instruments**
- (Participants: **Teagasc (BEN)**, INRAE (COO), FAZ (BEN), Zalf (BEN), JKI (BEN), SLU (BEN), USAMV (BEN), UniBo (BEN), InHort (BEN), IBPRS (BEN))

Task 4.2

- **Analysis of Instruments Strengths and Weaknesses**
- (Participants: **Teagasc (BEN)**, INRAE (COO), FAZ (BEN), USAMV (BEN), IBPRS (BEN))

Task 4.3

- **Formulation of Farm-Specific or Crop-Specific Rules and Stakeholder Alignment**
- (Participants: **Teagasc (BEN)**, FAZ (BEN), UniBo (BEN), JKI (BEN)):

WP4 outputs ?

Outputs

- A user-friendly Excel database containing the policy instruments relating to IPM, pesticide reduction or pest management
- 3 case studies developed to showcase links between policy instruments and IPM principle(s) uptake.

Deliverables

- The categorisation of instruments is finished, the database is currently being populated with relevant European, national and regional instruments.
- The database and draft report will be shared to the Agrowise consortium for review mid-October 2024

- Scope of the instrument (geographic coverage, link to an EU policy, name)
- Type of instrument (regulatory, economic, informative, research) and sub-type of instrument
- Actors involved (implementing and leading actors)
- Type of crop covered by the instrument
- IPM principle covered by the instrument
- Timeframe for implementation/impact

Research Approach ?

- Semi qualitative research approach
- Largely desk based in design, coupled with 'expert interviews'
 - Draw on stakeholder grouping from previous WPs and partner countries
- Ricardo employed for the duration of the project (Clemence Decherf)
- Research to be conducted in partner countries and additional case study regions
- Link with previous WPs
- 'Hit the ground running' with milestone due in month 5



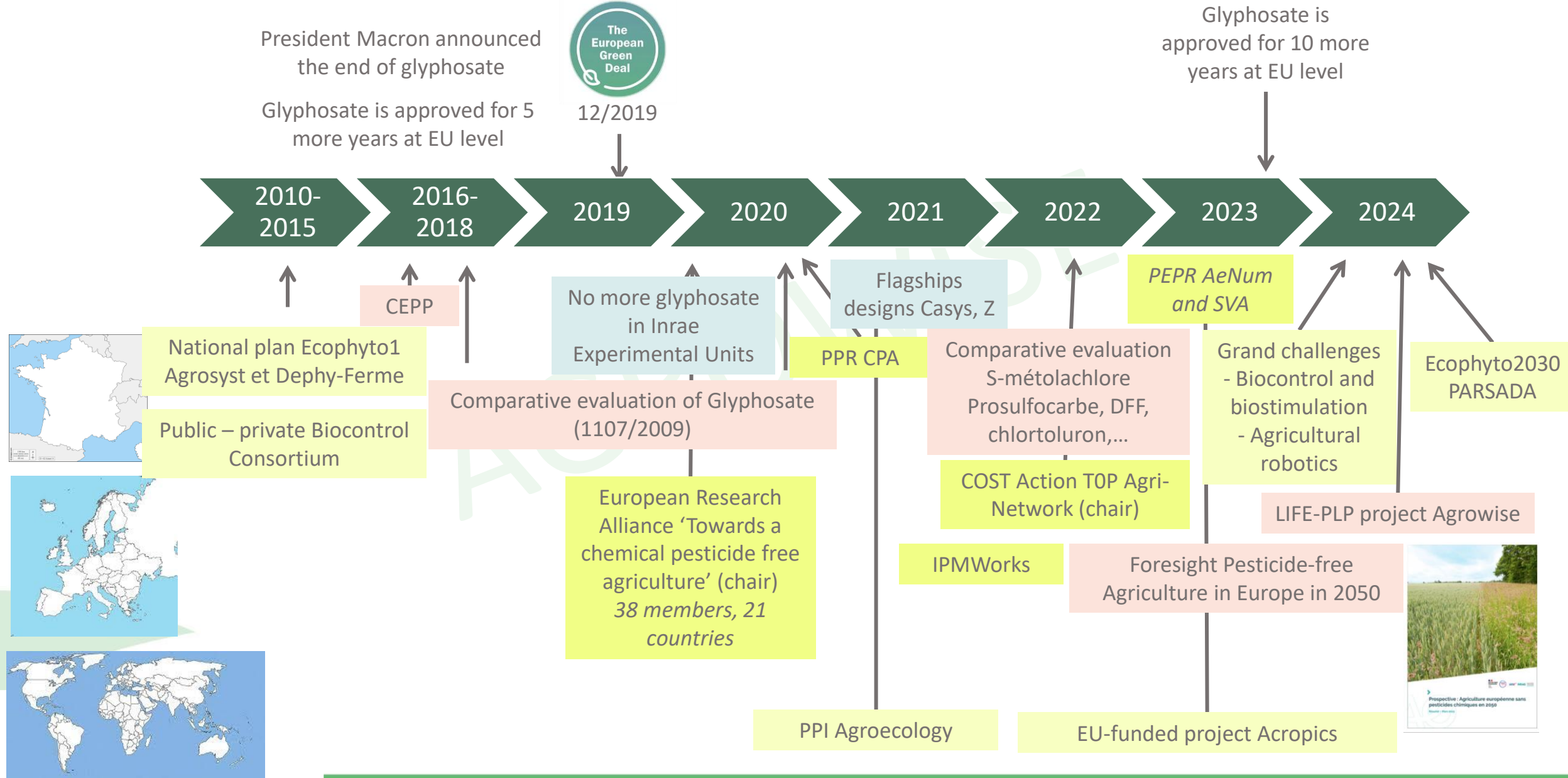
WP 5 presentation

- Leader: Christian Huyghe, Scientific Director Agriculture, INRAE, France



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0-Pesticides as a non-prescriptive scenario for fostering research, innovation and support to public policies: Inrae commitment



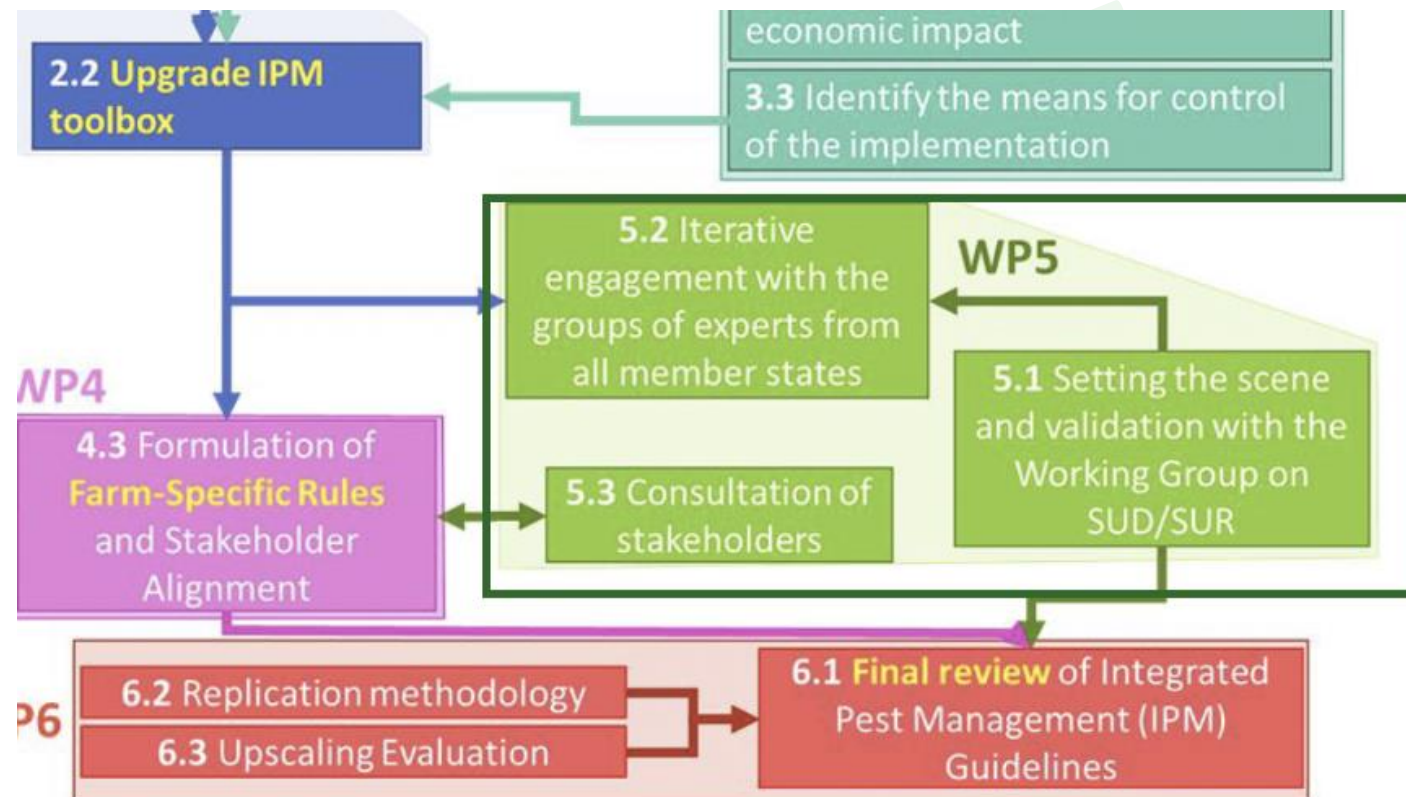
WP 5 presentation

- What is the starting point used for the work in the workpackage 5
 - The need for sharing knowledge between agronomists and representatives of the Member States (policy makers) in order to make constructive proposals

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WP 5 presentation

- What is the role of this workpackage in the project ?



WP 5 presentation

- What is the role of this workpackage in the project ?
 - A platform for permanent discussion with representatives of the EU MS through the SUD working group and with the representatives of the DGs
 - A platform for discussion and co-design of crop specific rules with groups of experts, from upstream to downstream parts of the agri-food sector and from NGOs.
 - A platform for challenging the ideas with stakeholders of the agri-food sector.

WP 5 presentation

- What are the issues addressed by this Workpackage ?
 - Considering the IPM principles and their contrasting implementation across EU member states, what are the degrees of freedom for progresses?
 - Levers for innovation
 - Levers for fostering and supporting transition

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WP 5 presentation

- Why is it important to work with Member State representatives?
 - Member states must be the first beneficiaries of the Agrowise project
 - The guidelines must meet the overall objective, but also take into account the adaptation to local/national conditions

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Agrowise Work Package 6

Sustainability, replication and exploitation of project results

WP6 is based upon the result of other WP

- Conducts the final review of rules, IPM guidelines and recommendations.
- Recommend data to collect about crop protection practices for reliable policymaking
- Expand the scope of the project by carrying out a sensitivity study of the output (rules, guidelines and recommendations) on various crop types and assessing their applicability at finer levels of governance.
- Draw up the "primary dissemination tool" which will indicate the first tasks to be carried out and the players to be targeted in each partnering country and each Member State to ensure that the project guidelines are actually implemented.

Coffee Break

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**Supporting Uptake
Integrated Pest
Management and
Low Risk Pesticide
Use**



Workshop Agrowise

Searching for synergy

Johan Bremmer

Brussels, September 24, 2024

The project has received funding from the European Union's Horizon Europe programme under Grant Agreement No 101084527.

The issues

Future strategies and policies need to be developed to **reduce the use and risks of plant protection products**, supporting agricultural production and food security, and encouraging the development and adoption of sustainable practices.

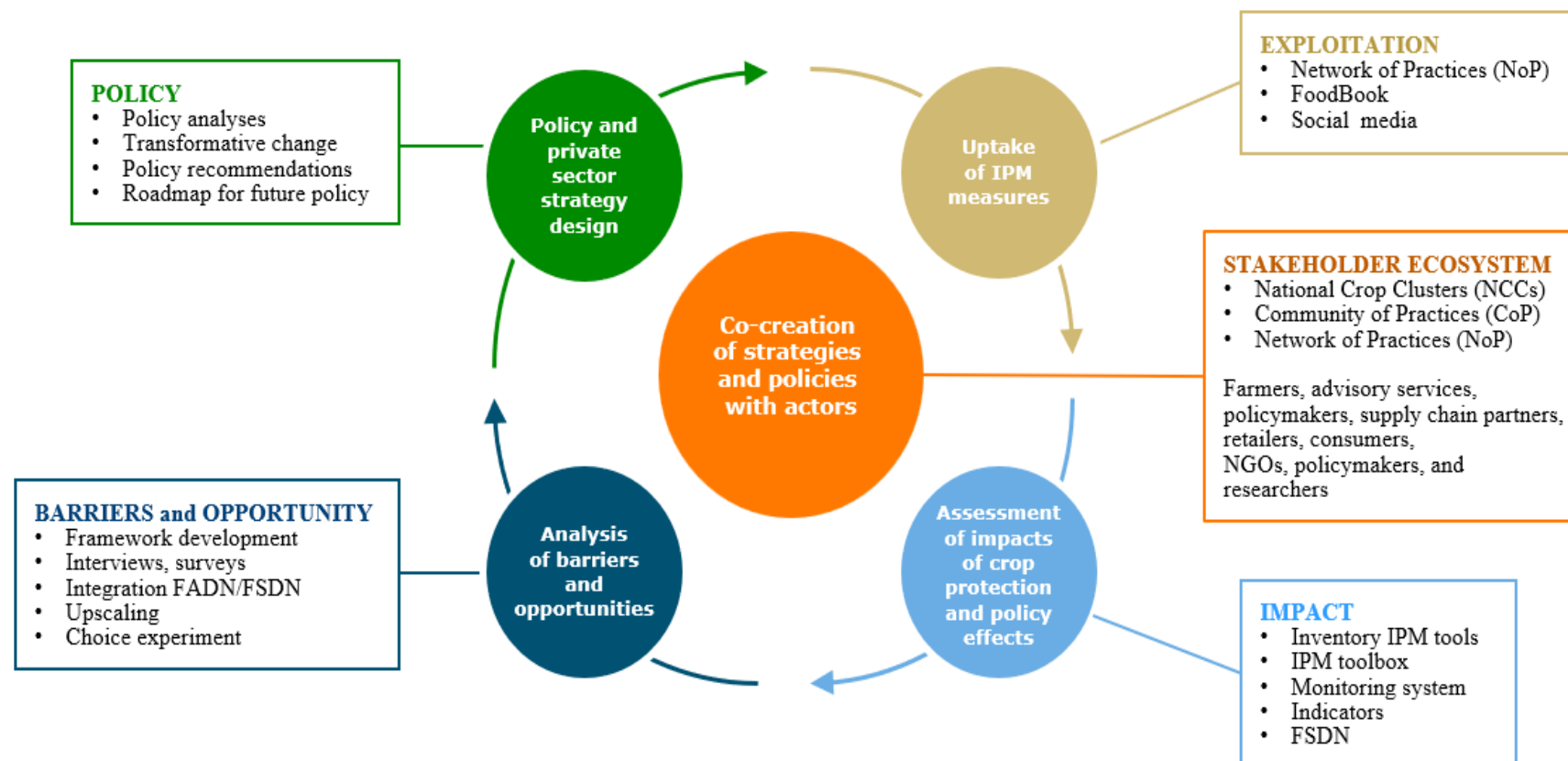
Well-designed **Integrated Pest Management** programs (IPM) can play an important role to reduce the dependency on chemical pesticides, however, their uptake is currently low.

SUPPORT aims to pave the way for adoption of IPM tools and technologies by development of relevant and actionable scientific knowledge that will be used in a co-creation design with actors of public policies and private sector strategies.

- 1 – Build **SUPPORT stakeholder ecosystem**: co-create strategies & policies with actors.
- 2 – Collect **inventory of current and future IPM tools** and assess impact on
 - pest control efficacy,
 - economic performance of farms,
 - the environment.
- 3 – **Identify barriers and opportunities of IPM adoption** in the entire agri-food system and analyze their role in farmer decision-making.
- 4 – Propose **public policies & private sector strategies** for enhancing IPM adoption in co-creation with relevant actors.

Towards a sustainable and biodiversity friendly crop protection via *insight* in

- (1) **impact assessment** of crop protection,
- (2) **adoption of IPM tools and techniques** and
- (3) **improved policy** based on harmonised methodology and data in **co-creation** with stakeholders.



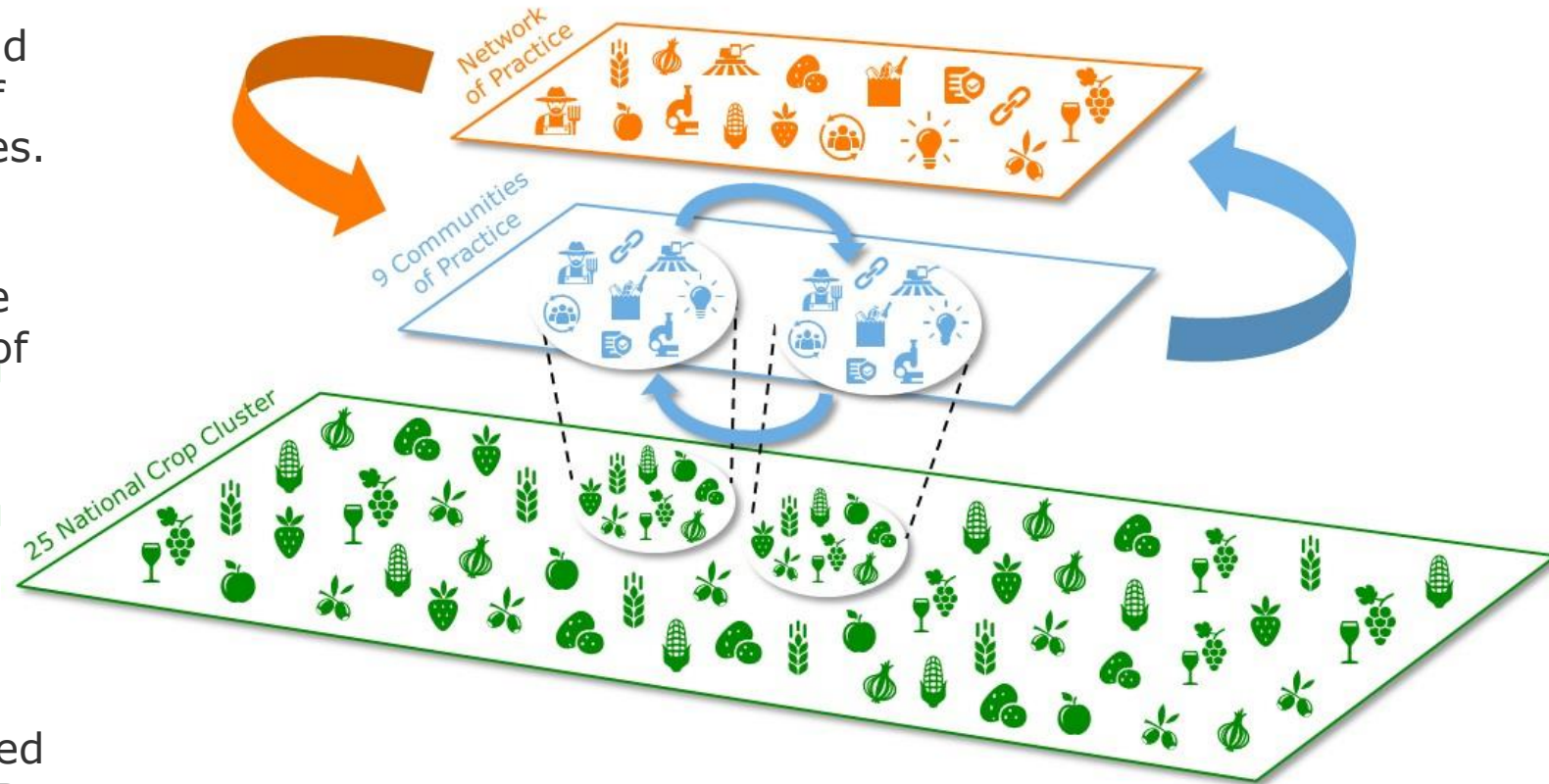
25 National Crop Clusters (NCCs)























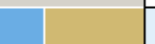


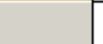


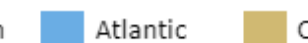
consist in a selection of cases covering a wide range of farm typologies, sectors and systems representative of the diversity of farming in the EU and associated countries.





Communities of practices (CoPs)

gathered around nine of the NCCs are the place for co-creation with the objectives of accelerating professional development, enabling sharing, and building better practices.

CoPs will form a **Network of Practice (NoP)** at a larger scale that will include actors beyond CoPs who may exert influence and seek cooperation with related initiatives as well as CoPs leaders and CoP partners.



Country	Bio-geographical region	Perennial		Annual cropping system					
		Processing industry		Fresh		Processing industry		Fresh	
									
Denmark	 					X	X	X	
France	 					X			
Germany	 					X		X	
Italy	  		X	X					X
Netherlands				X	X			X	
Belgium	 				X			X	
Poland				X				X	X
Romania	 					X	X		
Spain	  	X	X		X				
Switzerland	 					X	X		
Greece		X	X						

 Mediterranean
  Atlantic
  Continental
  Alpine

X T4.3 Community of Practices 9

X T4.2 National Crop Clusters 25

20 partners from **10 European countries**, including academia and higher education, SMEs, farmer cooperative organisations and public bodies.

A **Project Advisory Board** has been established and is made up of CopaCogeca, CropLife Europe, IBMA, INRAE, JRC and FIBL.



- Similarities
 - Both projects are funded by the EU with the scope on the entire EU
 - Both projects focus on adoption of IPM tools and technologies
 - Both projects run parallel:
 - SUPPORT: January 2023 – December 2026
 - AGROWISE: May 2024 – December 2025
- Differences
 - SUPPORT is a HE RIA project, AGROWISE a LIFE project
 - Core of SUPPORT is understanding farmer decision making process about adoption of IPM tools and technologies (core discipline: behavioural economics) → creation of knowledge that facilitates policy makers making IPM policy (EU and MS level)
 - Core of AGROWISE is development of guidelines for implementation at MS level

SUPPORT	AGROWISE
WP1 Increase capacity to understand impacts of IPM <ul style="list-style-type: none"> • IPM toolbox • Development of impact (ec., env., social) monitoring tool 	WP2: harmonized IPM toolbox WP3: actual implementation and economic impacts
WP3 Policy and strategy analysis and design	WP4: Development of tools and mechanisms to provide farm-specific or crop-specific tailored regulation.
WP5: Stakeholder engagement, Dissemination and Exploitation	WP5: Dissemination of knowledge and resources to the member states and relevant authorities. WP6: Dissemination of the project

- WP leaders of related WPs should meet and exchange information and activities. Be as open and transparent as possible
- Deliverables of SUPPORT will be shared with AGROWISE and vice versa.
- Team members of AGROWISE will be invited to participate in NCC and NOP meetings of SUPPORT (WP4) with focus on strategy development and policy recommendations.
- Joint dissemination activities will be planned together.

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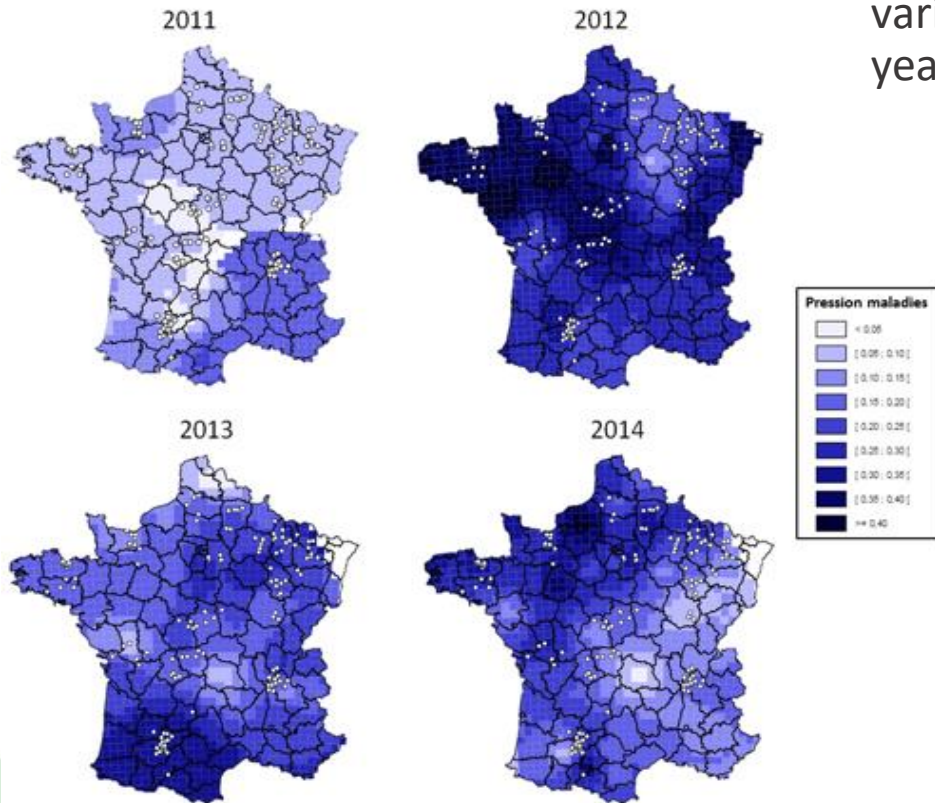
Thank you!

For more information: johan.bremmer@wur.nl

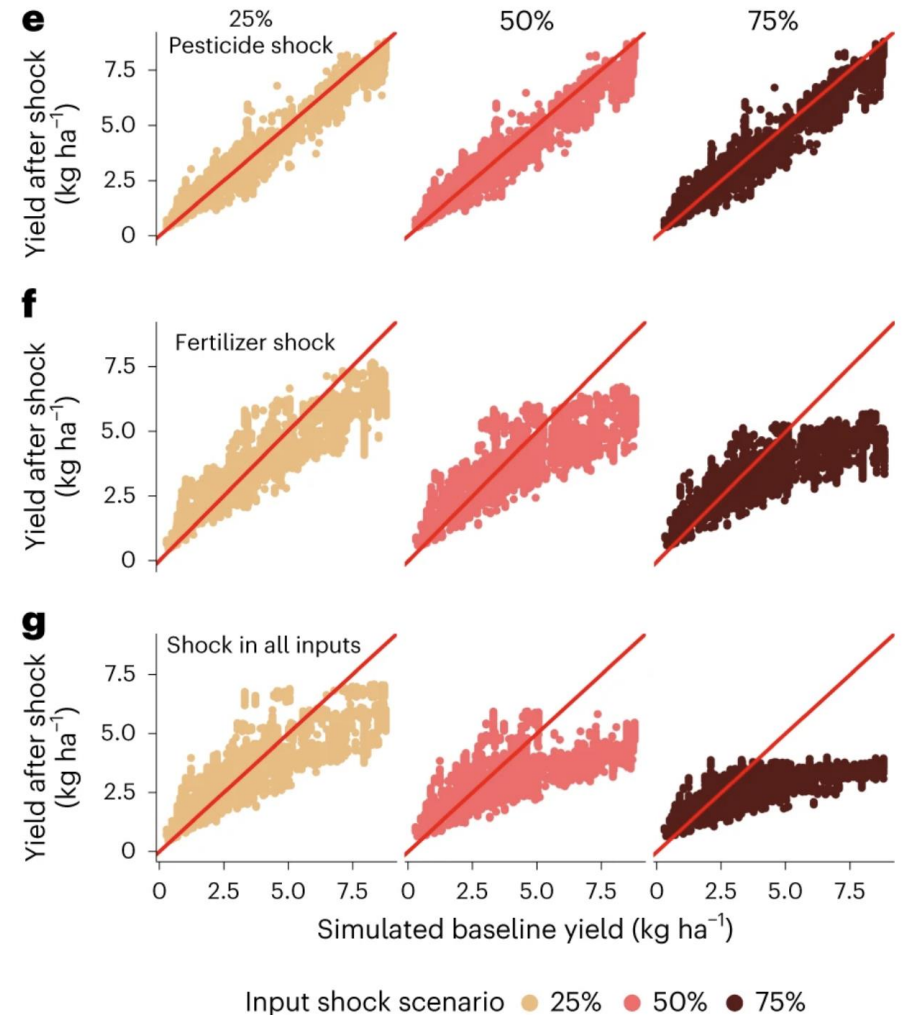
Interactive Workshop on Integrated Pest Management *Polls and Discussions on Implementation Improvements*

Ensuring Effective Crop Protection: A Critical Need, Utilizing Every Tool at Our Disposal

In absence of protection, losses may be high, are variable among sites and years and not predictable



Yield losses due to foliar diseases in bread wheat in absence of any protection
Urruty et al, 2016, ASD



From modelling approaches, at constant cropping systems, pesticide shock is smaller than fertilizer shock, but with interaction (Ahvo et al, 2023, Nature Food)

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Join the Interactive Poll

IPM is mandatory in the EU...

- SUD Directive (Directive 2009/128/EC)
 - Article 14: IPM implementation
 - Annex 3: IPM principles description
- SUD require PPP users to apply the general principles of IPM, and Member States had to describe in their national action plans how they would ensure that all professional users applied the IPM principles
- Article 55 of Regulation (EC) No 1107/2009 concerning the placing of plant protection products on the market make a link with IPM

... and its implementation is assessed in several official reports

- **European Court of Auditors (2020)**, Sustainable use of plant protection products: limited progress in measuring and reducing risks, Special Report.
- **European Commission (2020)**, Report on the National Action Plans and on progress in the implementation of Directive 2009/128/EC
- **Some National Courts of Auditors**

Reminder of the Agrowise taxonomy

- **Root : IPM Principle**
- **Layer 1 => Target**
 - What is the target in agricultural management that a farmer can change to use IPM instead of conventional practices?
- **Layer 2 => Strategy**
 - Which strategy is used? As a farmer, how can I reach the target?
- **Layer 3 => Practices**
 - What is the actual IPM practice? As a farmer, which practice do I use in the field?
- **Layer 4 => Conditions**
 - As a farmer, how do I implement the practice? Are there any specific condition/ differentiations within practices?

Example of a practice

- On the 1st Principle : Prevention and suppression

1. Target => A farmer has select his crop
2. Strategy => Then, he has to select his seeds
3. Practices => Then, he can choose practices to protect his seeds
4. Condition => and finally the taxonomy present different ways to do the practice

1. Prevention
and
suppression

1.1 Crop selection

1.1.5 Seed selection

Seed treatment

Microbial inoculants/steeping

Thermic

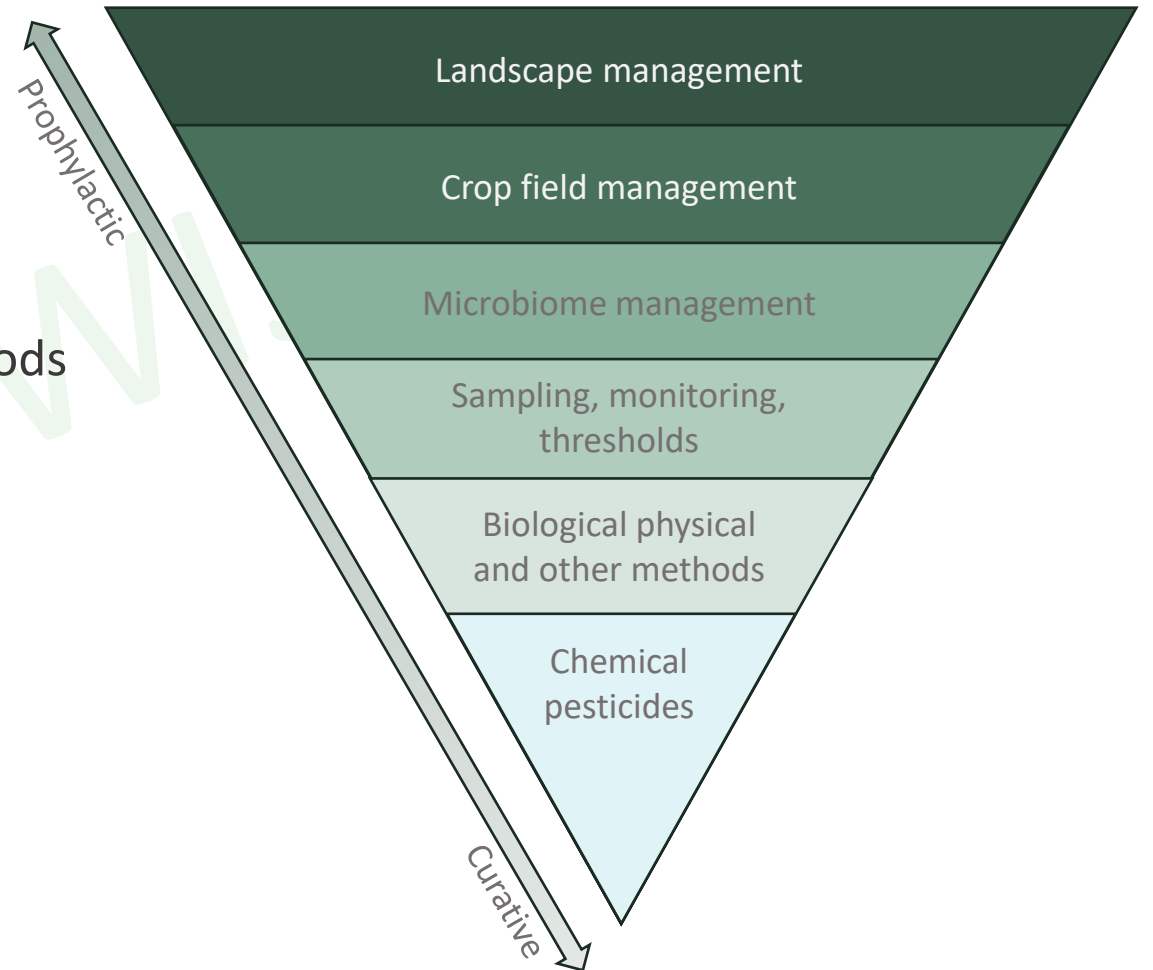
Seed technology

Physical (seed clusters)

We will produce this complete taxonomy during the project and it will be accessible to everyone.

The 8 principles of IPM

- 1) Prevention and suppression
- 2) Pest Monitoring
- 3) Decision making
- 4) Biological physical and other non chemical methods
- 5) Pesticide selection
- 6) reduced pesticide use
- 7) anti-resistance strategies
- 8) evaluation

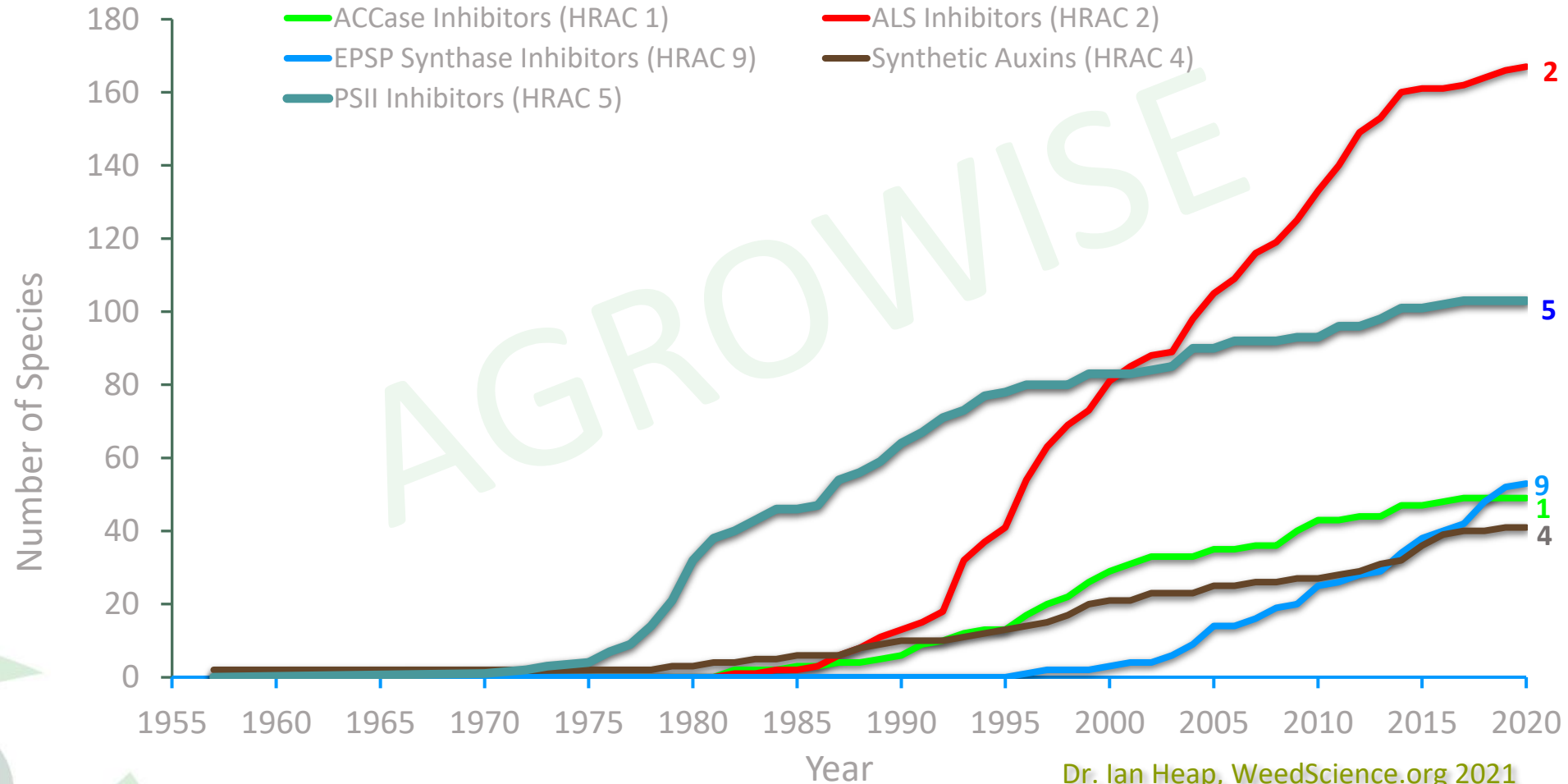


Join the Interactive Poll

Coffee Break

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Number Resistant Species for Several Herbicide Sites of Action (HRAC Codes)



Dr. Ian Heap, WeedScience.org 2021

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Join the Interactive Poll

Lunch Break

Back in the classroom in 2 groups for the workshop at 13:30

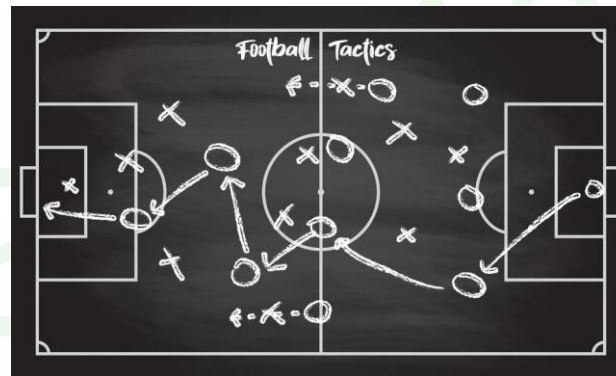
Split workshops' groups

From 1.30 to 2.50

Westminster A	Westminster B
<p>SUD national representatives (yellow dots)</p> <p>Consortium members:</p> <ul style="list-style-type: none">- Swedish university of science- InHort- USAMV	<p>Experts (red dots) UE (green dots)</p> <p>Consortium members:</p> <ul style="list-style-type: none">- JKI- FAZ- Unibo- Teagasc- ZALF

Workshops : Experts and national representatives

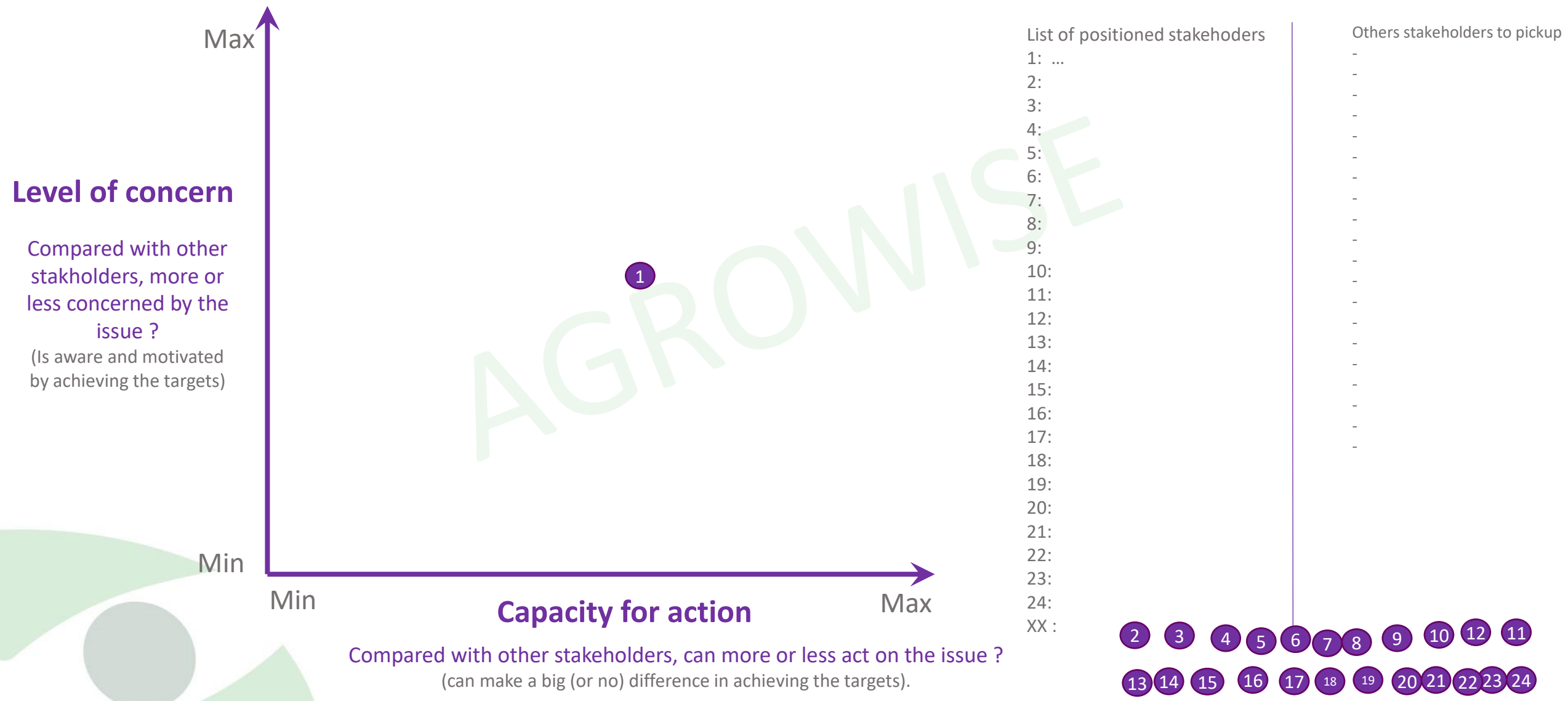
Objective : identify strategies tailored to various stakeholder groups



Workshop 1

24-25 September 2024 - Brussels

The issue : in given Nation, reduce risks and impacts of pesticide use on human health and the environment & encouraging the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides (Directive 2009/128/EC)



- 2
- 3
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The issue : in given Nation, reduce risks and impacts of pesticide use on human health and the environment & encouraging the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides (Directive 2009/128/EC)

List of actions to be undertaken

-involves stakeholder XX; YY, ZZ....
- involves stakeholder XX; YY, ZZ....
- involves stakeholder XX; YY, ZZ....

AGROWISE

