

PROJECT PURE: BUILDING BRIDGES BETWEEN RESEARCH, TECHNOLOGY AND STAKEHOLDERS

Pertot Ilaria

Fondazione Edmund Mach (FEM)

S. Michele all'Adige, Italy



PESTICIDE USE-AND-RISK REDUCTION IN EUROPEAN FARMING SYSTEMS WITH INTEGRATED PEST MANAGEMENT

Funded under the Seventh framework programme
Food, Agriculture and Fisheries, Biotechnology

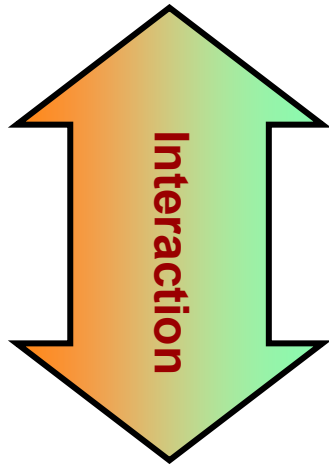


Aim and objectives of PURE

- To provide **practical IPM solutions to reduce dependence on pesticides**
- and practical toolbox **for their implementation**
- To contribute in the reduction **of the risks to human health and the environment**
- To facilitate **the implementation of the legislation on pesticides** while ensuring continued food production of sufficient quality
- 14 research institutes, 2 extension organization, 6 industries/SMEs in Europe

Closing The Innovation GAP

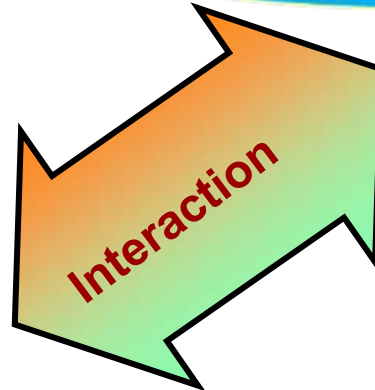
Research



Farming Practice



Industry



Some reason for gaps...

- Lack of **interaction opportunities** between agriculture and research
- **Evaluation criteria** for scientist career
- Research: low awareness of farmers' **practical problems**
- **Perception of problems by growers** (search for ready-to-use technologies, low interest in long term solutions)
- **Fragmentation of the agricultural** sector
- **Fragmentation of industries** in the agri-business (SMEs)
- Often **small and unpredictable** market
- **IP issue** (publication vs. protection)
- **Short term research projects** (3-4 years)
- Lack of **resources for the outreach**

Innovation process

- **Problem study** (research – farmers/advisors)
- **Solution identification** (fundamental and applied research - industrial research – farmers/advisors)
- **Feasibility** (research - farmers/advisors - industry)
- **Development** (research – industry - farmers/advisors)
- **Evaluation** (research – farmers/advisors)
- **Adjustment** (research – industry)
- ...
- **Evaluation** (research – farmers/advisors)
- **Implementation in practice** (farmers/advisors)

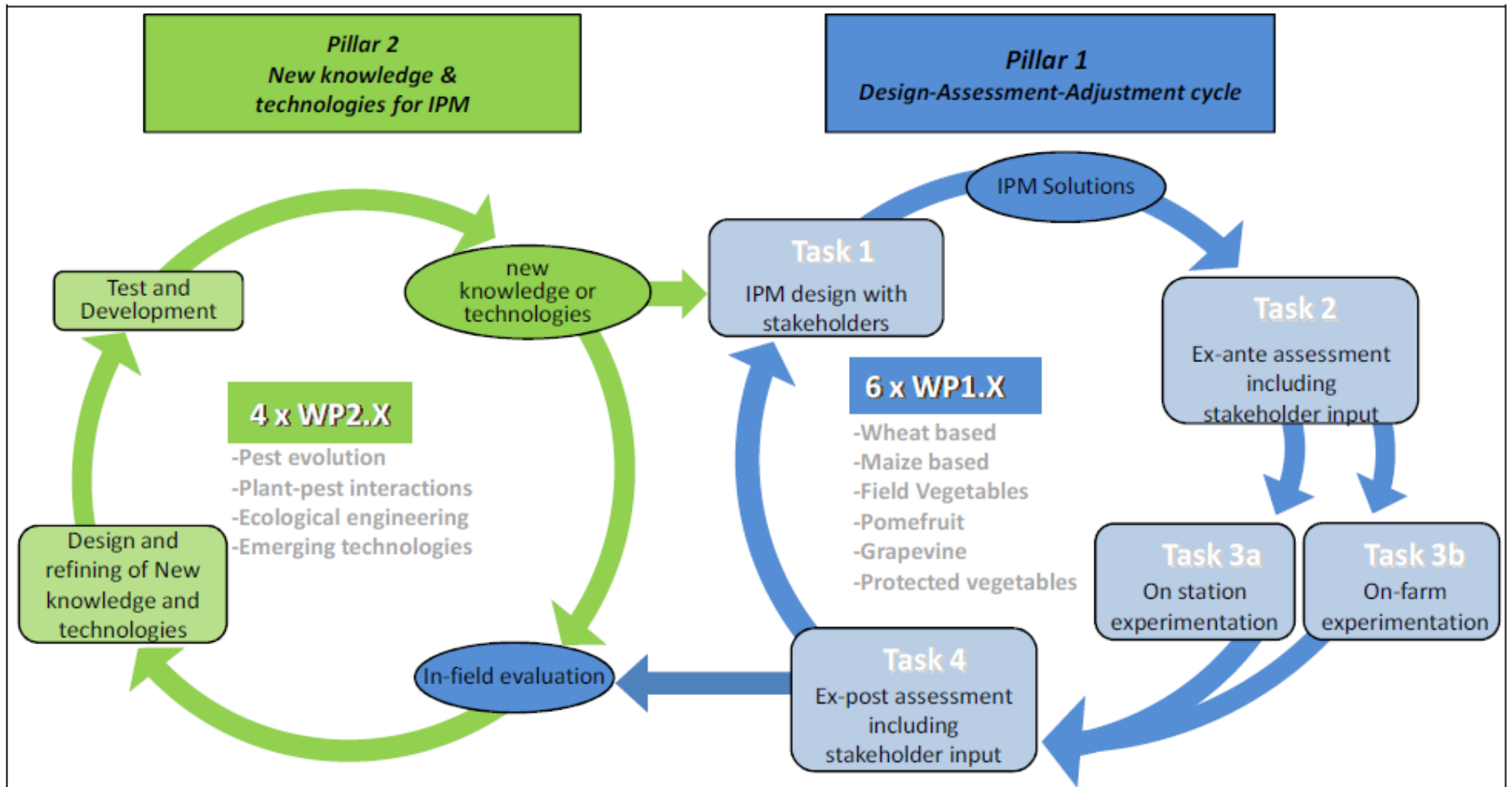
PURE

- **System approach in IPM**
- Focused in closing gaps with research, agriculture and industries
- 6 main cropping systems in Europe
- **New concept** to involve growers/advisors and industry
- Evaluate the risks and assess the balance between costs and benefits of the different IPM methods **with interactive process**
- A **design-assessment-adjustment cycle** to ensure continuous validation and improvement of the IPM solutions

How to integrate pre-existing and newly generated knowledge and tools

1. **IPM** solutions are **designed** by interacting with relevant stakeholders
2. **Ex-ante assessment** of the IPM solutions and current practices using the tool DEXiPM
3. **Selected** IPM solutions are validated in various geographical regions in Europe
 - **On-station** experiments are used **to test technical aspects** of the IPM solutions
 - **On-farm** experiments also consider the practical aspects and potential obstacles to the implementation of innovative IPM solutions, the co-innovation process of IPM development and cost-benefit to the end-user
4. **Ex-post assessment** of the environmental and economic/social sustainability of the IPM solutions also using DEXiPM and/or other available assessment tools
5. Following the ex-post assessment, **a new design-assessment-adjustment cycle** is initiated incorporating the information from the previous cycle as well as new knowledge and tools

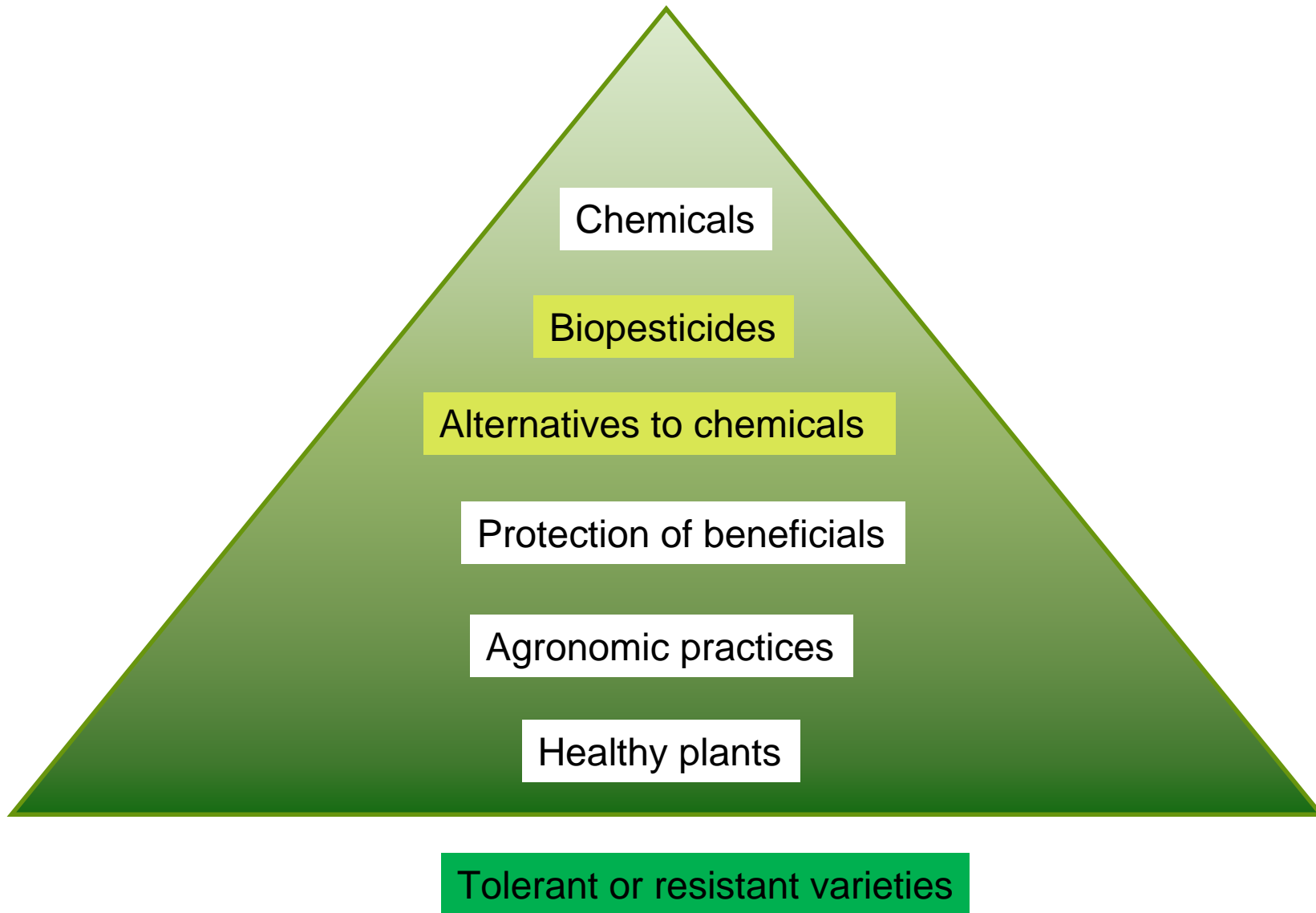
Design-assessment-adjustment cycle and its connection with the progress loop



Involvement of stakeholders

Identification of the problems, priorities, possible solutions

- Questionnaire (structured vs. unstructured, first glimpse, expensive)
- Focus group with growers and/or advisors (focused, need for a trained leader)
- Technical conferences (general overview of the problem, feedback from farmers)
- Specific meetings with advisors (focused and specific, the point of view of the farmer is missing)
- Co-innovation exercises (interactive, difficult to involve farmers)



Involvement of stakeholders

Identification of solutions

- Simple - available
- Complex – available
- Simple – to be developed (research with/without industries)
- Complex – to be developed (research with/without industries)

Example of complex solution to be developed with industries: Vibrational mating disruption

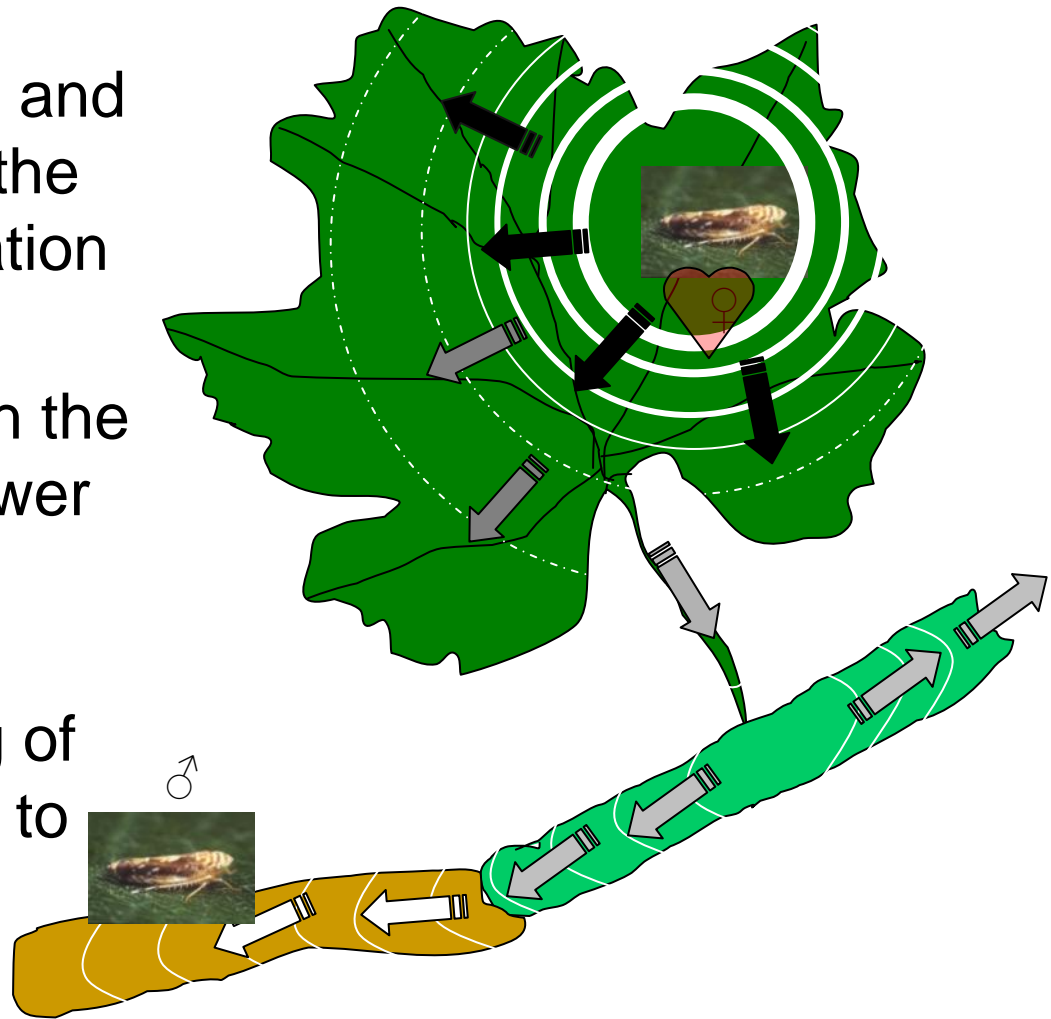
- Several insects communicate by odors (pheromones)
- Pheromone mating disruption: commercially available
- **Others by vibrations: *Scaphoideus titanus* leafhopper**

Collaboration between Research and Industry



Vibrations let male and female communicate on the plant

- The spectral (Hz, db) and temporal features of the signal allow identification and location
- Signals travel through the substrate and the power vanishes along the distance
- Alteration or masking of the signals is the key to prevent the mating



Mating Disruption by Vibrational Signals: challenges

By shaking the grapevine supporting wires we transmit to the plant specific disruptive signals



- Development of the electronic transducer for field application

Energy cost

Efficacy (% disruptions)

Economical sustainability

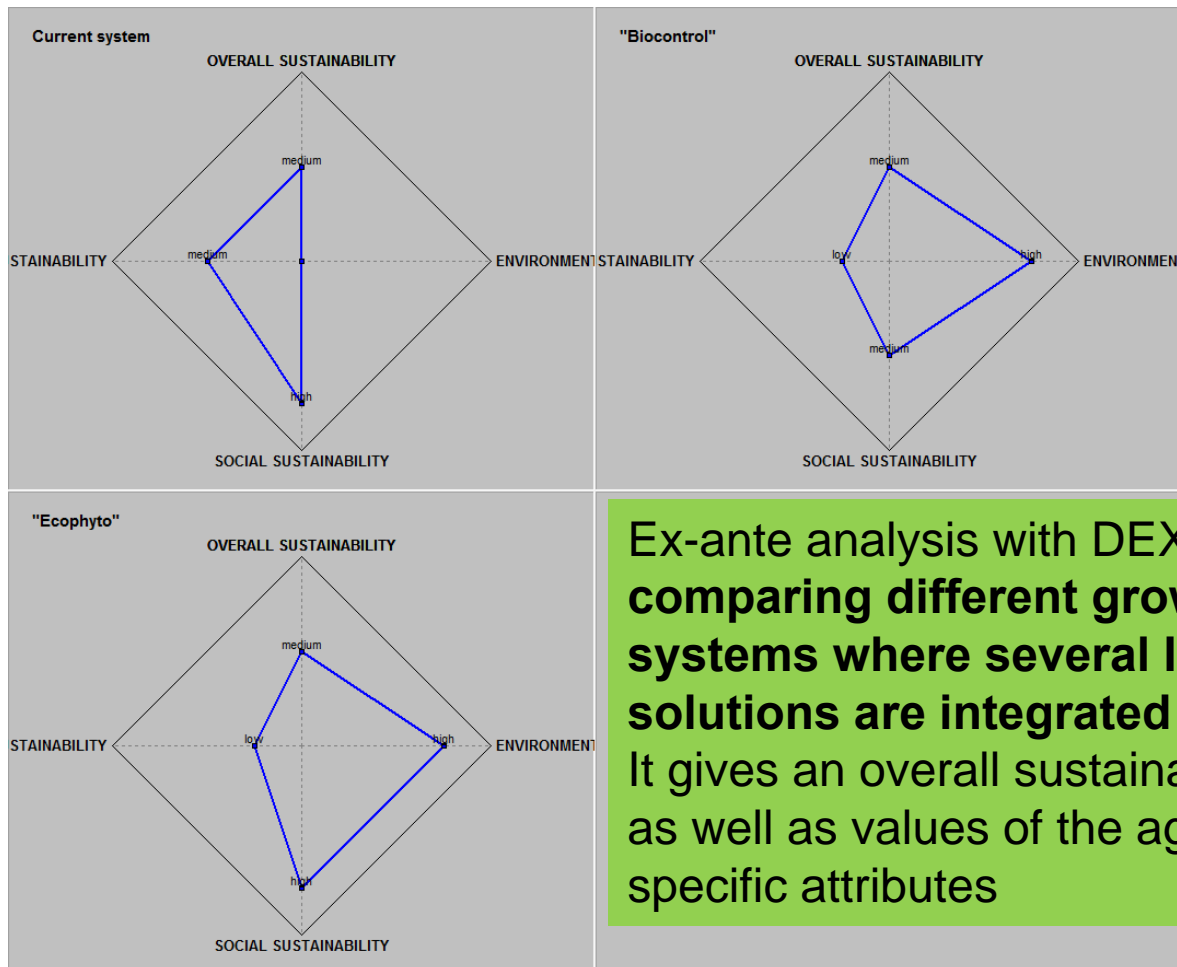
- Set-up of a field protocol

Nr of vibrators

Efficacy along the distance

Optimization of the performance

Ex-ante analysis: example with DEXiPM



Ex-ante analysis with DEXiPM allows comparing different growing systems where several IPM solutions are integrated. It gives an overall sustainability index as well as values of the aggregation of specific attributes.

Involvement of stakeholders

Evaluation and **farm open days**

- Presentation of results
- Discussion with farmers
- Feedback on problems encountered and possible solutions






Future **IPM** in Europe

19-21 March 2013 | PalaCongressi - Riva del Garda - Italy

The largest international conference on “Pesticide Use and Risk Reduction for future IPM in Europe” in the view of the adoption of the Directive 2009/128/EC

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- A unique opportunity to share regulatory, scientific, and technological information
 - The main objective is **to promote knowledge exchange** among scientists, companies, farmers, advisors, policy makers and supply chain stakeholders, and **present approaches, tools and techniques to meet the future needs of European crop protection**



Thank you for attention!



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More info at
www.futureipm.eu