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Participate in voting for preferred questions to respond to at the end of the presentations

(the most voted questions will be asked first !)





IPMWORKS, a specific methodology to promote holistic IPM and reduce the reliance on synthetic pesticides

Nicolas Munier-Jolain | INRAE | Coordinator

Objectives of the IPMWORKS network of demo farms



Demonstrate - with 'pioneer' farmers - that

- **Reducing drastically pesticide use and impact is possible...**
- **...is cost-effective...**
- **... and does not impair food security in EU**

... provided that IPM is considered with a 'holistic' approach

IPMWORKS supports a holistic approach to IPM



The 5 pillars of holistic IPM

Agricultural landscapes with diverse semi-natural habitats
Hedgerows, flowers strips, beetle banks

Cropping systems designed to decrease pest/weed/disease pressure
Crop rotation, cultivars, sowing dates, fertilisation, soil tillage...

Preferential use of non-chemical control options
Biocontrol, mechanical weeding...

Optimised decision making to avoid unnecessary treatments
DSSs



Increased efficiency of treatments
Patch spraying, equipment



Healthy crop

reduced pesticide use and impact, safer environment, enhanced biodiversity, avoidance of resistances, better pest control

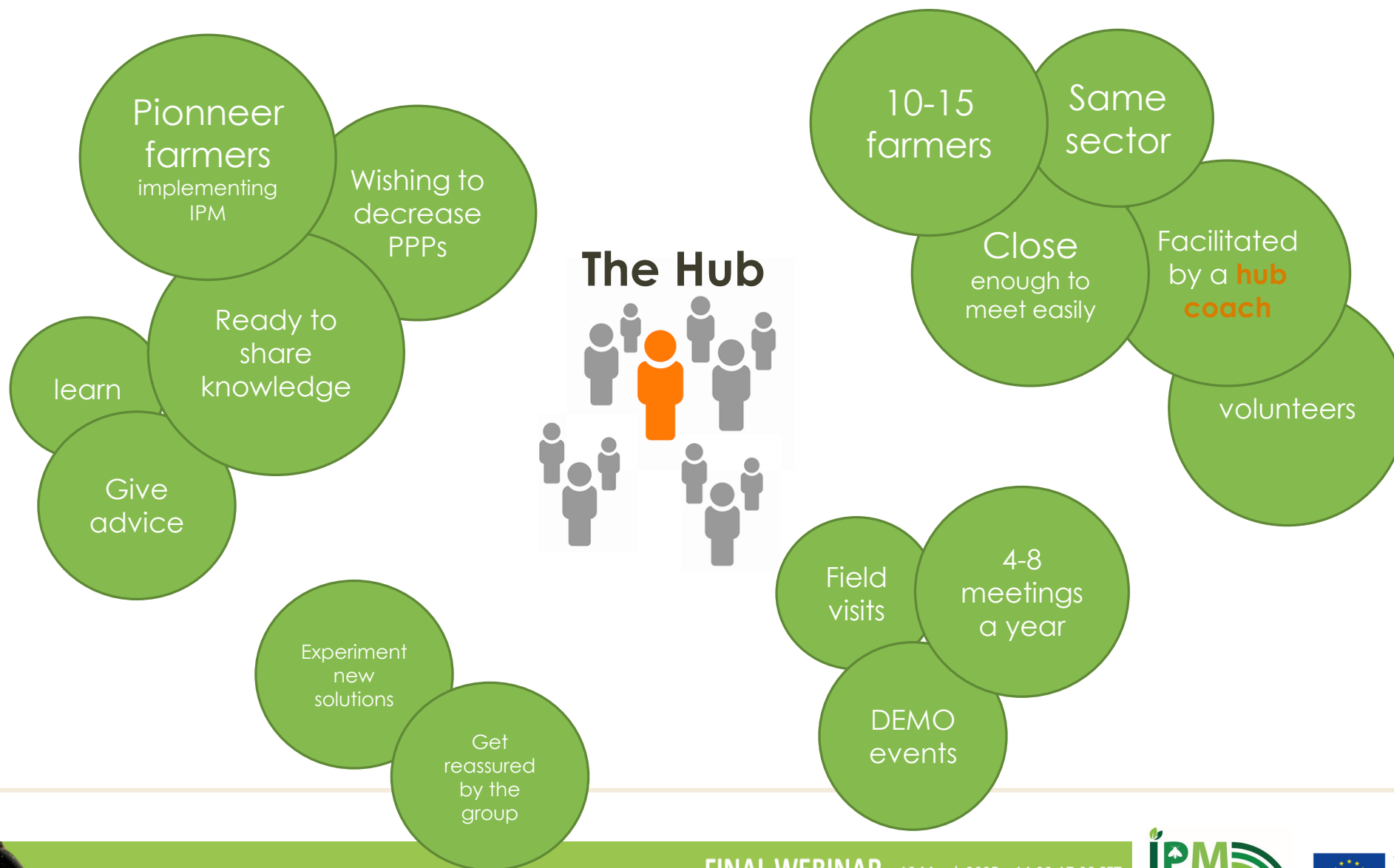


The IPMWORKS network of demo farms



- 31 Partners
- 16 Countries
- 22 Hub coaches
- 246 Demo Farmers
≈ 2400 farms including national networks affiliated to IPMWORKS

A specific methodology for fostering IPM adoption based on peer-to-peer knowledge exchange... and facilitation



A specific methodology for fostering IPM adoption based on peer-to-peer knowledge exchange... and facilitation



The major role of Hub coaches

'IPMWORKS hubs are guided by a hub coach. Do you want to know how they work? Check it out in this video!'

Jolien Claerbout, Hub Coach at INAGRO, Belgium

<https://www.youtube.com/watch?v=7zLqcKrjD7U>



A specific methodology for fostering IPM adoption based on peer-to-peer knowledge exchange... and facilitation



Enthusiastic endorsement by the IPMWORKS community

□ Farmers

- ✓ Happy to have technical discussions with peers
- ✓ Feel reassured from the group

□ Hub Coaches

- ✓ A new approach for advisers
- ✓ More diverse activities
- ✓ A progressive development of trust in the group

A specific methodology for fostering IPM adoption based on peer-to-peer knowledge exchange... and facilitation



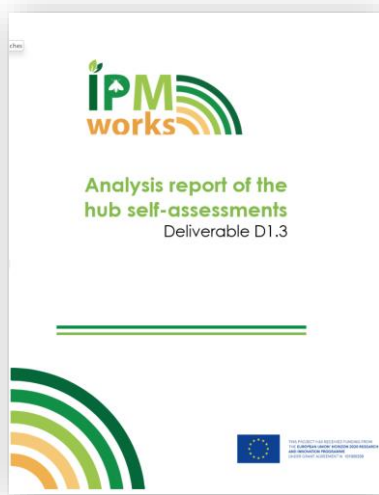
The IPMWORKS Hub Coach 'Capacity building', March 2022, Toulouse, France

The methodology required specific capacity building of advisers

>> a EU-wide network of advisers

- Knowing each other
- Sharing some technical knowledge
- Sharing tips and methods for fostering knowledge exchange

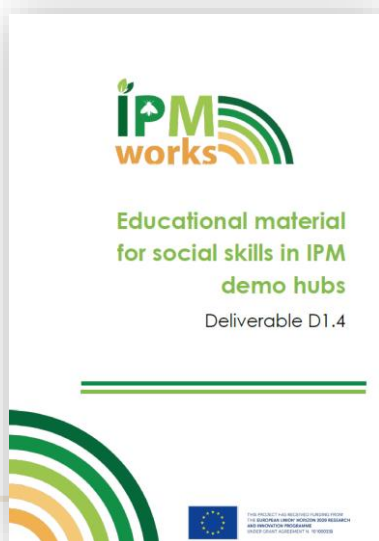
A specific methodology for fostering IPM adoption based on peer-to-peer knowledge exchange... and facilitation



A major legacy of H2020 IPMWORKS

Excellent resources from the practical experience of 22 Hub Coaches

- How to recruit farmers in a hub
- How to build trust
- How group activities do encourage innovation
- How to combine technical knowledge on IPM and soft skills
- How to promote a holistic vision of IPM
- Tips for interactive learning on IPM
e.g. benchmarking, field visits, co-design workshops, cross-visits...
- Tips for efficient demo events
- And a lot more...



Six steps for creating a good flow in a meeting/event.
Source: Simon Lox.

Documents available from the project web site <https://ipmworks.net/category/public-deliverables/>

Main outcomes of the project



A community of Hub Coaches

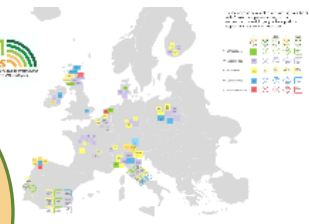
Proof of concept

A shared method

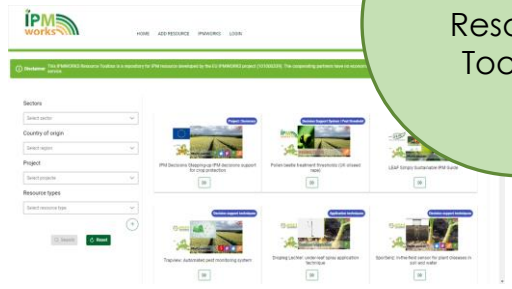
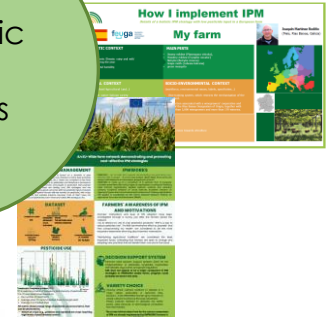
≈ 250 DEMO events



A mapping of IPM solutions



Communication channels

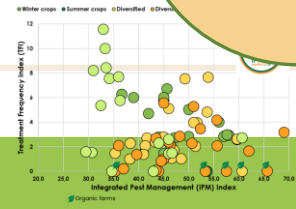


IPM Resource Toolbox

E-learning training modules



Surveys & Results



Policy recommendations





THANK YOU!

Nicolas Munier-Jolain | INRAE | nicolas.munier-jolain@inrae.fr



Progress made in IPM adoption in IPMWORKS farms & mapping IPM solution

Mette Sønderskov | Aarhus University, Denmark

IPM in action

Changes during the time of the project and cost-efficiency

The data was collected from the IPMWORKS network farms in all five sectors: arable, vineyards, outdoor vegetables, orchards and greenhouse production



3 surveys:

- 1 A **qualitative** survey, which established a baseline for IPM awareness, IPM adoption, rough estimate of pesticide use, and self-assessment at the beginning of the project
- 2 A **quantitative** survey with a large degree of details on the cropping system, management practices and economics. Provide the ability to calculate indicators for pesticide use and impact and cost-efficiency
- 3 Follow up on survey #1 to focus on changes during the project in crop management, especially pesticide use



Survey #1/#3: Qualitative self-assessment

- Booklets describing the results on project website



SURVEY #1

IPM awareness, pesticide use and self-evaluation

- FARMING CONTEXT
- FARMERS EXPECTATIONS AND PREFERENCES
- CULTURAL PRACTICES: FARM LEVEL
- CULTURAL PRACTICES: FIELD LEVEL
- PEST CONTROL

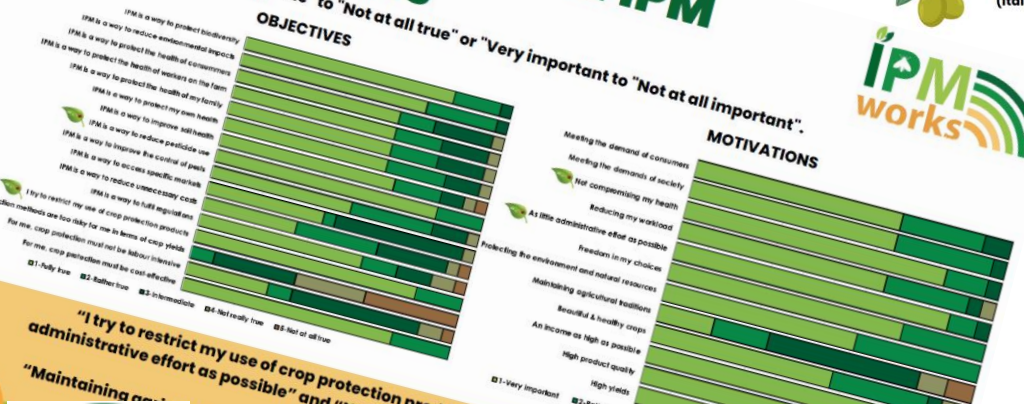
NUMBER OF FARMS: 83

PARTICIPANT COUNTRIES: DENMARK, GERMANY, ITALY, SLOVENIA, THE NETHERLANDS, SPAIN, UNITED KINGDOM

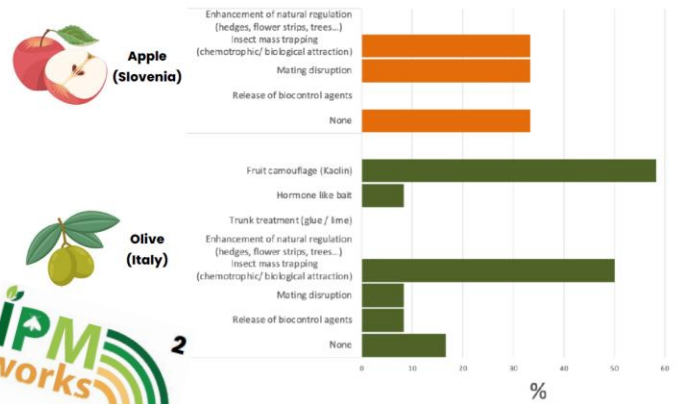
TOTAL ORGANIC FARMS: 5

Farmers' Awareness of IPM and Motivations

Rating statements from not "Fully true" to "Not at all true" or "Very important" to "Not at all important".



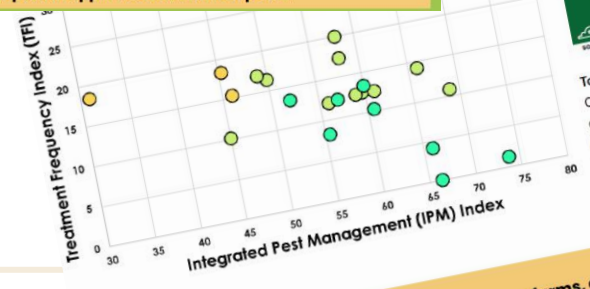
Biocontrol



Widely adopted in IPMWORKS olive groves (more than 80% of farms), with mass trapping and mating confusion are also widely adopted in apple to control insect pests.

Management

Information collected on crop and pest management.



Topics included in IPM Index

Cultural practices at the crop and farm levels were evaluated based on the last 3 cropping seasons.

IPM practices included in the index were e.g. use of Dec resistant cultivars, cover crops, mowing, mulching, use mechanical weeding, protection of wildlife at the landscape level.

Each practice rating was then scored between 0-4. The weighted scores and ranges [0 - 80].

"I try to restrict my use of crop protection products", "IPM is a way to reduce pesticide use", "As little administrative effort as possible" and "Not compromising my health" are considered to be the most important statements for successful IPM adoption.

"Maintaining traditional crop production methods" is not something important, indicating that farmers are open to change and adopting new practices that will benefit them now and in the future.

Highlights from Survey #1

Similarities among sectors

- High awareness among the participating farmers of IPM as a way to reduce plant protection products regardless of sector and a strong requirement for IPM to be cost-effective
- Farmers were generally driven by a motivation to achieve high yields of high quality, meet the demands of consumers/society and protect health and environment

Deviations among sectors

- The perceived risk of relying on alternative IPM strategies was considered slightly higher by outdoor vegetable and greenhouse farmers than by arable, orchard and vine producers
- The increased labour requirement for some IPM strategies were of slightly higher importance for arable and greenhouse sectors than for outdoor vegetable, orchard and vine producers



Highlights from Survey #1

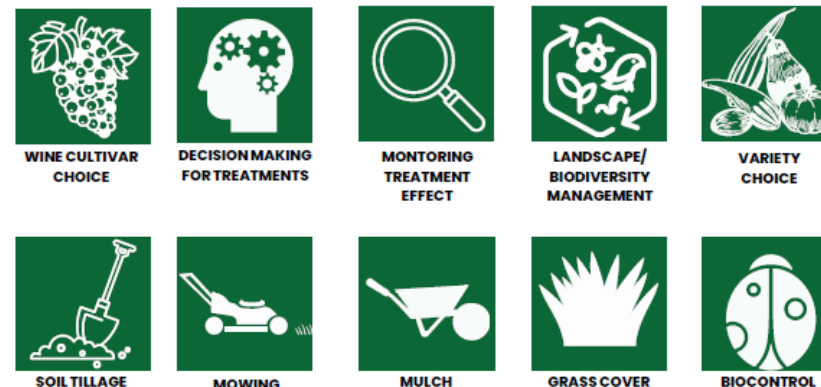
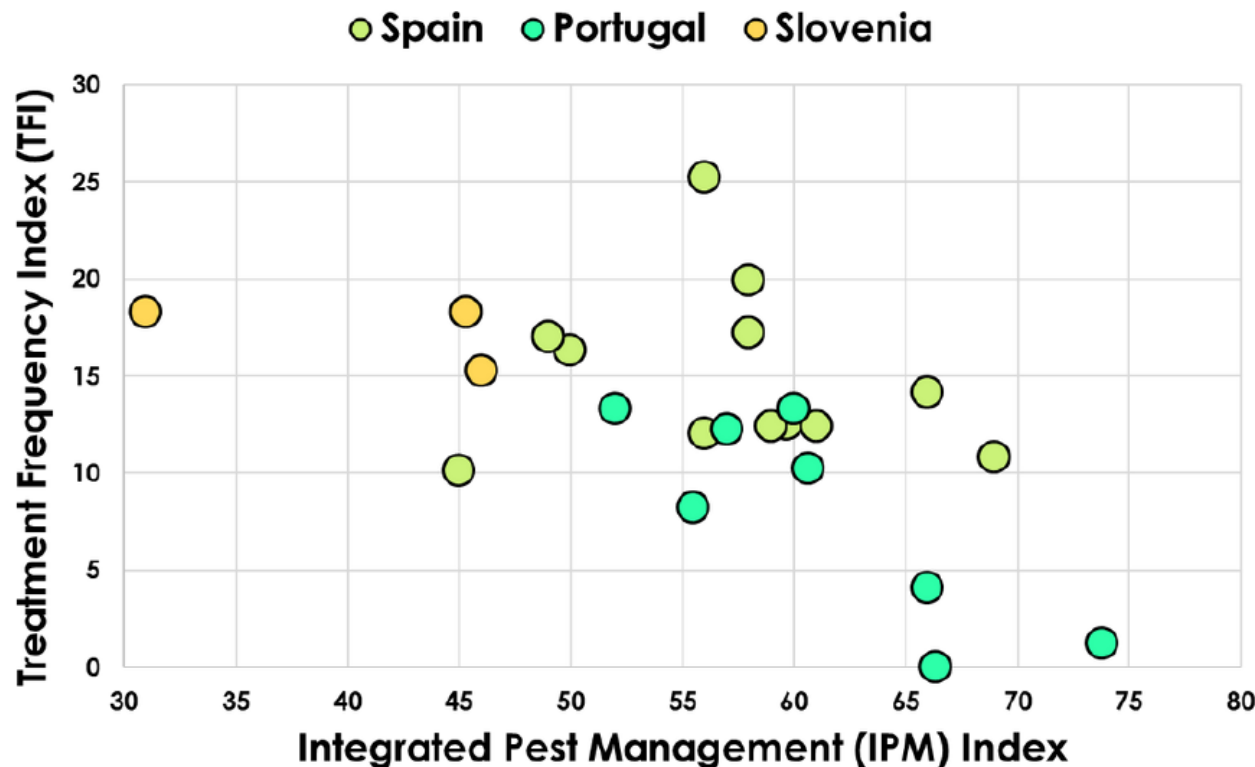
Example from vineyards



NUMBER OF FARMS
27

PARTICIPANT COUNTRIES
SPAIN, PORTUGAL,
SLOVENIA

We tested a new IPM Index calculated from the information collected on crop and pest management.



Topics included in IPM Index

Cultural practices at the crop and farm levels were evaluated based on the last 3 cropping seasons.

IPM practices included in the index were e.g. *use of Decision Support Systems, resistant cultivars, cover crops, mowing, mulching, use of biocontrol solutions, mechanical weeding, protection of wildlife at the landscape scale...*

Each practice rating was then scored between 0-4. The IPM index is the sum of the weighted scores and ranges [0 - 80].

Mapping IPM solutions

The 5 pillars of holistic IPM

Agricultural landscapes with diverse semi-natural habitats
Hedgerows, flowers strips, beetle banks

Cropping systems designed to decrease pest/weed/disease pressure
Crop rotation, cultivars, sowing dates, fertilisation, soil tillage...

Preferential use of non-chemical control options
Biocontrol, mechanical weeding...

Optimised decision making to avoid unnecessary treatments
DSSs

Increased efficiency of treatments
Patch spraying, equipment



Pillar 1 : Landscape

- Pollinator strips/ wildflower margins
- Hedgerows & flower strips
- Undersown flowers
- Banker plants
- Insect hotels
- Nest boxes for bats
- Grassing, reduced number of mowing (orchards)
- Grass margins around fields against grass weeds

Pillar 2 : Cropping systems

- Crop rotation
- Diversified sowing seasons
- Temporary grasslands
- Grass strips in between strawberries
- False seed bed
- Rotational ploughing
- Disease tolerant varieties
- Short cycle varieties (maize)
- Variety mixtures
- Companion crops
- Mulches – cloth, plastic or straws (protected crops)
- Intercropping
- Delayed wheat sowing
- Moderate fertilisation
- Cover crops and mowing (vines)
- Pruning management to increase natural enemies (orchards)
- Seed cleaning

Pillar 3 : non-chemical control

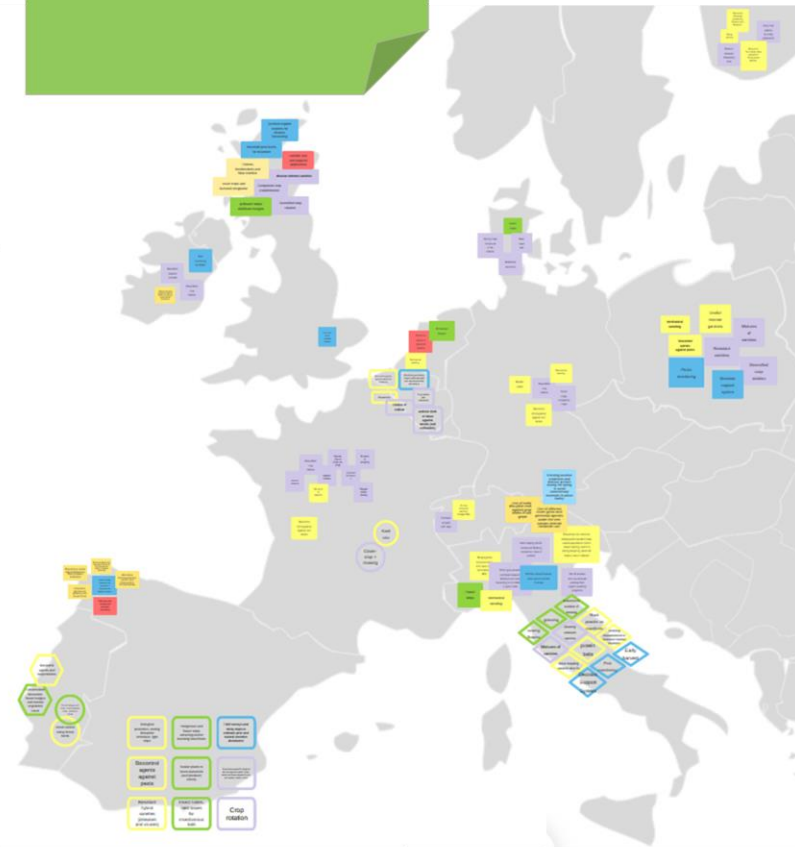
- Mechanical weeding (several options)
- Biocontrol agents
- Biostimulants
- Biopesticides
- Kaoline and rock powder (vines & orchards)
- Cover grasses and perenial plants under olive trees
- Mating disruption
- Protein baits
- Mass trapping (& light traps)
- Sheep grazing against weeds (vines)

Pillar 4 : Decision making

- Models for disease forecast
- Pest monitoring (BYDV)
- Monitoring of beneficials
- Threshold-based treatments

Pillar 5 : Efficiency of treatments

- Adjusted doses
- Targeted application
- Precision spraying of perenial weeds (Arable crops)



Survey #2 : Quantitative assessment with a high number of details recorded

Input of data on farm level with details for each crop type related to PPP input, fertilisers, seeding practices, machinery, timing etc.

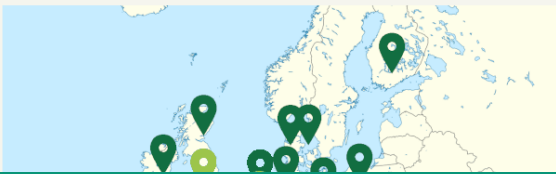
My farms

+ Add a farm + Add a cropping system


Information	Cropping system and Crop management
●●●●●	●●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●
●●●●●	●

IPMworks Network

23 hubcoaches



DEPHYGraph & IPMworks
THE TOOL FOR VISUALIZING THE RESULTS OF FARMS IN THE DEPHY ÉCOPHYTO AND IPMWORKS NETWORKS

[Return to DEPHYGraph](#)  **Help**

Quick view **Research**

Variable Y [Back to menu](#)

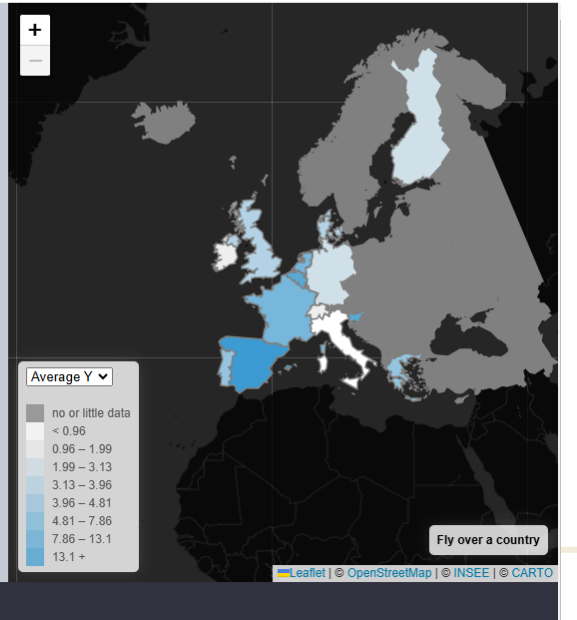
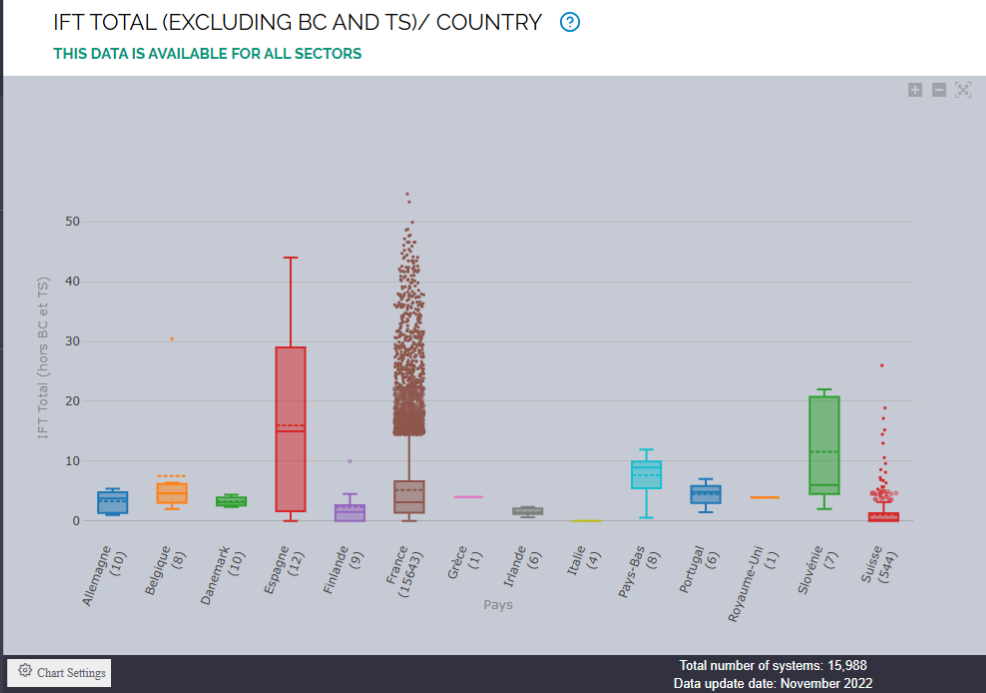
IFT Total (excluding BC and TS)

Variable X [Reset](#)

Country

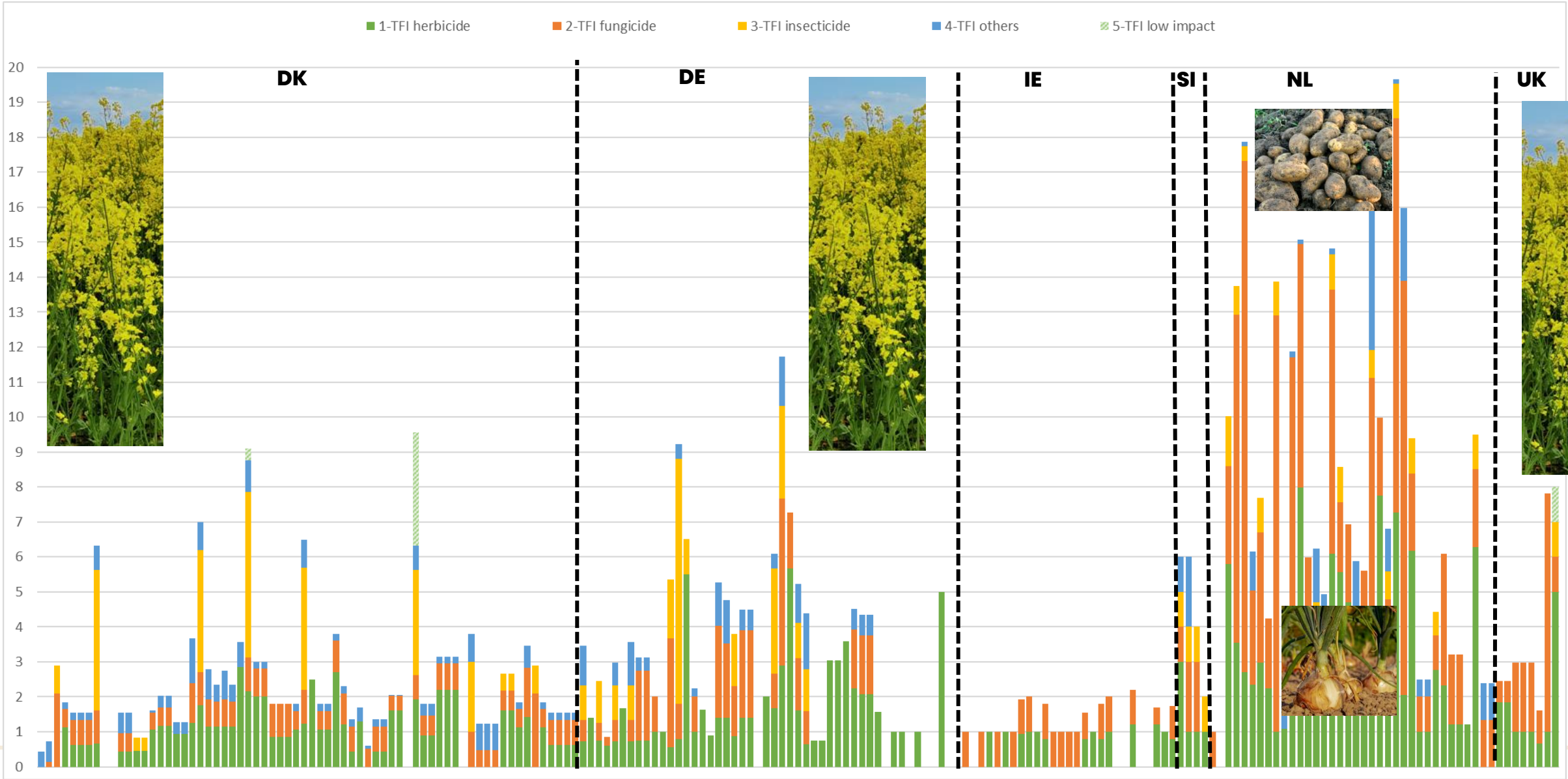
Filters and Cohorts [+](#)

No active filter



Total number of systems: 15,988
Data update date: November 2022

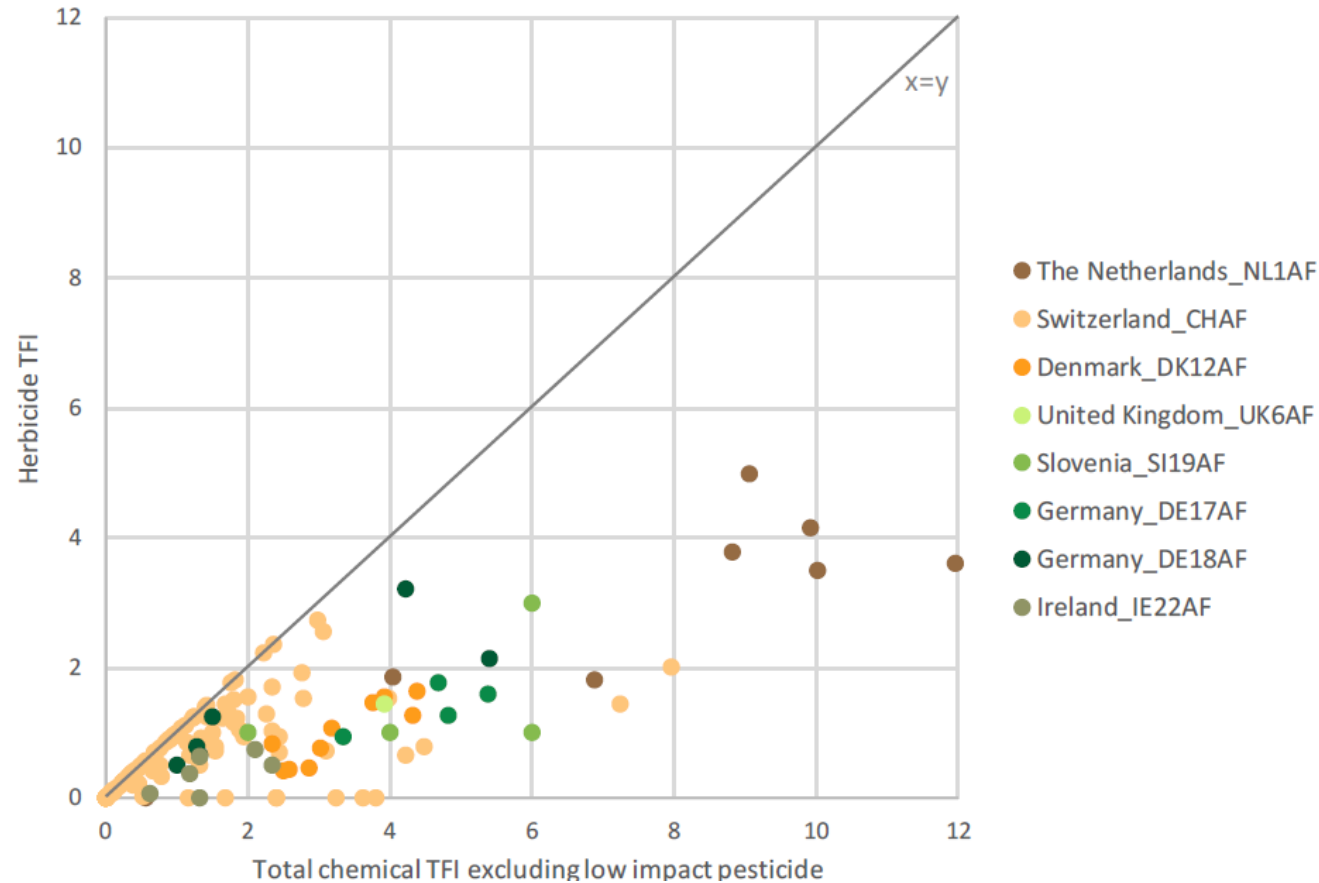
TFI of individual fields : TFI calculated as France do: The amount used divided by the minimum dose rate



Highlights from Survey #2

Quantitative assessment with a high number of details recorded

Herbicide TFI as a function of total TFI

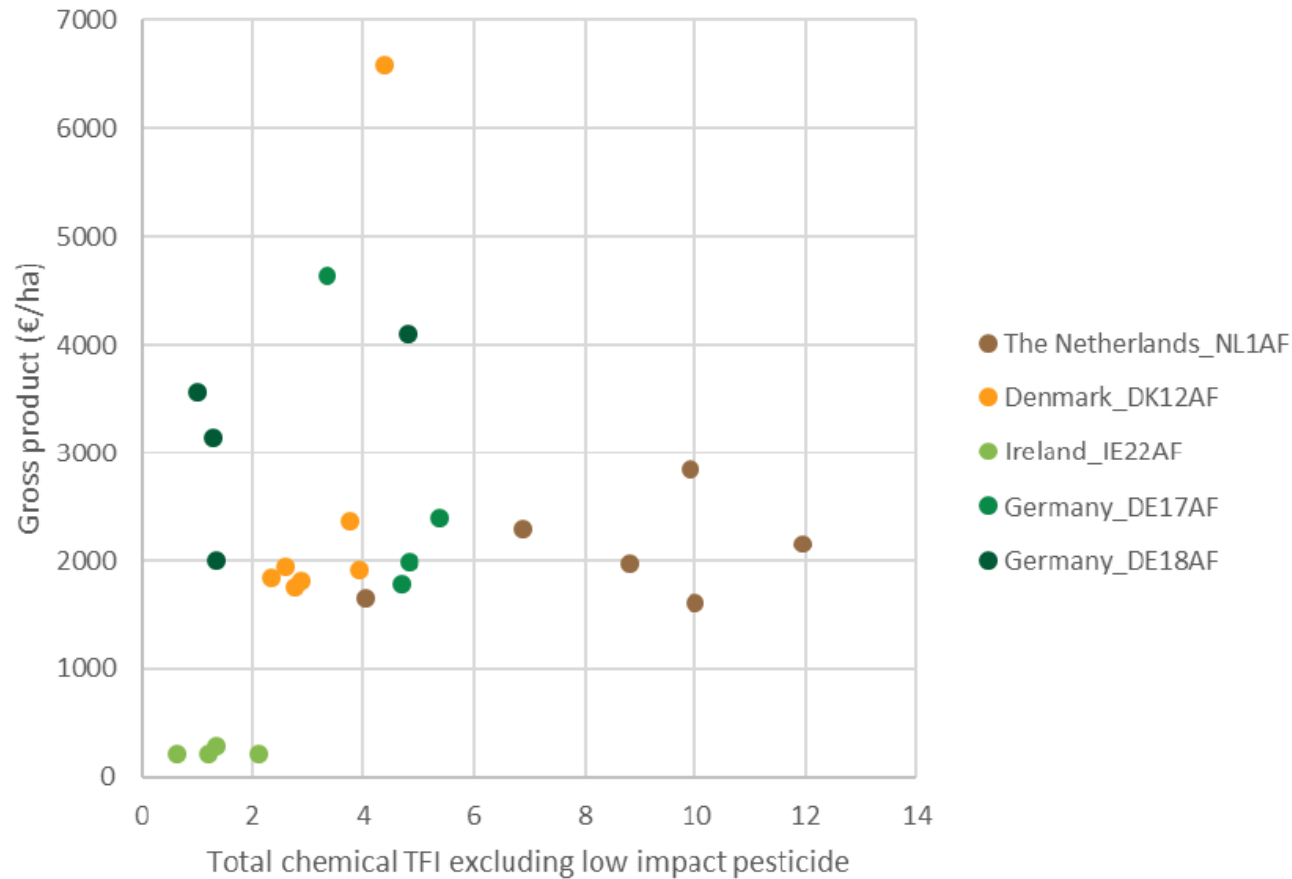


The lower the general TFI, the closer we are on the $x=y$ line: this indicates that it is more difficult to decrease the use of herbicides than the other types of PPP

Highlights from Survey #2

Quantitative assessment with a high number of details recorded

Gross margin as a function of total TFI



There is no high correlation between a higher TFI and a high gross margin:
Farmers with lower TFI can equally well have a high profit as the farmers with higher TFI

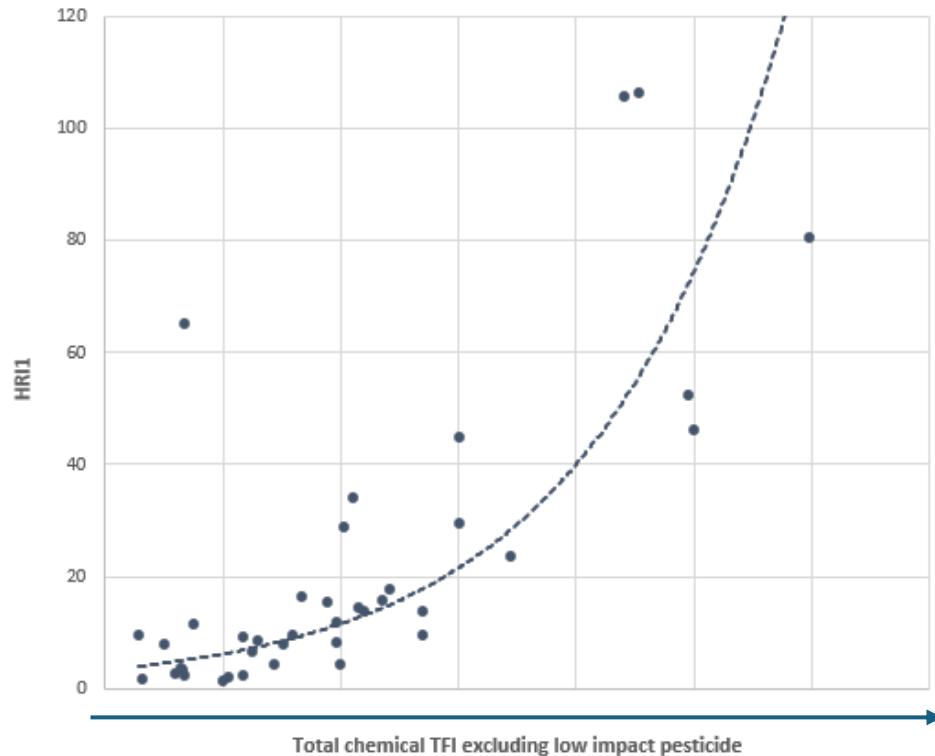
Highlights from Survey #2

Quantitative assessment with a high number of details recorded

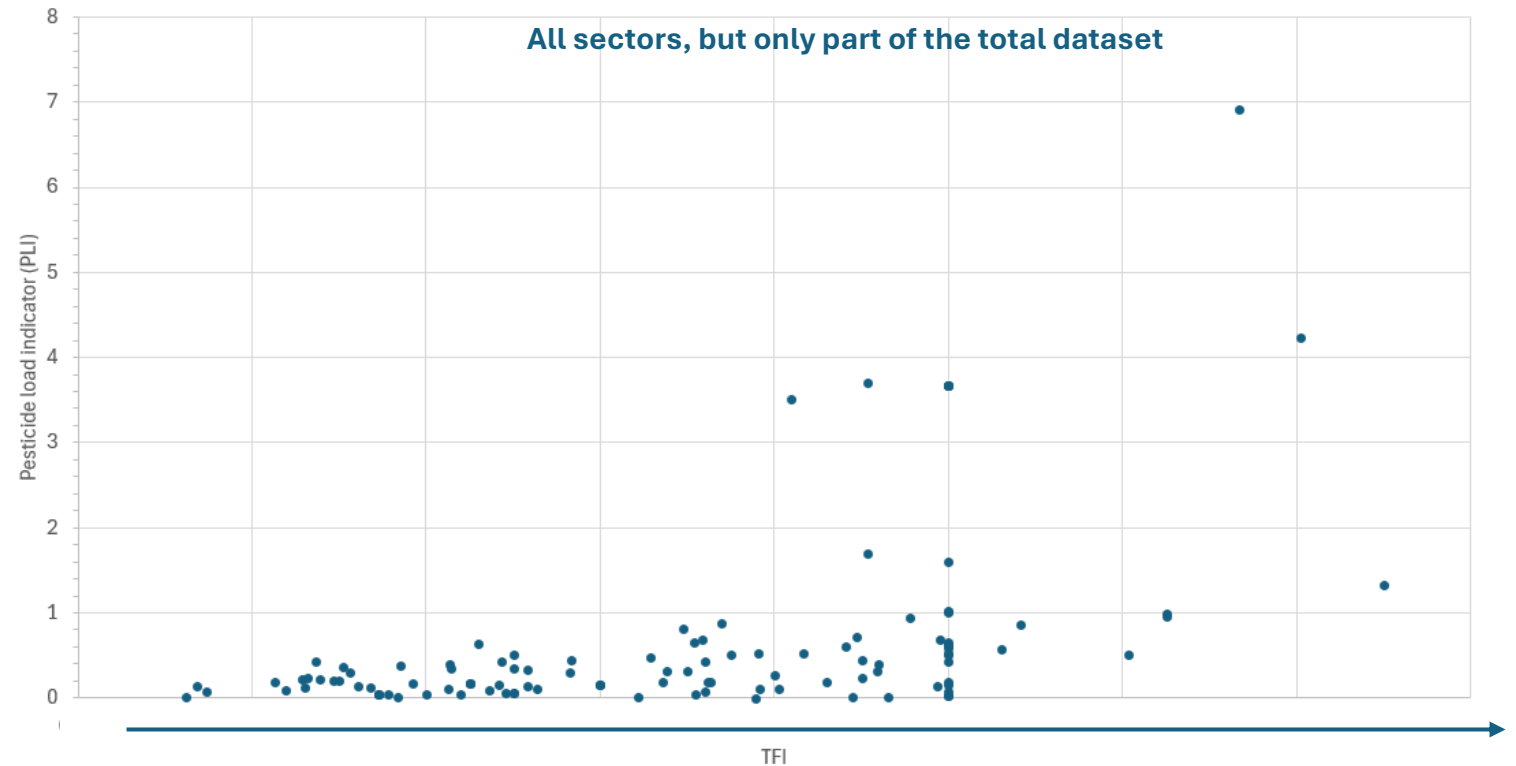
Comparing other PPP use indicators to TFI

NOTE: WORK IN PROGRESS!

Harmonised risk indicator (HR1)



Pesticide load indicator (PLI, a Danish indicator)



HR1 is calculated by multiplying the quantities of active substances in plant protection products placed on the market by a weighting factor
EU Directive 2019/782 (2009/128/EC)

PLI = Ecotoxicity Load + Environmental Fate Load + Human Health Load.
The load of each part is based on the standard dose rate and parameters for fate, ecotoxicological or human health impact

*Kudsk, P., et al. (2018). "Pesticide Load—A new Danish pesticide risk indicator with multiple applications." *Land Use Policy* 70: 384-393.*

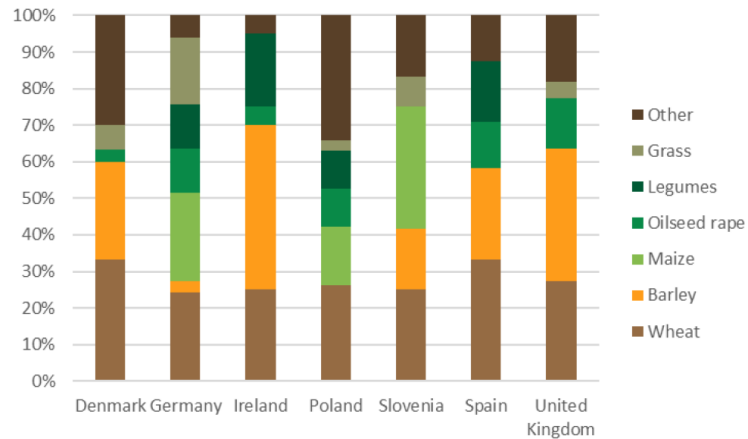
Survey #3: What changed during the time of the IPMworks project / qualitative self-assessment



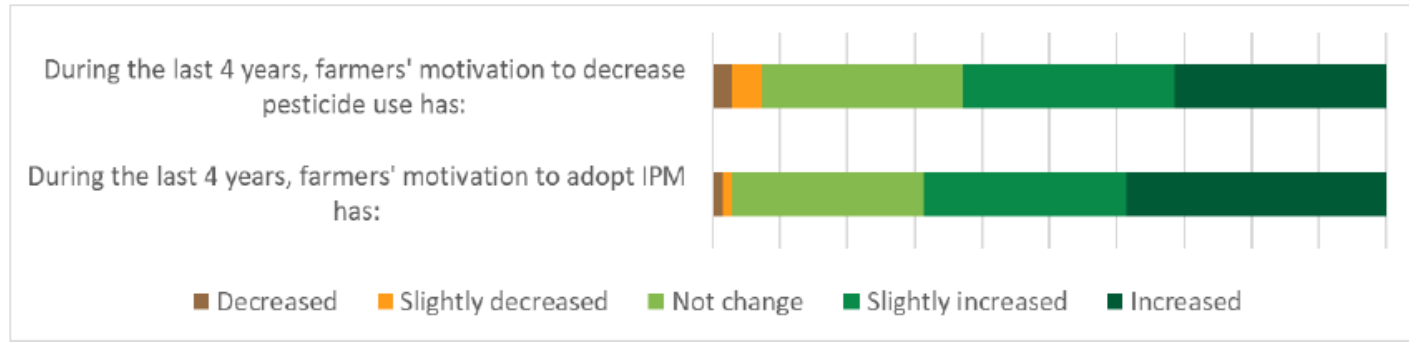
NUMBER OF FARMS
70



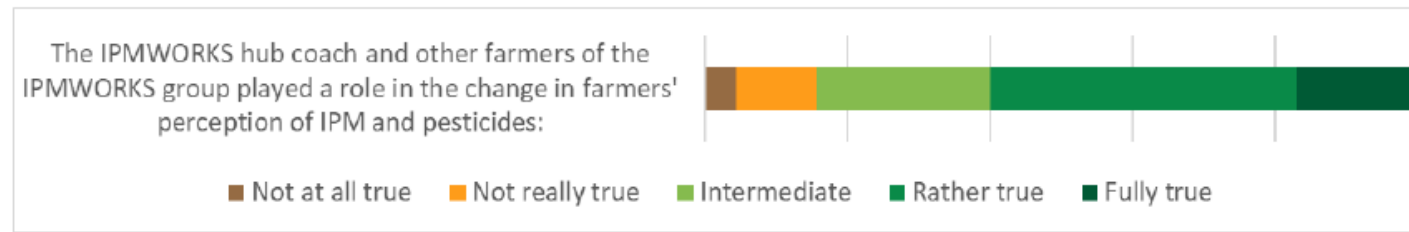
PARTICIPANT COUNTRIES
**DENMARK, GERMANY,
IRELAND, POLAND,
SLOVENIA, SPAIN,
UNITED KINGDOM**



CHANGES IN MOTIVATION



CONTRIBUTION FROM HUB COACHES AND OTHER FARMS



What changed during the IPMworks project among hub-farmers?



During the last years, farmers tolerated more diseases in their crop :

During the last years, farmers tolerated more pests in their crop:

During the last years, farmers tolerated more weeds in their crop:

During the last years, farmers developed further Biocontrol solutions:

During the last years, farmers developed further the use of DSS in their crop:

During the last years, farmers changed fertilization to improve pest/disease/weed management:

During the last years, farmers changed sowing dates to prevent/minimize pest/disease/weed problems:

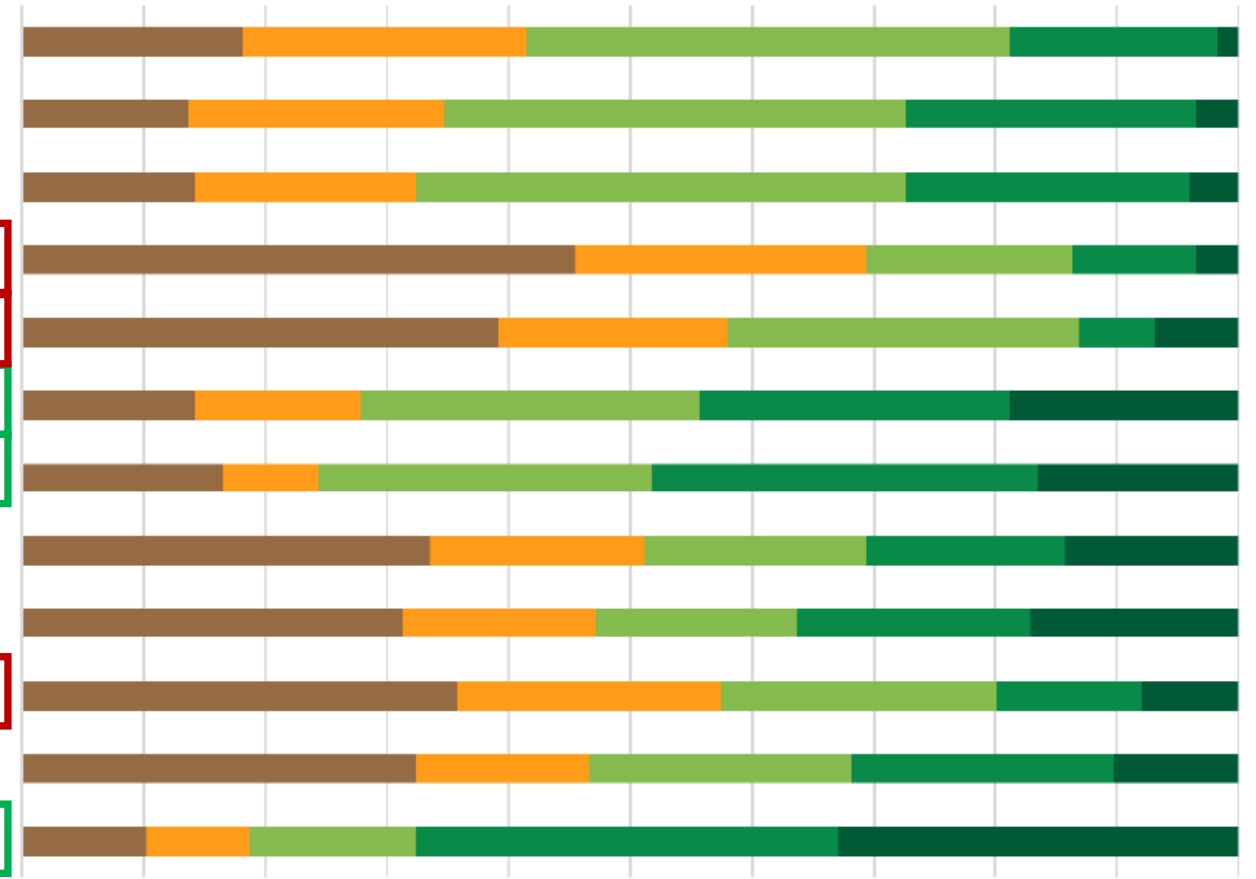
During the last years, farmers developed further mechanical weeding:

During the last years, farmers developed further false seed bed to manage weeds:

During the last years, farmers introduced companion crops to improve resistance to pests/diseases/weeds:

During the last years, farmers started to mix cultivars to improve resistance to pests/diseases/weeds:

During the last years, farmers changed cultivars to improve resistance to pests/diseases/weeds:



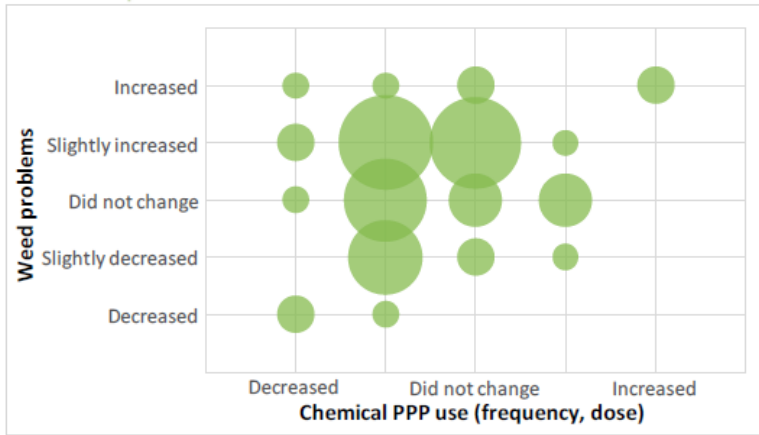
■ Not at all true ■ Not really true ■ Intermediate ■ Rather true ■ Fully true



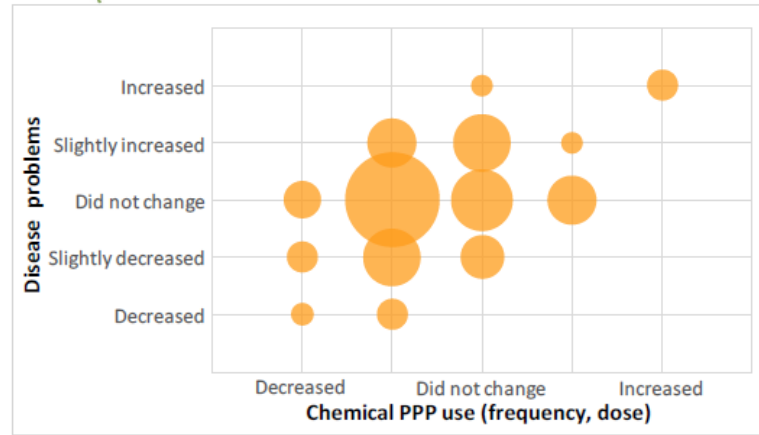
What changed during the IPMworks project among hub-farmers?



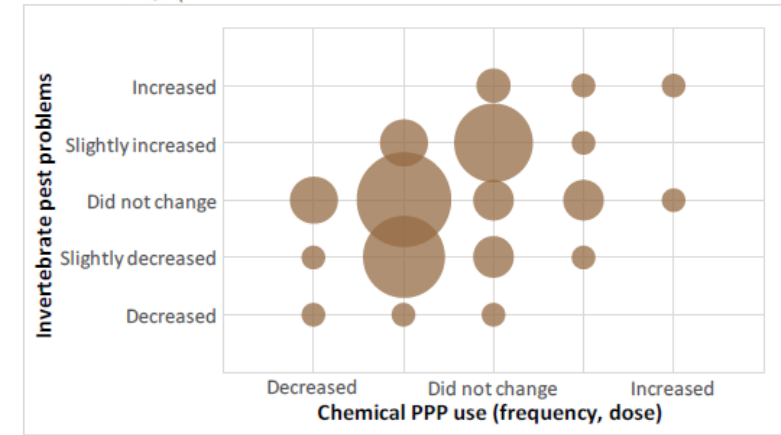
WEED PROBLEMS



DISEASE PROBLEMS



PEST PROBLEMS

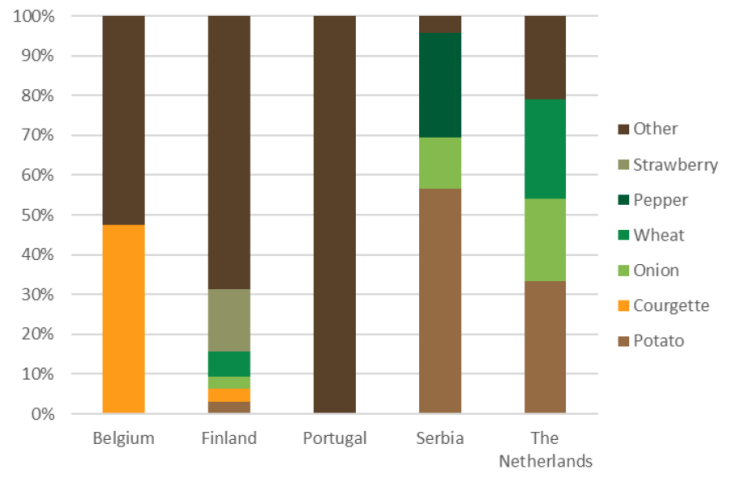


Survey #3: What changed during the time of the IPMworks project / qualitative self-assessment

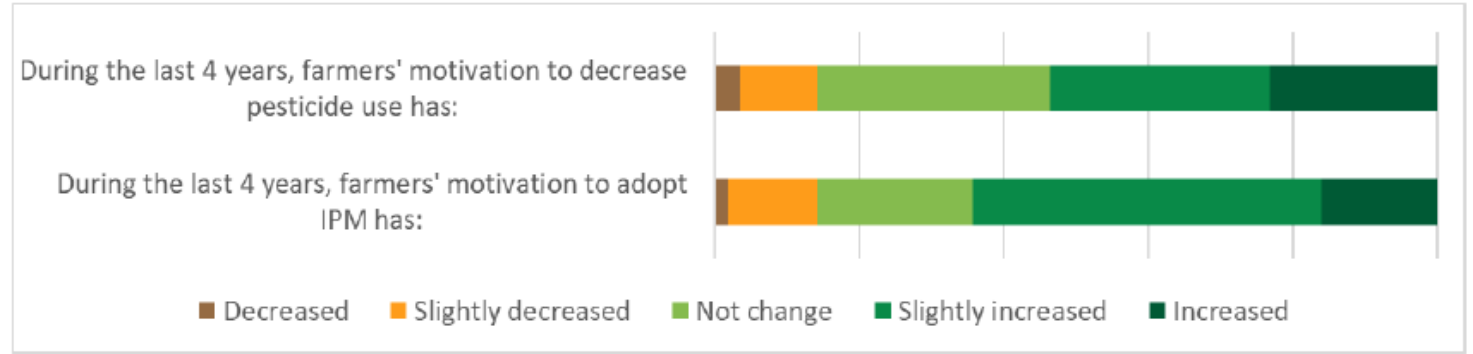


NUMBER OF FARMS
56

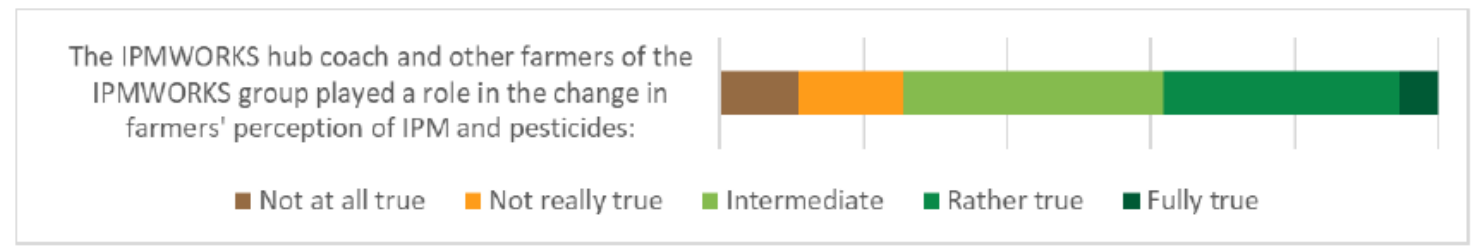
PARTICIPANT COUNTRIES
BELGIUM, FINLAND,
PORTUGAL, SERBIA,
THE NETHERLANDS



CHANGES IN MOTIVATION



CONTRIBUTION FROM HUB COACHES AND OTHER FARMS





THANK YOU!

Mette Sønderskov | Aarhus University | mette.sonderskov@agro.au.dk



Sharing farmer experiences with IPM

Bruno Neves, Portugal



MY FARM WITHOUT PESTICIDES

Bart Piskorski

organic farmer

EKO-ŁAN, Poland

THE IDEA OF MY FARM

Organic farming

+

Small food processing

+

Directly to consumers

+

Demonstration farm

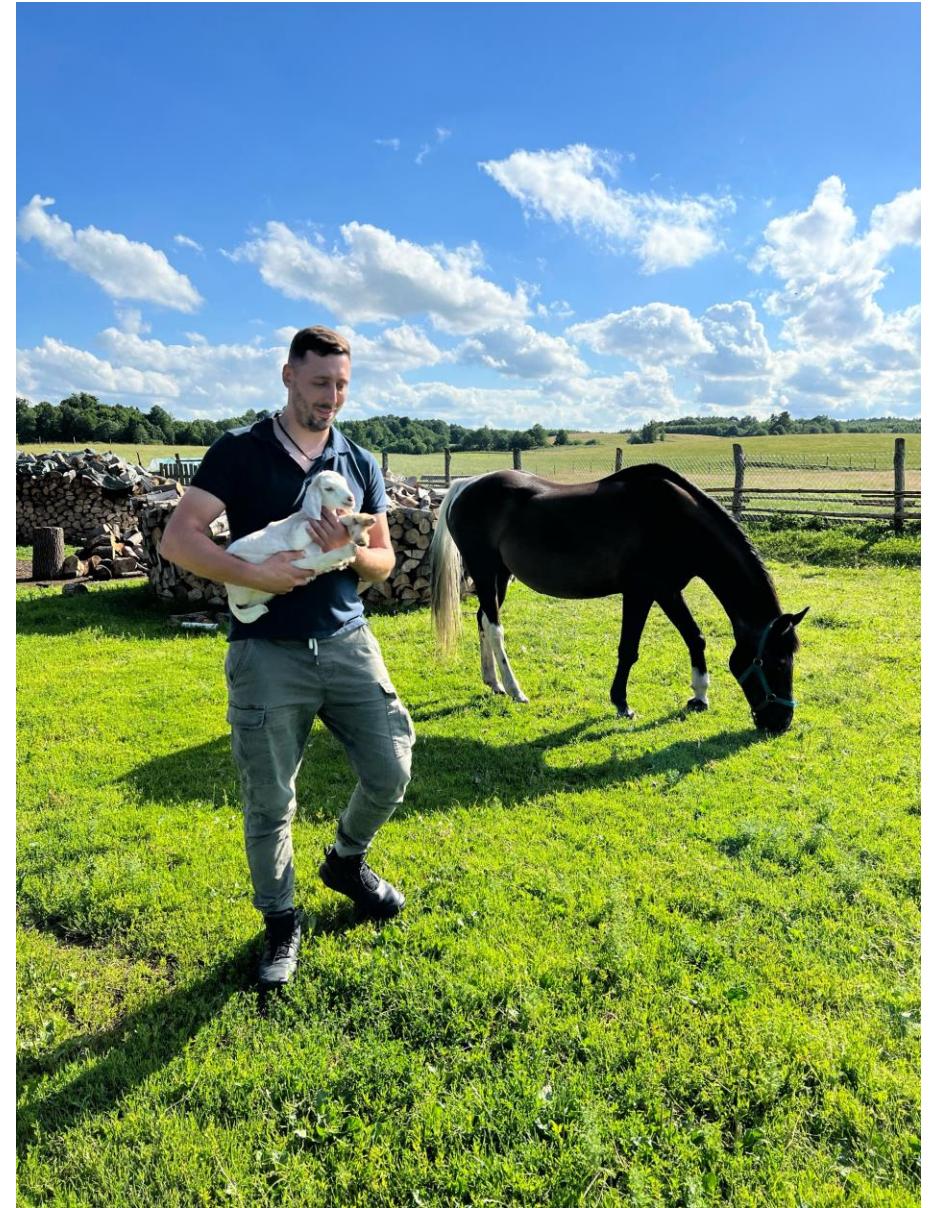
From Farm to Fork Strategy



My Farm's description

1. Location: Kołodziejewo, Janikowo County, Powiat Inowrocławski, Kujawsko-Pomorskie region
2. Area: 33.5 ha
3. Soils: medium and light (from class 3 to 6)
4. Crops: oil plants (flax, black cumin, hemp, milk thistle, evening primrose, camelina), cereals (spelt, emmer, rye, rye, oats, buckwheat, common wheat), legumes (soybeans, lupine, peas), vegetables (potatoes, beetroot)
5. Processing: cold-pressed oils and flour
6. Own machinery for cultivation and harvesting (tractors, combine harvester, seed drills, weeder, etc.)
7. Own machinery for processing (oil press, grain and seed cleaning line)

Why organic farming?



Organic farming - regression or modernity?

Many farmers and people associated with agriculture often perceive organic farming as a regression in development, which comes from a bad interpretation and lack of openness to change.

They justify these opinions by observing small organic farms, mostly without modern equipment and run by people for whom nature is more important than the economic results of the farm.



Organic farming

the most modern form of running a farm as it requires the use of modern techniques of land cultivation

(digital, mechanical, biological, organic chemistry) to obtain high-quality agricultural products, ensuring food security, without degrading the soil, leaving it in an unimpaired condition for future generations.

Additionally, organic farming is closest to the idea of "from farm to fork", as organic products are a response to consumer needs.



Cutting down on pesticides on my farm

The beginning was very difficult.

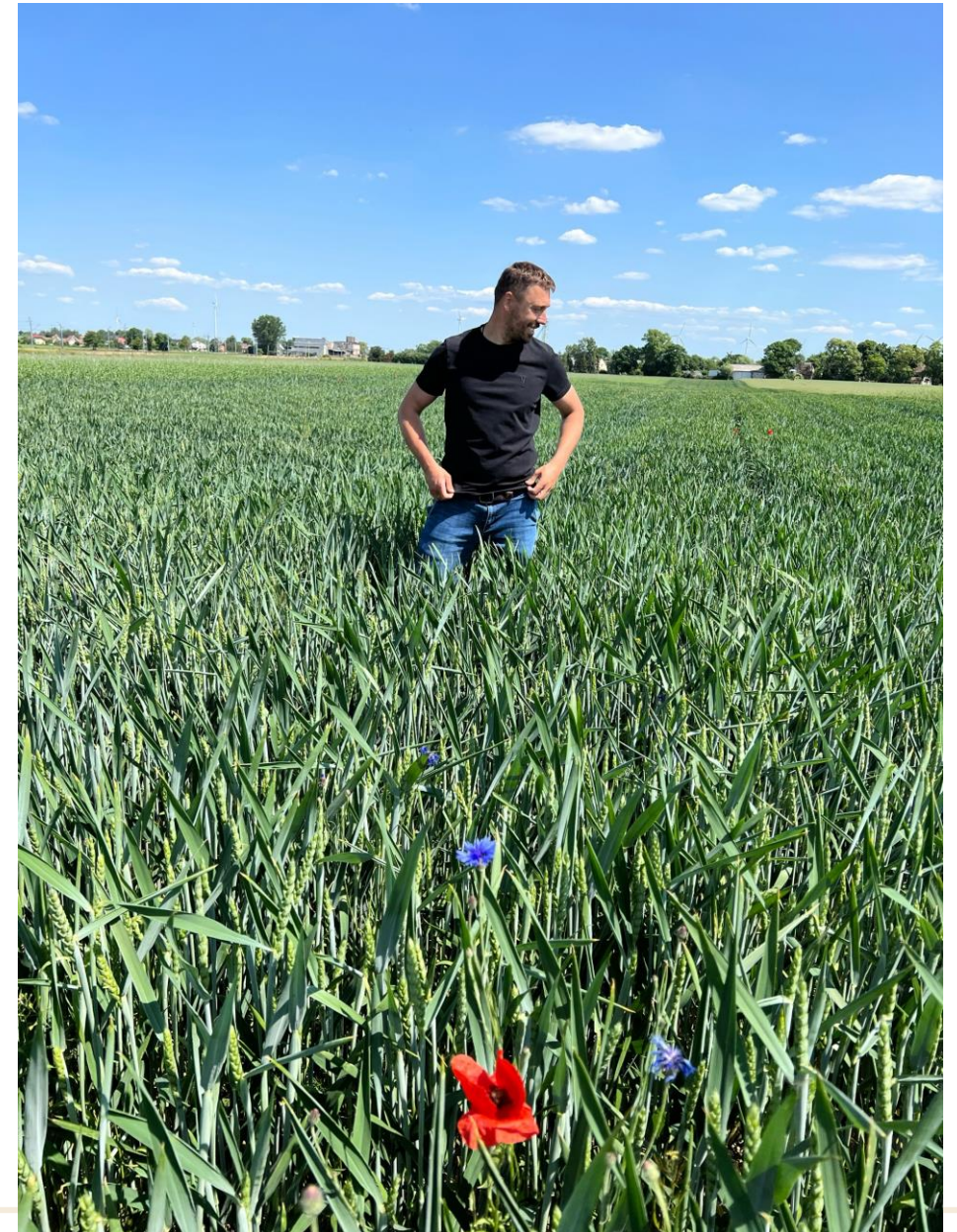
I had no experience.

The machines I used were of low efficiency.

I couldn't handle the weeds.

For several years I gained experience and invested in modern equipment, thanks to which I effectively limited weeds. The knowledge I gained during study visits helped me to design a good crop rotation system.

Joining the IPMWORKS network allowed me to exchange knowledge on both local and international level.



Types of mechanical weed control

Mechanical weed control can be divided into two types:

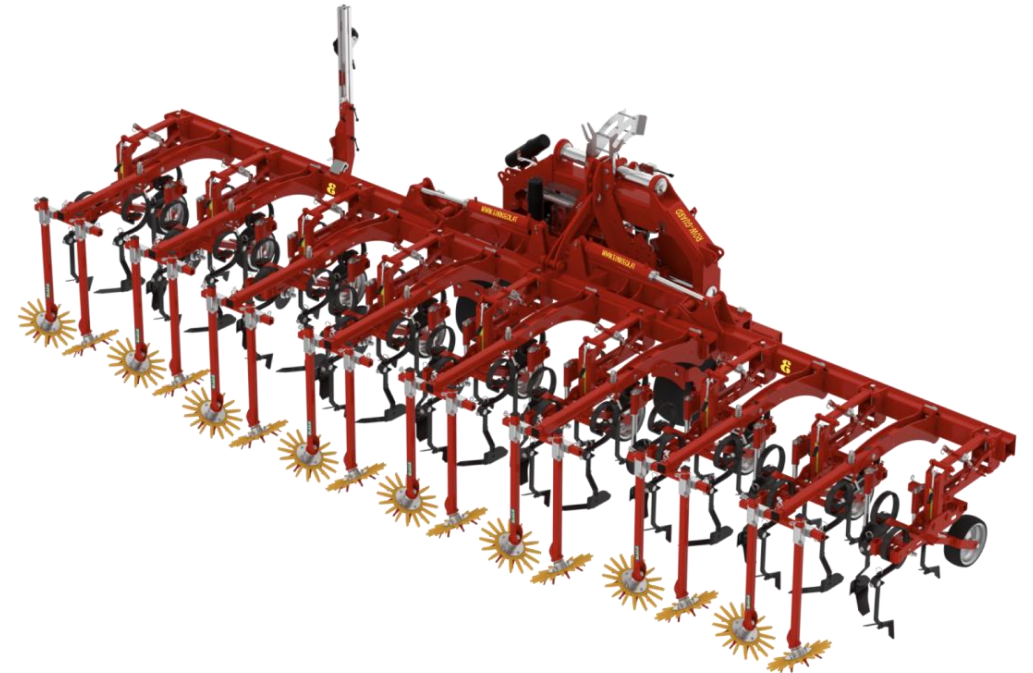
1. Contiguous weeders

- work the whole field for example: tine weeder



2. Incontiguous weeders

- differentiated action for example: row crop cultivator



Contiguous weeders



Contiguous weeders work the entire field surface and are also called ‘broad acre’ weeders.

As contiguous weeders weed the whole soil surface both crop and weeds alike, the crop must therefore be able to survive or ‘resist’ the weeding action while the weeds need to be susceptible to it. Contiguous weeders are somewhat analogous to selective herbicides that are applied to both weeds and crop, which kills the weeds while the crop survives. Contiguous weeders are mostly used in grass and arable crops, especially those sown with row spacings less than 20 cm, although some can also be used in hardier vegetable crops.

Incontiguous weeders



Incontiguous weeders have gaps for the crop to pass through. The inter-row hoe is the classic example of this type of machine, where the inter-row space is vigorously hoed while the crop row is untouched. However, modern incontiguous machines often also have tools for weeding the intra-row. These are in turn divided into two types: non-discriminatory weeders apply the weeding action to crop and weeds alike and are therefore comparable to the contiguous weeders (see below for more detail), while the discriminatory weeders have a sensor to determine crop from weeds and then only apply the weeding tool to the weeds

The cultivation of oil plants distinguishes our farm - photos from the cultivation of black cumin



Processing and direct sales

This is an action that allows you to shorten the route to the consumer ("from farm to fork"), which increases the farm's income.

Cold pressing oil and grinding grain into flour is our way of life.

We want the countryside to be associated with food production because it is here that everything begins with the soil.



Processing and direct sales

Sales are conducted via the website, at fairs, festivals, to restaurants and directly at the farm.



Farm demonstrations

We organize demo events and field trainings for guests from Poland and abroad



Cooperation

My farm actively cooperates with farmers, universities, institutions, restaurants, media and companies from Poland and abroad.

We participate in varied projects (such as IPMWORKS), sharing the field and products.

In the photo:
Professor Józef Tyburski from the University of Warmia and Mazury - soybean cultivation in 2022 – our joint research on varieties.



Media cooperation

Taking advantage of different channels (TV, Internet press, newspapers, social media) to promote pesticides reduction



FARMER.PL > PRODUKCJA ROŚLINNA

Tradycja i innowacja napędzają ekologiczne rolnictwo

Materiał przygotowany w ramach programu "Energia dla Wsi", prowadzonego przez Stowarzyszenie na Rzecz Efektywności im. prof. Zmijewskiego, przy wsparciu Fundacji Polska z Natury
Opublikowano: 25-06-2024, 08:47

Podziel się



Joanna Sikora | 2022-03-05 | KUJAWSKO-POMORSKIE



Gospodarze mogli m.in skorzystać ze szkolenia w KPODR w Minikowie

Wzrasta zainteresowanie żywnością ekologiczną, jednak w Polsce tylko ponad 3 proc. gospodarstw stawia na taką produkcję. Aby zwiększyć zainteresowanie rolników organizowane są szkolenia i konferencje, które mają zachęcić do zmiany stylu gospodarowania. Ekspert: Lucyna Talaśka-Klich



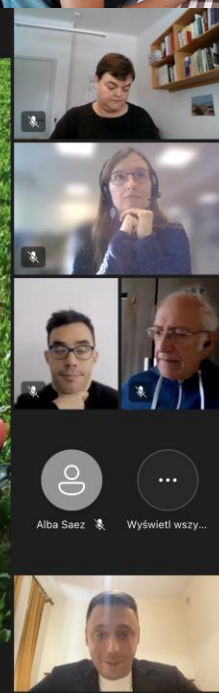
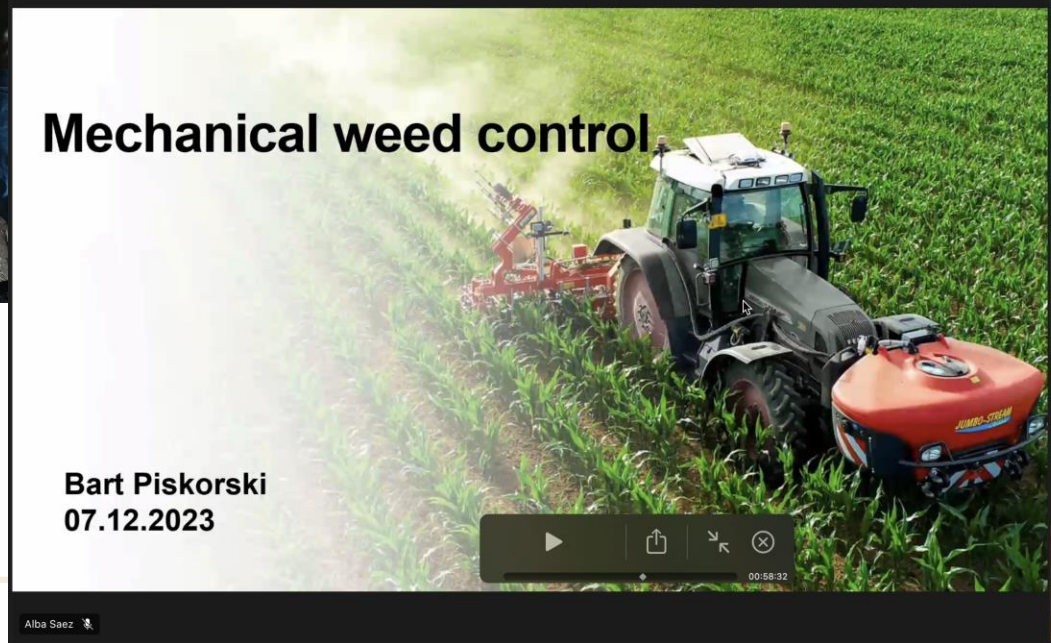
Knowledge exchanges, more and less formal

Participating in demo events, trainings, conferences and study trips in Poland and abroad is a very important element of the farm's development.



Mechanical weed control

Bart Piskorski
07.12.2023



Sharing and exchanging knowledge at universities, agricultural schools, conferences and trainings



The path I have chosen is not an economic choice
but a **calling**.

Not always the work that provides maximum profit
will bring health, joy and happiness in life.

Fulfilling a calling is not always a bed of roses.
It costs many sacrifices and struggles
with challenges beyond our control.

Still, **I would not do it any other way!**





THANK YOU!

Bart Piskorski | bartlomiejpiskorski@gmail.com

IPMWORKS consult: Anna Kaszkowiak-Nowacka, KPODR | anna.kaszkowiak@kpodr.pl



The centrale role of Hub Coaches for facilitating peer-to-peer learning & IPM adoption

Jolien Claerbout | Inagro vzw

How do I work as a hub coach?

Who am I?

What after IPMWORKS?

Who am I?

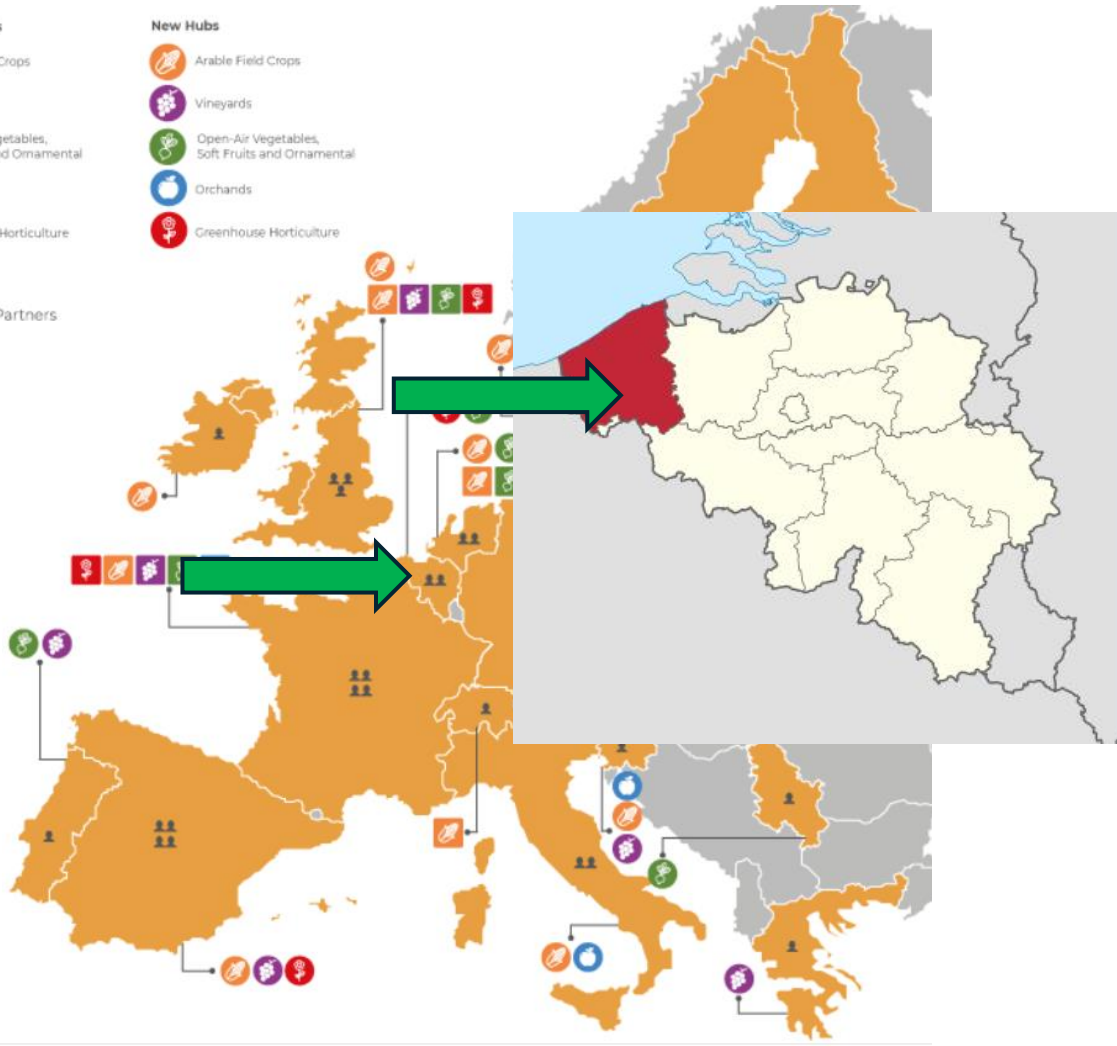
Existing Networks

- Arable Field Crops
- Vineyards
- Open-Air Vegetables, Soft Fruits and Ornamental
- Orchards
- Greenhouse Horticulture

New Hubs

- Arable Field Crops
- Vineyards
- Open-Air Vegetables, Soft Fruits and Ornamental
- Orchards
- Greenhouse Horticulture

Number of Partners



RESEARCH & ADVICE IN AGRICULTURE & HORTICULTURE



Who am I?

Hub:

- 11 Farmers
- Strawberries (soil/hydroponics), raspberry



How do I work as a hub coach?

1. Hub

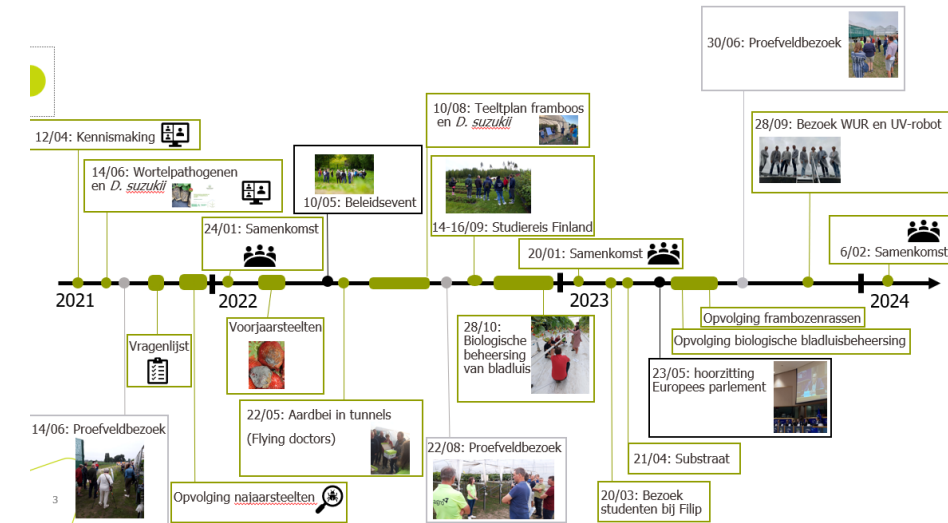


How do I work as a hub coach?

1. Hub



- Decide on the program
- Organise activities
 - Exchange knowledge
 - Introduce research
 - Introduce 'ready-to-use' IPM techniques



How do I work as a hub coach?

1. Hub



2. Individual



How do I work as a hub coach?

- 1-2-1 advice
- Monitoring of IPM-techniques



2. Individual



How do I work as a hub coach?

1. Hub



2. Individual



3. Broader public



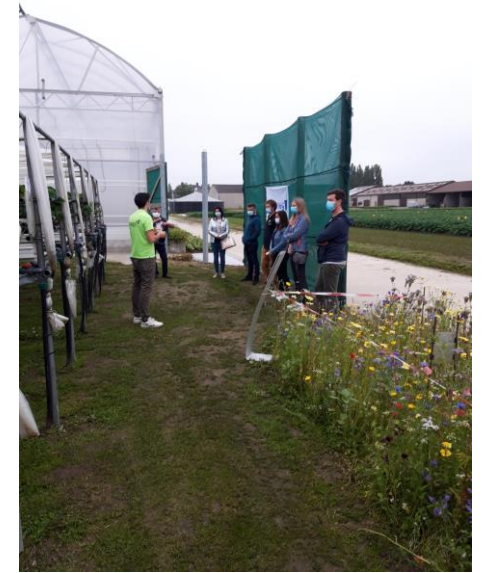
How do I work as a hub coach?

- Organise demonstration events
- Communicate about holistic IPM

3. Broader public



Importance of the strawberry variety



Aphid control in strawberries



Management of *Drosophila suzukii*



Flying doctors in soil-grown strawberries

How do I work as a hub coach?

1. Hub



2. Individual



3. Broader public

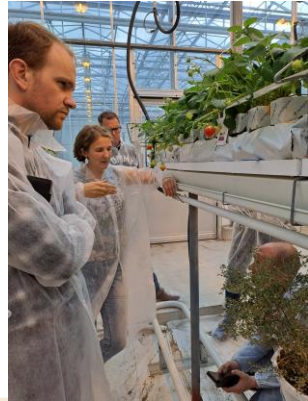


4. International



How do I work as a hub coach?

- Exchange between hub coaches
- Cross visits
- Policy events
- Attend international symposia and conferences



4. International



What after IPMWORKS?

- Continue on regional level
- Looking for a way to collaborate on international level





THANK YOU!

Jolien Claerbout | Inagro vzw | jolien.claerbout@inagro.be



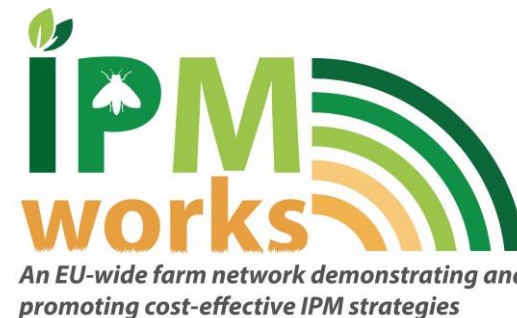
The various IPMWORKS channels for dissemination

Joaquín Balduque | CIHEAM Zaragoza



**CIHEAM
ZARAGOZA**

IPMWORKS DEMONSTRATION EVENTS



Demonstration events 2021-2024

- 22 hubs organised events for 4 years
- 2021 low number of events → barriers by COVID
- Different sectors
- In total 250 events

Hub	Sector	Partner	Country	2021	2022	2023	2024	Total 2021-2024
2	Arable	WR	NL		4	5	1	10
5	Arable	KPODR	PL		4	3	4	11
6	Arable	JHI	UK		2	7	3	12
9	Arable	SSSA	IT		4	3	5	12
11	Arable	DL	DK	3	4	3		10
12	Arable	VELAS	DK		2	3	5	10
13	Arable	BIOSENSE	RS		2	5	4	11
15	Arable	INTIA	ES	1	3	2	4	10
17	Arable	JKI	DE		4	3	4	11
18	Arable	GLZ	DE		1	3	6	10
22	Arable	Teagasc	IE		7	6	5	18
19	Arable, vegetable, ornamentals	KGZ MB	SL	1	9	4	0	14
4	Greenhouse	INAGRO	BE		5	5	4	14
16	Greenhouse	COEXPHAL	ES	3	3	4	0	10
10	Orchards	SSSA	IT		2	3	5	10
1	Vegetables	Delphy	NL			7	5	12
3	Vegetables	INAGRO	BE		3	3	4	10
8	Vegetables	Consulai	PT	3	1	4	2	10
20	Vegetables	ProAgria	FI		1	7	7	15
7	Vineyards	Consulai	PT	2	1	4	3	10
14	Vineyards	FEUGA	ES		3	4	3	10
21	Vineyards	AUA	Gr			5	5	10
		Totals		13	65	93	79	250



Example of best demonstration event Field-Demonstration: EcoRobotix ARA Spot Sprayer

Innovative Weed Control with Precision Technology

What?

Demonstration of the EcoRobotix ARA spot sprayer in onions & sugar beets, targeting various weeds (e.g. potato volunteers)

How?

Advanced camera technology for selective weed recognition
85-95% reduction in pesticide use
High speed & capacity, practical for modern farming

Event Highlights

Presentation by Doorgrond: Machine operation, benefits & Q&A (52 farmers attended)
Live field demo: Precision spraying (using water) to show accuracy
Expert discussions on herbicide use, crop safety & ROI

Key Takeaway

Sustainable & efficient weed management with reduced chemical input!

IPMWORKS TOOLBOX LIVE



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**TOOLBO
X**

[NEWS](#) ▾

[NETWORKS](#)

[RESULTS & RESOURCES](#) ▾

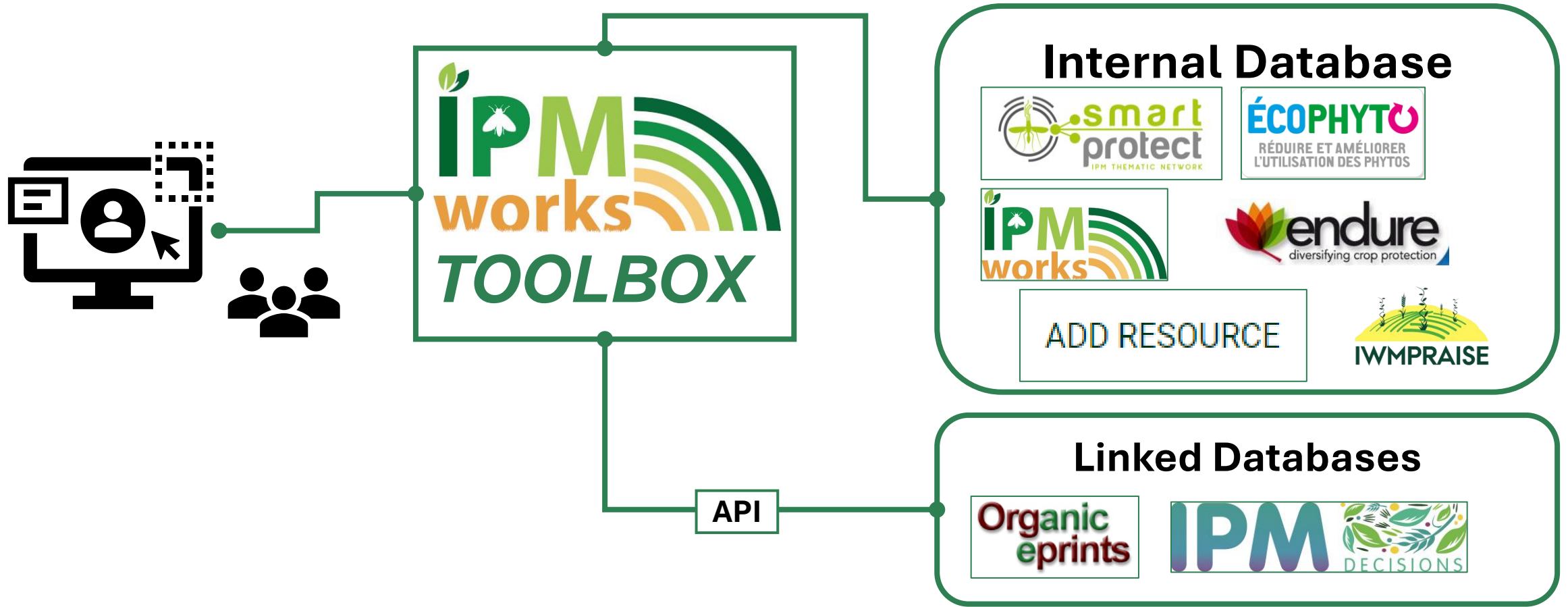


AN EU-WIDE FARM
NETWORK DEMONSTRATING
AND PROMOTING COST-

FINAL WEBINAR – 12 March 2025 – 14:00-17:00 CET



IPMWORKS TOOLBOX



EU-FarmBook

Adding Resources



Add resource

Short description

Short description is required

Long description (in English, 500 words)

Long description is required

Long description (in native language, if not English,

(...)

by ticking this box you confirm that you have read and accept [Part 1](#) of the Toolbox Terms and Conditions. You can contact IPMWORKS-WP4@inrae.fr at any time to amend or remove your submission.

This is required

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💾 Save resource

Disclaimer This IPMWORKS Resource Toolbox

economic responsibility whatsoever for losses due to using this service. In continuing to use the IPMWorks Resource Toolbox you agree to Part 1 of the Toolbox Terms and Conditions.

Sectors

Select sector

- Green
- Outdoor
- Viney
- Orcha
- Arabl

Country of origin

Select region

- Belgium
- Bulgaria
- Czech Republic
- Denmark
- Germany

Project

Select project

- IPM Works
- Smart Protect
- IPM Decisions
- Endure
- IWMPRAISE

Resource types

Select resource type

- Project | Summary
- Project | Deliverable
- Project | Report
- Decision Support System
- Decision Support System

Specific pest

Select pests

Specific crop

Select crops

Languages

Select language

Sectors

Select sector

Country of origin

Select region

Project

Select project

Resource types

Select resource type

Resource title

Specific pest

Select pests

Specific crop

Select crops

Resource language

Select language

OUTDOOR VEGETABLES

Finland IPM Decision Support System

Carrot fly flight model (Predicts risk of flight and oviposition in crop)

Learn more... >>

ARABLE FIELD CROPS

United Kingdom IPM Decision Support System

TSUM Model (Predict transmission of disease by aphid vectors in crop)

Learn more... >>

Search



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Sectors

Select sector ▼

Country of origin

Select region ▼

Project

Select project ▼

Resource types

Select resource type ▼

Resource title

Specific pest

Select pests ▼

Specific crop

Select crops ▼

Resource language

Select language ▼



MULTI-SECTOR

IPM Decisions Stepping-up IPM decisions support for crop protection (2019-2024)



ARABLE FIELD CROPS

Pollen beetle treatment thresholds (UK oilseed rape)



ARABLE FIELD CROPS

LEAF Simply Sustainable IPM Guide



ARABLE FIELD CROPS

BYDV TSUM Model (Predict transmission of disease by aphid vectors in crop)



OUTDOOR VEGETABLES

Carrot fly flight model (Predicts risk of flight and oviposition in crop)



ARABLE FIELD CROPS

Technical and economic implication of IPM



MULTI-SECTOR

Burleigh Dodd Science Publishing - IPM Collection featuring over 120 chapters covering all aspects of IPM.



MULTI-SECTOR

Book - Improving IPM in horticulture (2022) [Burleigh Dodd Science Publishing]



IPM Decisions Stepping-up IPM decisions support for crop protection [2019-2024]



Project	IPM Decisions
Resource language	English
Resource origin	https://www.platform.ipmdecisions.net/
Resource type	IPM Project
Organization name	RSK ADAS Ltd
Contact email	Mark.Ramsden@adas.co.uk
Contact phone	
Citation (DOI)	
Creation date	20. 12. 2023.

Find out more

- [IPM Decisions short project description.pdf](#)
- [Project Information](#)
- [IPM Platform](#)
- [IPM Decisions](#)

Short summary

The IPM Decisions Platform will give farmers and advisers across Europe access a large number of IPM decision support systems. User will access the Platform via a tailored 'dashboard', specific to their requirements. The dashboard will act as the user's control panel to collate information and manage DSS applications. Farmers & Advisers - benefit from a simple 'click and go' platform to find and run decision systems which have been evaluated for use under their regional conditions. Access to relevant weather data is provided through the platform. The extent of validation of each DSS is transparent to enable informed choices. Applied researchers - benefit from access to decision systems, weather data, a data set of field pest observations from large numbers of sites and seasons, and a library of methods for evaluation and comparison of benefits. Academic researchers - can to adapt decision models to their regional conditions, and rapidly evaluate the effect of the changes using the library of methods for evaluation and comparison of benefits described above. System developers - benefit by a 'shop window' to access more end users, and tools and resources to accelerate DSS innovation.

The Platform supports a wide range of DSS which are either free to use or commercial pay to use.

The first link below is to the official EU project information site on CORDIS
The second link is to the IPM Decisions Platform
The third link is to the IPM Decisions project website

The video provides a quick demonstration of the platform

Sectors:

Regions: EU

Relevants pests:

- Alternaria leaf blight
- Alternaria leaf spot
- Apple fruit moth
- Barley Yellow Dwarf Virus
- Bird cherry-oat aphid
- Cabbage fly
- Cabbage stem flea beetle
- Carrot fly
- Colling moth
- Cutworm (Tarnip moth)
- Diamondback moth
- Early blight of potatoes
- English grain aphid
- Orange Wheat Blossom Midge
- Peach-potato aphid
- pollen beetle
- Potato late blight
- Potato leaf blight
- Saddle gill midge
- Septoria leaf blight
- Silver Y moth
- Small cabbage white
- Yellow rust

Relevants crop(s):

- Oilseed rape
- Spring Barley
- Winter barley
- Durum wheat (spring)
- Durum wheat (winter)
- Soft wheat (spring)
- Soft wheat (winter)
- Spring rye
- winter rye
- Oats
- Maize
- Potato
- Sugar beet
- Cabbage
- Carrots
- Parsnips
- Celery
- Onion
- Apple
- Pear
- Olives
- Grapes



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Get trained in Integrated Pest Management!!

The **H2020 IPMWORKS** has launched its [e-learning modules](#)



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H2020 IPMWORKS e-learning training modules

The IPMWORKS e-learning modules have been prepared based on successful experiences within the project network, including technical aspects of IPM strategies, farm performance or co-innovation and method for farm hub coaching, targeting both farmers and advisers. Modules on agroecosystem approach, on holistic pest management examples and on the key topic of policies are also included to frame the technical ones.

The materials that compose the modules focus on IPM technical aspects, IPM efficiency to gain sustainability, and methods for coaching farmers towards the adoption of cost-effective IPM strategies, based on both existing IPM resources and holistic management examples produced by the IPMWORKS network. These materials consist of, on the one hand, presentations reflecting the theoretical content and the selected resources for each theme, and, on the other hand, recorded videos of the lectures of these presentations.

These module packages can be adapted to national needs and local contexts, since they have been produced to be used like an interactive training catalogue. In line with this purpose, the modules are divided in short chapters, enabling the access to specific chapters according to the national needs and local contexts of the modules' users.

FINAL WEBINAR – 12 March 2025 – 14:00-17:00 CET



IPMWORKS e-learning modules

H2020 IPMWORKS e-learning training modules

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Module 1: Agrosystem/Agroecosystem: Concepts and theory. Holistic approach to IPM

Module 2: Plant health risk challenges and Policy context in the EU

Module 3: Integrated Weed Management (IWM)

Module 4: Integrated Disease Management (IDM)

Module 5: Integrated Invertebrate Pest Management (IIPM)

Module 6: Holistic IPM examples

Module 7: Assessment of an IPM system

Module 8: Soft skills for facilitating interactive learning and demonstration on IPM

Coordinated by
CIHEAM – Zaragoza
Based on the expertise of the
31 project partners

46 chapters / videos (15-20')
A topic explained by an
IPMWORKS expert
+ re-usable presentations

IPMWORKS e-learning modules

Module 4: Integrated Disease Management (IDM)

Module 4 focuses on diseases management and on the challenges we are facing in agriculture, considering three main aspects, which are climate change, the need and request to reduce the use of plant protection products, and last but not least, the resistance management. The module gets into the context of Sustainable Agriculture and applied epidemiology for disease control. In addition, it presents 3 cases studies: Arable crops (wheat), Horticultural crops (processing tomato) and Perennial crops (grapevine). This module introduces the multiple modelling approach Decision Support Systems (DSSs). The content present different IPM tools for the following crops / diseases with 3 cases studies: i) Wheat / Fusarium head blight, ii) Tomato / Downy mildew, Alternaria leaf blight and Bacteriosis and iii) Grapevine / Downy mildew.

Module leader: Tito Caffi (UCSC).

[4.1. Current challenges in disease control](#)

[4.2. Disease management in the context of Sustainable Agriculture](#)

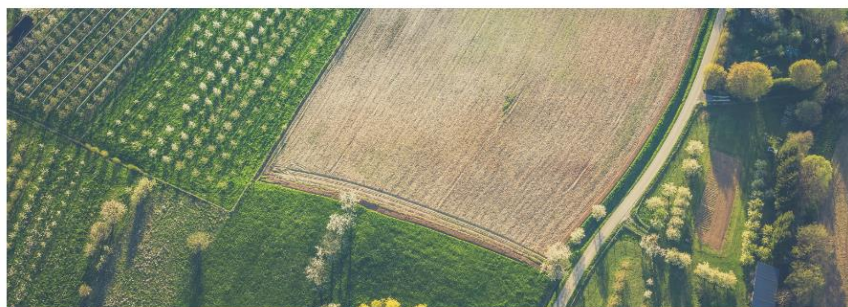
[4.3. Applied epidemiology for disease control](#)

[4.4. Case study. Arable crops: wheat](#)

[4.5. Case study. Horticultural crops: processing tomato](#)

[4.6. Case study. Perennial crops: grapevine](#)

IPMWORKS e-learning training: 4.1 Current challenges in disease control



MULTI-SECTOR

Project	IPM WORKS
Resource language	English
Resource origin	https://ipmworks.net/toolbox/en/#/e_training
Resource type	Training
Organization name	
Contact email	nicolas.munier-jolain@inrae.fr
Contact phone	
Citation (DOI)	
Creation date	19. 01. 2024.

Short summary

IPMWORKS e-learning Module 4: Integrated Disease Management (IDM).

Module 4 focuses on diseases management and on the challenges we are facing in agriculture, considering three main aspects, which are of climate change, the need and request to reduce the use of plant protection products, and last but not least, the resistance management. The module gets into the context of Sustainable Agriculture and applied epidemiology for disease control. In addition, it presents 3 cases studies: Arable crops (wheat), Horticultural crops (processing tomato) and Perennial crops (grapevine). This module introduces the multiple modelling approach Decision Support Systems (DSSs). The content present different IPM tools for the following crops / diseases with 3 cases studies: i) Wheat / Fusarium head blight, ii) Tomato / Downy mildew, Alternaria leaf blight and Bacteriosis and iii) Grapevine / Downy mildew.

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- 4.1. Current challenges in disease control
- 4.2. Disease management in the context of Sustainable Agriculture
- 4.3. Applied epidemiology for disease control
- 4.4. Case study. Arable crops: wheat
- 4.5. Case study. Horticultural crops: processing tomato
- 4.6. Case study. Perennial crops: grapevine

The IPMWORKS e-learning modules have been prepared based on successful experiences within the project network, including technical aspects of IPM strategies, farm performance or co-innovation and method for farm hub coaching, targeting both farmers and advisers. Modules on agroecosystem approach, on holistic pest management examples and on the key topic of policies are also included to frame the technical ones.

All e-learning training modules can be found in the IPMWORKS Toolbox training tab.

Resources:

- Attachment 1: PDF of Chapter 4.1 training slides
- Link: IPMWORKS Training page, providing links to all training modules
- YouTube Link: A recording of Chapter 4.1: Current challenges in disease control

IPMWORKS e-learning modules

Find out more

 IPMWORKS E-learning 4.1.pdf

Sectors

Regions

Relevant pest(s)

Relevant crop(s)



EU

All



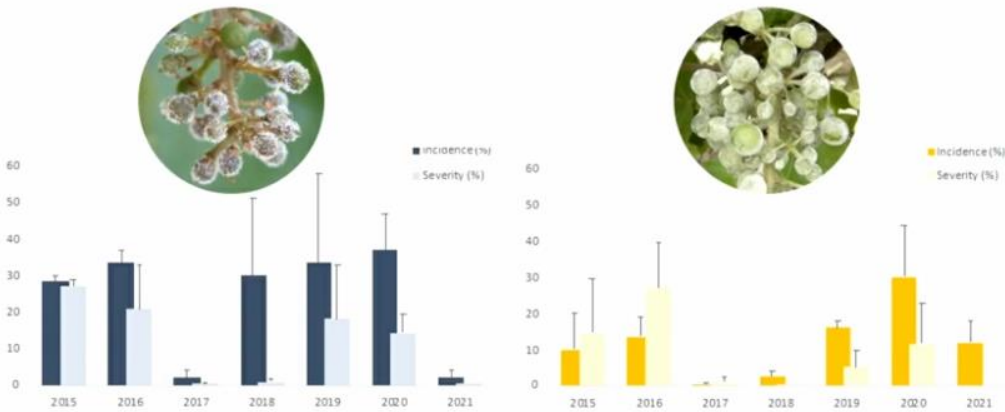
Module 4: Integrated Disease Management (IDM)



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Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Commission. Neither the European Union nor the European Commission can be held responsible for them.

Climate change – pathogens reaction



Current challenges in disease control

Tito Caffi

Universita Cattolica del Sacro Cuore

<https://ipmworks.net>



Changes in disease control. - IPMWORKS e-learning training mo...
Ver más ta... Compartir

1. Current challenges in disease control

Module 4: Integrated Disease Management (IDM)

IPMWORKS E-learning

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HORIZON 2020
N. 101000339

IPMWORKS E-learning – Module N°4 - Integrated Disease Management (IDM)

IPMWORKS is a FarmDemo aligned project and is partnered with the IPM Decisions Project

FINAL WEBINAR – 12 March 2025 – 14:00-17:00 CET



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IPMWORKS Dissemination channels

Social media

Sharing: News regarding demo events, videos, sharing dissemination materials & toolbox resources, related projects & initiatives

LinkedIn



893 followers



47 367 Impressions



270 posts



3 603 engagements

Twitter



411 followers



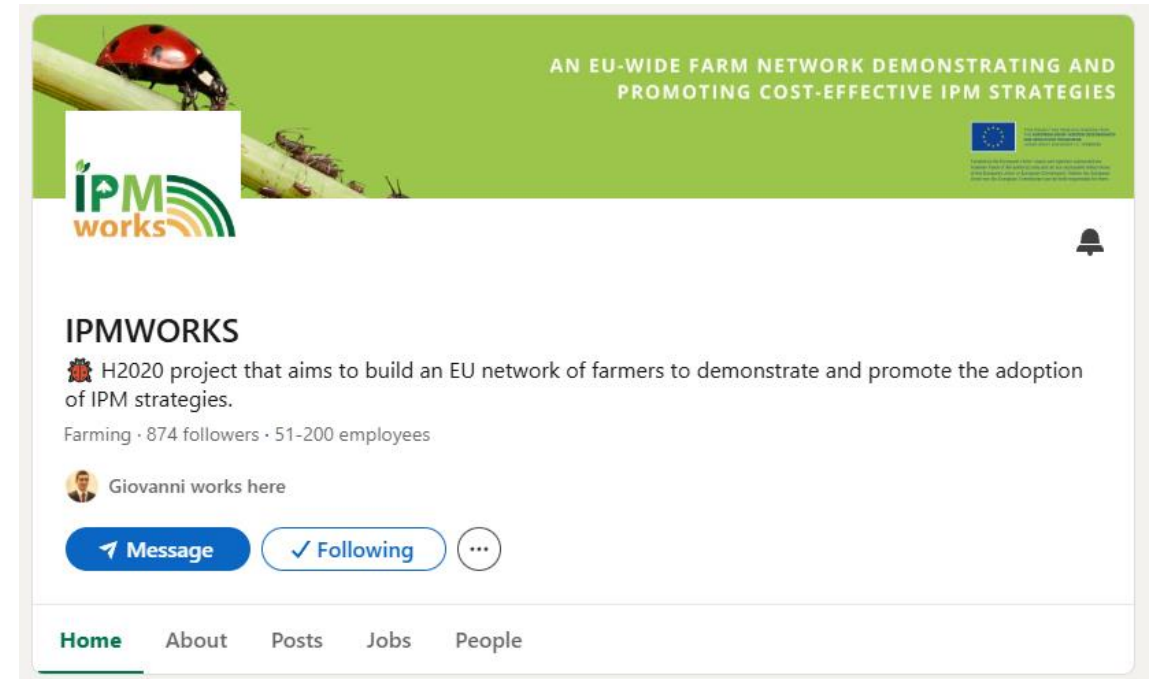
168 542 Impressions



270 posts

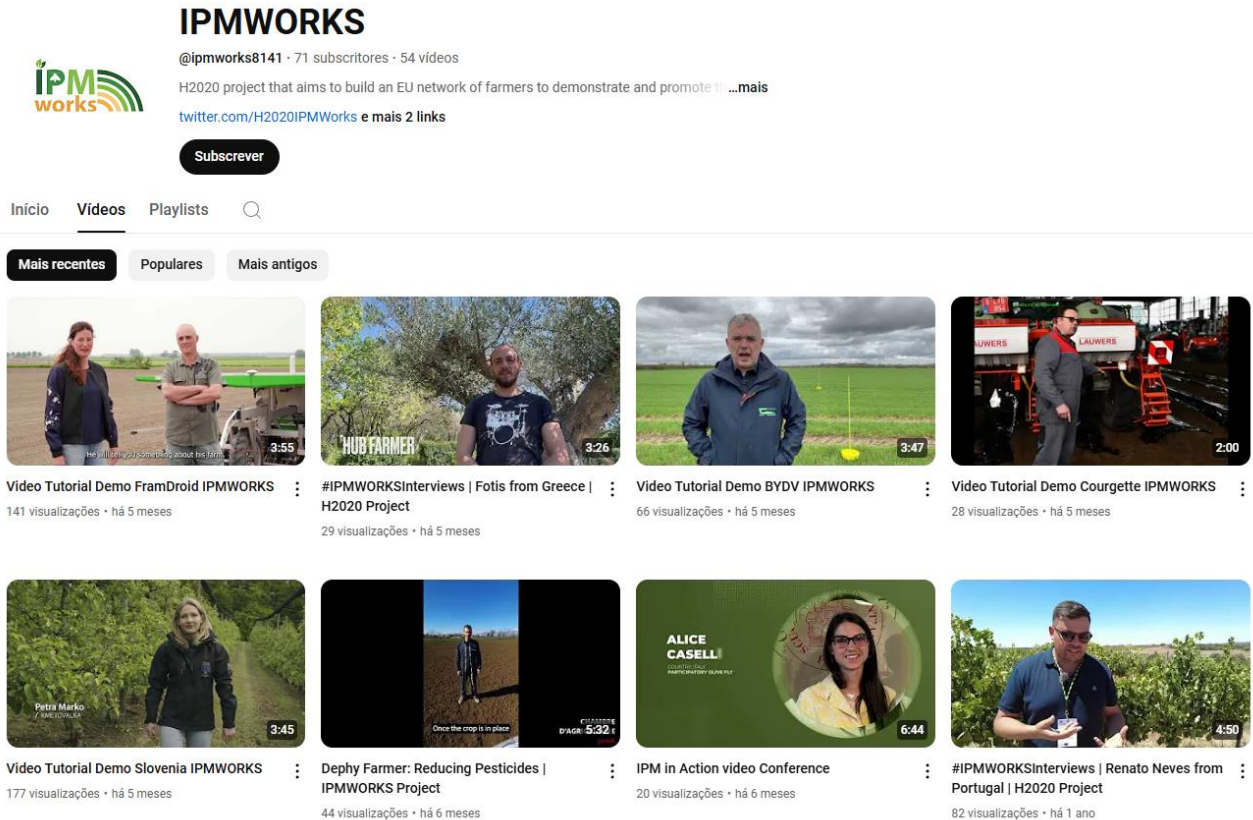


7 957 engagements



IPMWORKS Dissemination channels

Video materials



IPMWORKS
@ipmworks8141 · 71 subscribers · 54 videos
H2020 project that aims to build an EU network of farmers to demonstrate and promote IPM...mais
twitter.com/H2020IPMWorks e mais 2 links

Subscribed

Início Videos Playlists

Mais recentes Populares Mais antigos

- Video Tutorial Demo FramDroid IPMWORKS | 141 visualizações · há 5 meses
- #IPMWORKSInterviews | Fotis from Greece | H2020 Project | 29 visualizações · há 5 meses
- Video Tutorial Demo BYDV IPMWORKS | 66 visualizações · há 5 meses
- Video Tutorial Demo Courgette IPMWORKS | 28 visualizações · há 5 meses
- Video Tutorial Demo Slovenia IPMWORKS | 177 visualizações · há 5 meses
- Dephy Farmer: Reducing Pesticides | IPMWORKS Project | 44 visualizações · há 6 meses
- IPM in Action video Conference | 20 visualizações · há 6 meses
- #IPMWORKSInterviews | Renato Neves from Portugal | H2020 Project | 82 visualizações · há 1 ano

In total we have:

- 22 videos presenting Hub Coaches
- 5 videos - IPM in a minute
- 15 vídeos – IPMWORKS Interviews
- 46 vídeos – Training modules
- 14 vídeos – IPMWORKS Tutorials
- 5 other videos

Youtube



77 subscribers



7 000 views



92 400 impressions



61 videos





THANK YOU!

Joaquín Balduque | CIHEAM Zaragoza | joaquin.balduque@iamz.ciheam.org



The IPM Decisions platform: a unique resource for Decisions Support Systems dedicated to IPM

Mark Ramsden | ADAS



IPMWORKS and IPM Decisions

Reducing pesticide use, without adverse impact on productivity and competitiveness, requires two steps:



Reducing the need for pesticides by integrating non-chemical control measures



Treating crops with pesticides according to the reduced need.



IPMWORKS and IPM Decisions



HOME ADD RESOURCE E-TRAININGS IPMWORKS PROJECT HELP AND SUPPORT ADMIN LOGIN



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Sectors

Select sector ▼

Country of origin

Select region ▼

Project

IPM Decisions ▼

Resource types

Select resource type ▼

Resource title



MULTI-SECTOR

EU IPM Project

IPM Decisions Stepping-up IPM decisions support for crop protection [2019-2024]

Learn more... >>



ARABLE FIELD CROPS

United Kingdom IPM Decision Support System

BYDV TSUM Model (Predict transmission of disease by aphid vectors in crop)

Learn more... >>



OUTDOOR VEGETABLES

Finland IPM Decision Support System

Carrot fly flight model (Predicts risk of flight and oviposition in crop)

Learn more... >>



ARABLE FIELD CROPS

United Kingdom IPM Decision Support System

IPM Decisions Fact Sheet - Decision Support System 'TSUM - for BYDV'

Learn more... >>



FINAL WEBINAR – 12 March 2025 – 14:00-17:00 CET



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The screenshot displays the IPM Platform website. At the top, there is a navigation bar with the IPM Platform logo, the tagline "A 'one-stop shop' for decision support in integrated pest management", and links for "About" and "Factsheets". A language selector shows "English".

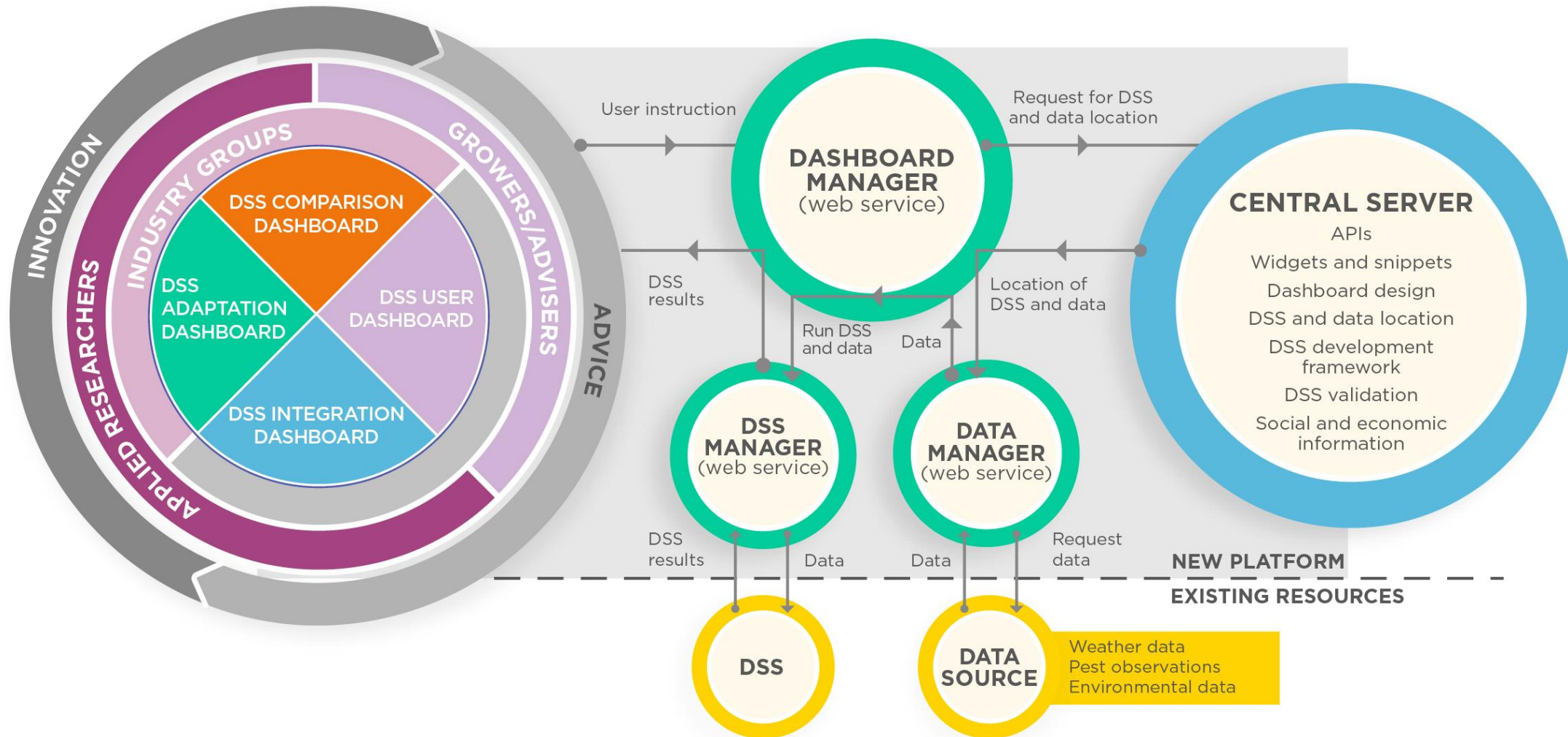
On the left side, a vertical menu contains buttons for "Register", "Login", "Quickstart guide", "Support", "Newsletter", and "Terms & conditions".

The main content area features a "Codling Moth Model" interface. It includes a map of Europe and surrounding regions, color-coded by risk status. A legend on the right explains the colors: grey for "Forecast not started", green for "No risk of start of migration", red for "Flight activity starting", and yellow for "Peak flight activity". Below the map, there is a date selector set to "2025-03-03", a play/pause control, and a "Weather Source: Deutscher Wetterdienst" label. On the right side of the interface, there are radio buttons for "WARNING_STATUS", "Warning status all generations", and "Warning status 1st generation".

A "Disclaimer" button is located at the bottom left of the interface.



Overview of the IPM Decisions Platform



Overview of the IPM Decisions Platform

The screenshot displays the IPM Decisions platform interface. On the left is a 'FARM MENU' with options: Farm Management, DSS Use Dashboard, External Link DSS Dashboard, DSS Comparison Dashboard, and DSS Adaptation Dashboard. The main content area shows the 'DSS Use Dashboard' for 'Oilseed rape' and the 'Pollen Beetle Model'. A 'Download Seasonal Data' button is visible. Below the model name is a 'Risk status' bar chart showing risk levels from Low to High over time from 28/02/2025 to 08/03/2025. A yellow banner at the bottom states: 'This platform is making DSS available from below the legend on the DSS Use dashboard'. A 'DSS Information' popup is open, providing details for the 'Pollen Beetle Model'.

Start Date	End Date	Risk Status
28/02/2025	01/03/2025	Low
01/03/2025	02/03/2025	Low
02/03/2025	03/03/2025	Low
03/03/2025	04/03/2025	Low
04/03/2025	05/03/2025	Low
05/03/2025	06/03/2025	High
06/03/2025	07/03/2025	High
07/03/2025	08/03/2025	High

DSS Information

DSS Name	Pollen Beetle Model
DSS Purpose	Estimates the risk of pollen beetle migration
DSS Model ID	MELIAE
Description	<p>THE PEST: Pollen beetle (<i>Meligethes</i> spp.) adults are approximately 2.5 mm, metallic greenish-black. Females bite oilseed rape buds and lay their eggs inside. Adults and larvae attack buds and flowers, resulting in withered buds and reduced pod set. In oilseed rape, adult and larval feeding can lead to bud abortion and reduced pod set. However, damage rarely results in reduced yields for winter crops. Spring crops are more vulnerable, as the susceptible green/yellow bud stage often coincides with beetle migration.</p> <p>THE DECISION: Oilseed rape is only vulnerable if large numbers of pollen beetle migrate into the crop during green bud stage. This DSS predicts migration into crops based on air temperature, and so can be used to evaluate risk to crop.</p> <p>THE MODEL: Daily maximum air temperature is used to predict Migration Risk. The default value of 15 degrees celsius is used, as that is the temperature advised in the UK at which pollen beetles will fly.</p> <p>THE PARAMETERS: The model uses Daily maximum air temperature</p> <p>REGION: This DSS was adapted from work carried out in the UK, and is considered applicable, but not yet validated in, Belgium, Luxembourg, Netherlands, France, Germany, Rep. Ireland, and Denmark.</p> <p>ASSUMPTIONS: Only to be used during Oilseed rape growth stages 51-59. This model is a simplification of a more detailed model described in the paper below.</p> <p>REFERENCE: Ferguson et al. (2015) Pest Management Science 72, 609-317. https://doi.org/10.1002/ps.4069</p>
Authors : Name (Organisation)	Hannah Griffiths (ADAS)
Source	IPM Decisions
Source organisation	ADAS, England

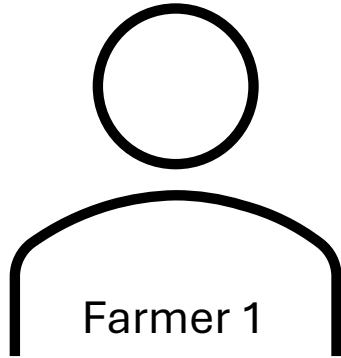
Take a look...

IPM



www.platform.ipmdecisions.net/login

Consulting the IPM Decisions platform

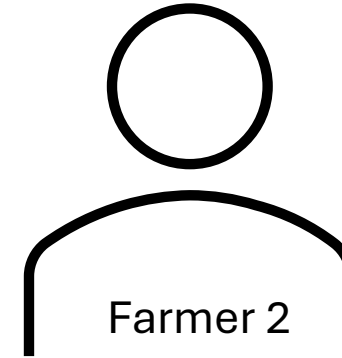


Farmer 1

- Advanced, holistic IPM strategy
- Low use of pesticides
- Likes using technology
- Likes testing new ideas on farm
- Interested in novel approaches



Advisor



Farmer 2

- Limited IPM strategy
- High use of pesticides
- Wants to minimise risk
- Keen to reduce inputs – but not at the cost of yield

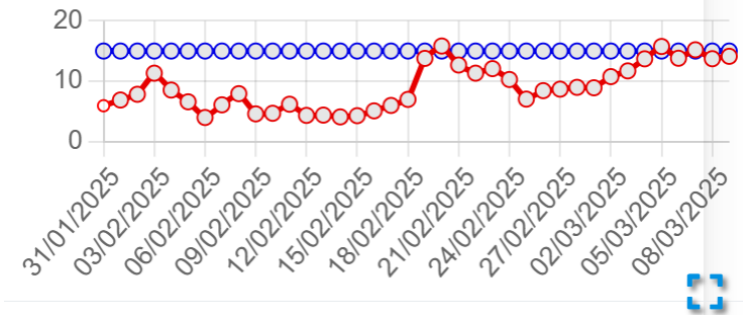


Consulting the IPM Decisions platform

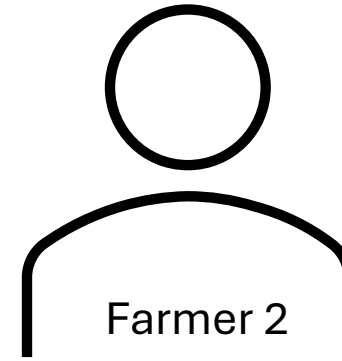
Risk status



Migration Forecast



Advisor



Farmer 2



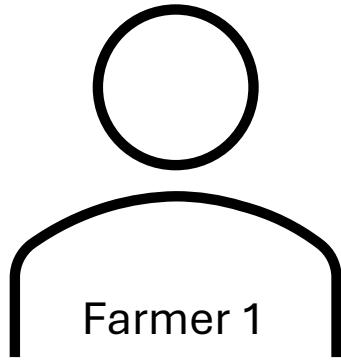
- Limited IPM strategy
- High use of pesticides
- Wants to minimise risk
- Keen to reduce inputs – but not at the cost of yield

Revised control thresholds for winter and spring oilseed rape

If there are less than 30 plants/m ²	the threshold is 25 pollen beetles per plant
If there are 30–50 plants/m ²	the threshold is 18 pollen beetles per plant
If there are 50–70 plants/m ²	the threshold is 11 pollen beetles per plant
If there are more than 70 plants/m ²	the threshold is 7 pollen beetles per plant



Consulting the IPM Decisions platform



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DSS Use Dashboard

Potato

- POTATO LATE BLIGHT
- POTATO LATE BLIGHT
- POTATO EARLY BLIGHT
- POTATO LATE BLIGHT

Winter Wheat

- SADDLE GALL MIDGE
- BROWN RUST OF WHEAT
- SEPTORIA LEAF BLOTCH
- BROWN RUST OF WHEAT
- SEPTORIA LEAF BLOTCH
- POWDERY MILDEW
- YELLOW RUST
- TAN SPOT
- BARLEY YELLOW DWARF
- TAN SPOT
- POWDERY MILDEW
- SEPTORIA LEAF BLOTCH
- YELLOW

Oilseed rape

- POLLEN BEETLE

Broccoli

- POLLEN BEETLE

DSS Information

Description

THE PEST: Leaf blotch diseases of wheat can be caused by septoria tritici blotch (Zymoseptoria tritici), and Septoria nodorum blotch (Stagonospora nodorum), which are both favoured by wet conditions. THE DECISION: Fungicide treatments may need to be applied once or twice between stem extension (GS 32) and flowering (GS 69), mainly to protect the upper leaves from attack of Septoria diseases. THE MODEL: The CPO Septoria model estimates risk of septoria tritici blotch infections in winter wheat. Weather data from GS 32 to GS 69 are used. Spraying is recommended after minimum 4 days with rain (> 1mm) in susceptible cultivars counting days between GS 32 and GS 69. In resistant cultivars risk of attack is assumed after 5 days with rain (> 1mm) between GS 37 and GS 69. Counting of days with rain goes back a maximum of 30 days. When running the Septoria model the risk for yield losses from other diseases than Septoria is not considered. If no action is recommended it is advised to revisit the crop after approximately one week to make a new evaluation of the risk. THE PARAMETERS: To obtain accurate risk predictions it is essential to click on the 'Edit parameters' button and enter information on the cultivar's susceptibility to Septoria diseases. Only two categories are used: susceptible and resistant. If a cultivar is categorized as partly resistant, we recommend that it is considered as susceptible. Enter the specific growth stages at the time when the crop monitoring and weather data is entered. Enter information on the incidence of attacked plants by Septoria diseases based on scouting the crop on the third leaf down from the top. If more than 10% of 3rd leaves (flag leaf -2) are attacked and no previous treatments have been applied against Septoria it is recommended to spray even if fewer than 4 days with precipitation has been counted. Clicking on 'Save' will keep the observations entered and update the risk. The model does not automatically adjust for the effect of previous fungicide sprays. If a fungicide effective against septoria has been applied in the last 10 days, the risk can be interpreted as low. ASSUMPTIONS: Septoria tritici blotch is present in the crop and periods with high humidity create risk for a damaging epidemic. SOURCE: Created by Aarhus University and SEGES and released in Denmark in 2000. The whole CPO model has been tested in the Nordic and Baltic countries previously, but this might not have included testing of the specific Septoria part. The model may be of use in other countries in Northern Europe.

Authors: Name (Organisation)

Lise N. Jørgensen (Aarhus University)

Model 1: Carrot Fly (Warwick HRI) for Carrot on Warwick Crop Centre

Start Date: dd/mm/yyyy End Date: dd/mm/yyyy

Risk status: High, Medium, Low

Cumulative Emergence

Model 2: early model (VIPS) for Carrot on Warwick Crop Centre

Start Date: dd/mm/yyyy End Date: dd/mm/yyyy

Risk status: High, Medium, Low

Day degrees

Model 3: Carrot Fly (Warwick HRI) for Carrot on ADAS Gleadthorpe

Start Date: dd/mm/yyyy End Date: dd/mm/yyyy

Risk status: High, Medium, Low

Cumulative Emergence

Dr Neil Paveley

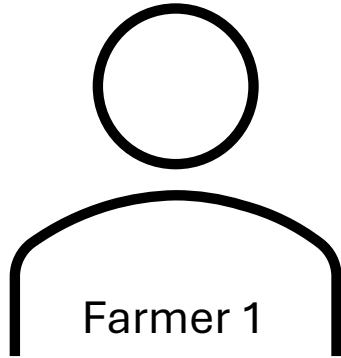
Neil Paveley from ADAS and welcome to this series of videos

ADAS

IPM DECISIONS



Consulting the IPM Decisions platform

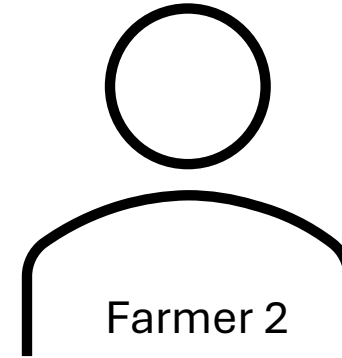


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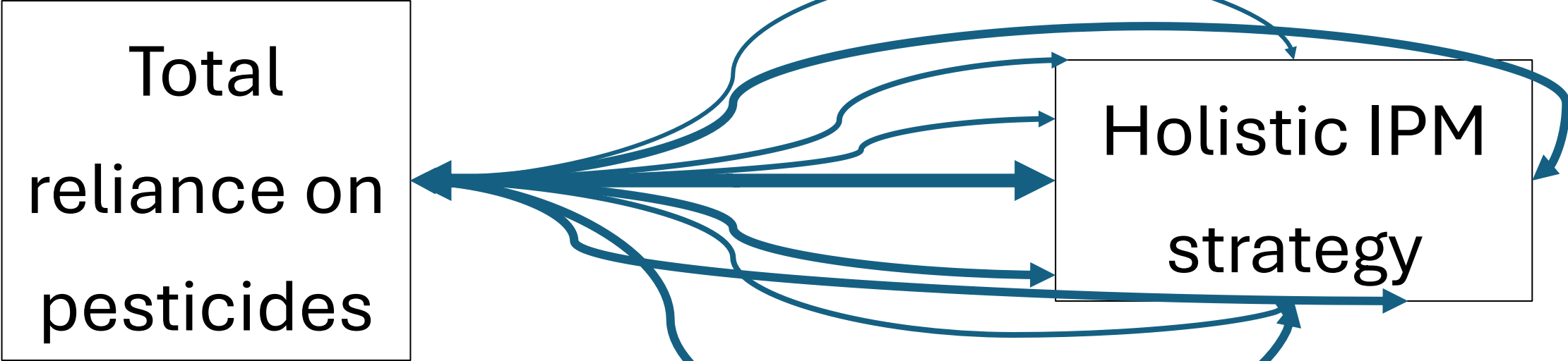


Farmer 2

- Limited IPM strategy
- High use of pesticides
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- Keen to reduce inputs – but not at the cost of yield



Integrated Pest Management Tools



Boosting IPM through Decision Support Systems (DSS)

Access to IPM DSS

- Support research and development of novel IPM DSS

Validation of IPM DSS

- Address technological and socioeconomic barriers to farmers and advisors IPM DSS consultation

Demonstration of IPM DSS

- Support wider demonstration of IPM DSS in practice to farmers and advisors

Further reading

Home > European Journal of Plant Pathology > Article

A framework for evaluating the value of agricultural support

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Overcoming Barriers to the Adoption of Decision Support Systems in Integrated Pest Management in Some European Countries

by Jurij Marinko^{1,2,*}, Vladimir Kuzmanovski², Mark Ramsden³ and Marko Debeljak^{1,2}

- ¹ Jožef Stefan International Postgraduate School, SI-1000 Ljubljana, Slovenia
- ² Department of Knowledge Technologies, Jožef Stefan Institute, SI-1000 Ljubljana, Slovenia
- ³ RSK ADAS Ltd., Cambridge WA6 0AR, UK
- * Author to whom correspondence should be addressed.

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(This article belongs to the Section Pest and Disease Management)

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Abstract

Decision support systems (DSSs) can improve decision making in integrated pest management (IPM), but are still underutilised despite proven environmental and economic benefits. To overcome the barriers to DSS adoption, this



FINAL WEBINAR – 12 March 2025 – 14:00-17:00 CET



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Publication links



[Jørgensen, L.N., et al. \(2020\) Validation of risk models for control of leaf blotch diseases in wheat in the Nordic and Baltic countries. European Journal of Plant Pathology, 157, 599-613](#)

[Midingoyi C.A., et al. \(2020\) Reuse of process-based models: automatic transformation into many programming languages and simulation platforms. In silico Plants, 2\(1\)](#)

[Holst N. \(2020\) Mathematical models. In: Chantre G.R. & González-Andujar J.L. eds. Decision Support Systems for Weed Management. Berlin, Springer Verlag, 3-23](#)

[Andersson, B., et al. \(2022\) Comparison of models for leaf blotch disease management in wheat based on historical yield weather data in the Nordic-Baltic region. Agronomy for Sustainable Development 42-44](#)

[Jørgensen, L. N. et al. \(2021\) Using risk models for control of leaf blotch diseases in barley minimises fungicide use – experiences from the Nordic and Baltic countries. Acta Agriculturae Scandinavica, Section B — Soil & Plant Science 71:247-260](#)

[Jalli, M, et al. \(2020\) Yield increases due to fungicide control of leaf blotch diseases in wheat and barley as a basis for IPM decision-making in the Nordic-Baltic region. European Journal of Plant Pathology](#)

[Ramsden, M. and O’Driscoll A. \(2022\) Advances in decision support systems \(DSS\) for integrated pest management in horticultural crops. In book: Improving integrated pest management in horticulture.](#)

[Ramsden, M., et al. \(2023\) Advances in pest risk assessment techniques focusing on invertebrate pests of European outdoor crops. In book: Advances in monitoring of native and invasive insect pests of crops.](#)

[Leybourne D., et al. \(2023\) Online decision support systems, remote sensing and artificial intelligence applications for wheat pest management. In book: Advances in understanding insect pests affecting wheat and other cereals](#)

[Levionnois S., et al. \(2023\) Modelling the impact of proportion, sowing date, and architectural traits of a companion crop on foliar fungal pathogens of wheat in crop mixtures. Phytopathology.](#)

[Marinko J., et al. \(2023\) Incentives and barriers to adoption of decision support systems in integrated pest management among farmers and farm advisors in Europe. International Journal of pest Management](#)

[Midingoyi, C.A., et al. \(2023\) Crop modeling frameworks interoperability through bidirectional source code transformation. Environment Modelling & Software](#)

[Akbarinia R. et al \(2023\) Life Science Workflow Services \(LifeSWS\): motivations and architecture, Transactions on Large-Scale Data- and Knowledge-Centered Systems, 14280, pp.1-24.](#)

[Marinko, J., et al. \(2024\) Typology for Decision Support Systems in Integrated Pest Management and Its Implementation as a Web Application. Agronomy](#)

[Akaka JJ, García-Gallego A, Georgantzis N et al. Decision Support Systems adoption in pesticide management \[version 1; peer review: 2 approved with reservations\]. Open Res Europe 2024, 4:142](#)

[Helps J. et al \(2024\) A framework for evaluating the value of agricultural pest management decision support systems.](#)

Software links



IPM Decisions Platform - <https://www.platform.ipmdecisions.net/>

- IPM Decisions GitHub: <https://github.com/H2020-IPM-Decisions>
- Weather service source code: <https://github.com/H2020-IPM-Decisions/DSSService>
- DSS Service source code: <https://github.com/H2020-IPM-Decisions/WeatherService>
- DSS MetaData File editor: <https://ipmdecisions.nibio.no/editmetadata/>

IPM Decisions DSS Factory

- Install OpenAlea <https://github.com/openalea>
- Install VisuAlea and dependencies <https://github.com/openalea/visualea>
- Example https://github.com/H2020-IPM-openalea/DSS/blob/dss_integration_tutorial/example/model_integration.ipynb

IPM Advisor Tool: <https://ipmadviser.ijs.si/>

IPMWORKS Toolbox: <https://ipmworks.net/toolbox/en/#/>



THANK YOU!

Mark Ramsden | ADAS | ipmdecisions@adas.co.uk

Final webinar – 12 March 2025 – 14:00-16:30 CET

Do we still need IPM?



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Recommendations for successful exploitation of IPM networks to scale IPM adoption

Areas of recommendations



**The HUB and the
HUB coach**

**Supporting
connectivity
among actors**

**Effective
facilitation**

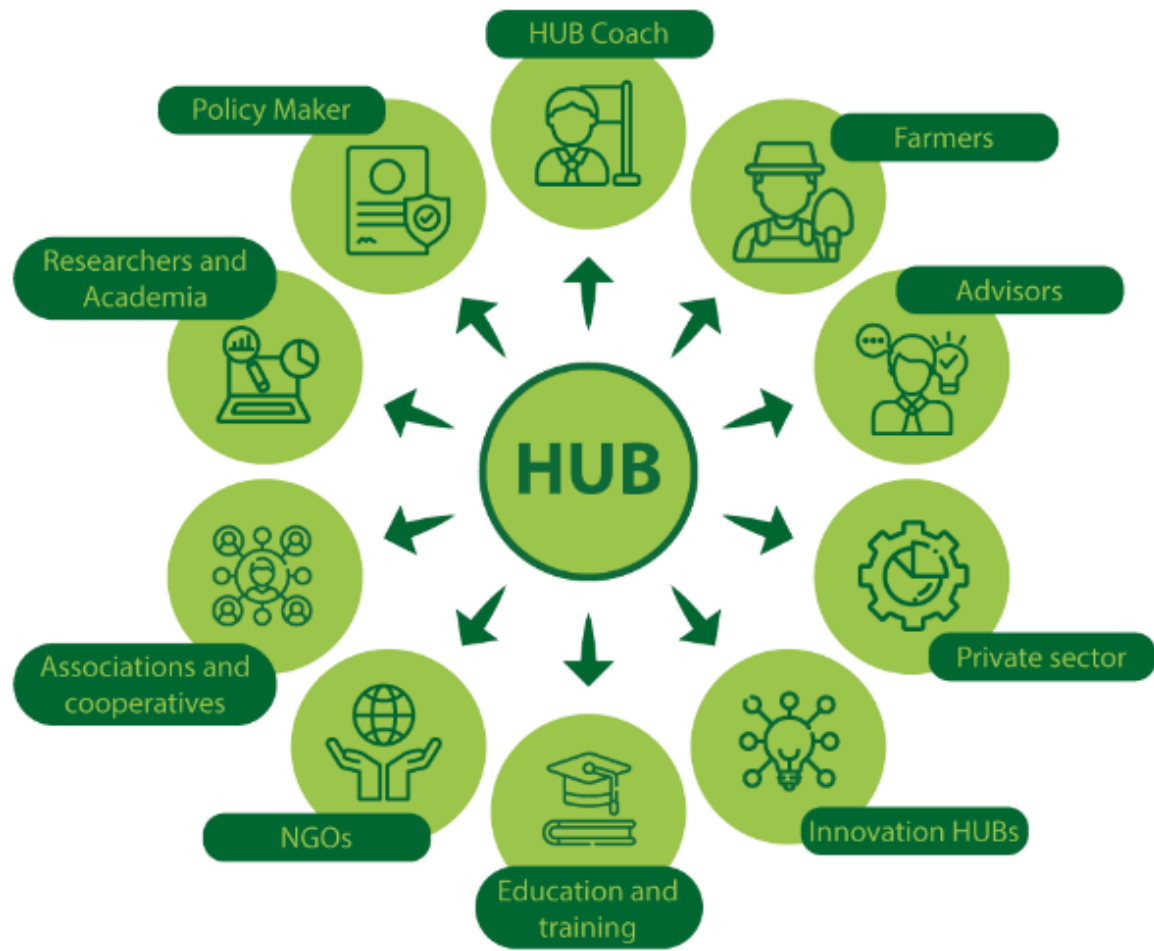
**Encourage
communication
and participation**

**IPM
demonstration
events**

**Address political
and cultural
considerations**

**Training and
education**

The HUB and Hub coach



Effective formation of IPM demo HUBS



An EU-wide farm network demonstrating and promoting cost-effective IPM strategies

Final webinar – 12 March 2025 – 14:00-16:30 CET

Do we still need IPM?



Create a strong community: Regular meetings with neighboring IPM actors foster knowledge sharing, problem-solving and social support, leading to stronger farming community through collaboration.



Ensuring HUB sustainability: Focus on long-term goals, consistent event themes, and clear development pathways while adapting to members' needs for skill enhancement and effective IPM promotion.



Boosting IPM adoption: Highlight the long-term environmental benefits of IPM, acknowledge farmers' efforts, and leverage their growing awareness of sustainability to encourage adoption.

Supporting good connectivity



Personal and direct communication: Establishing personal one-on-one communication with farmers and HUB members can build trust, provide a safe space for sharing challenges, and tailor support to their needs.



Reaching local networks: Integrate existing local and regional farmer groups into the network to leverage their experience and connections, enhancing the impact and reach of sustainable agricultural practices without needing to increase the number of events.



Build relations with advisory services, private sector and other projects: Leverage agricultural advisors and companies involved in IPM sector within the HUB network for their technical expertise and valuable role as trusted links between farmers and sectoral actors, enhancing support and confidence in best practices.

Supporting good connectivity



Cross-country and cross-sectoral events: Organize cross-country events for farmers with **similar crops, climates, or soils** to facilitate valuable knowledge exchange, showcase diverse problem-solving approaches, and strengthen international networks, while addressing broad agricultural issues to promote open sharing and reduce competition.



Effective facilitation



Being a moderator more than a leader



Use proper language and good translations



Developing audiovisual materials



Frequent communication with network members



Continuous mentoring



Surveys and polls



Communication and participation



Culture of dialogue



Knowledge exchange



Collaborative planning



process

Provide solid information



Encourage participation



Suitable locations



Create a safe space



Facilitation tools and

methods

IPM demo-events



How to run a successful demonstration event: Prepare and manage demo events with a **strategic plan**, including goals, location, audience and IPM strategies, to effectively showcase IPM practices and maintain flexibility for adapting to changes and **ensuring stakeholder engagement**.

- Preparation
- Content definition
- Encourage interactions
- Advertise the event
- Involve rightholders
- Share Good practices and successful IPM stories
- Timing
- IPM approach to demo-events

Addressing external factors



Approaching political aspects and economic concerns: Recommend advocating for regional or local government support to mitigate production loss from IPM measures, providing tailored advice based on crop type and conditions and organizing dedicated events to share and clarify funding and regulatory information with farmers.



Cultural considerations Personal and direct communication: Facilitators should understand local cultural nuances to engage farmers effectively, address collaboration barriers, and leverage younger farmers' openness to new practices.

Training and education



Addressing the education gap in IPM: To address the IPM knowledge gap, integrate IPM-focused content into agronomy and agricultural training programs.



Engagement of agri-food chains and consumers: To advance IPM adoption, all food chain stakeholders must engage in education and advocacy, sharing the responsibility for promoting sustainable pest management.



Capacity building programs: Engagement in training initiatives is crucial for gaining expertise in IPM practices and enhances facilitators' ability to manage stakeholder groups effectively, fostering collaboration and continuous learning in agriculture.



Bringing technology and innovation close: Integrating digital and technical skills into IPM training programs, leveraging online platforms for outreach, and embracing innovative technologies in crop management are crucial for effective implementation and dissemination of IPM measures.



An EU-wide farm network demonstrating and promoting cost-effective IPM strategies

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Do we still need IPM?



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Ángela Muñiz Varela – amvarela@feuga.es

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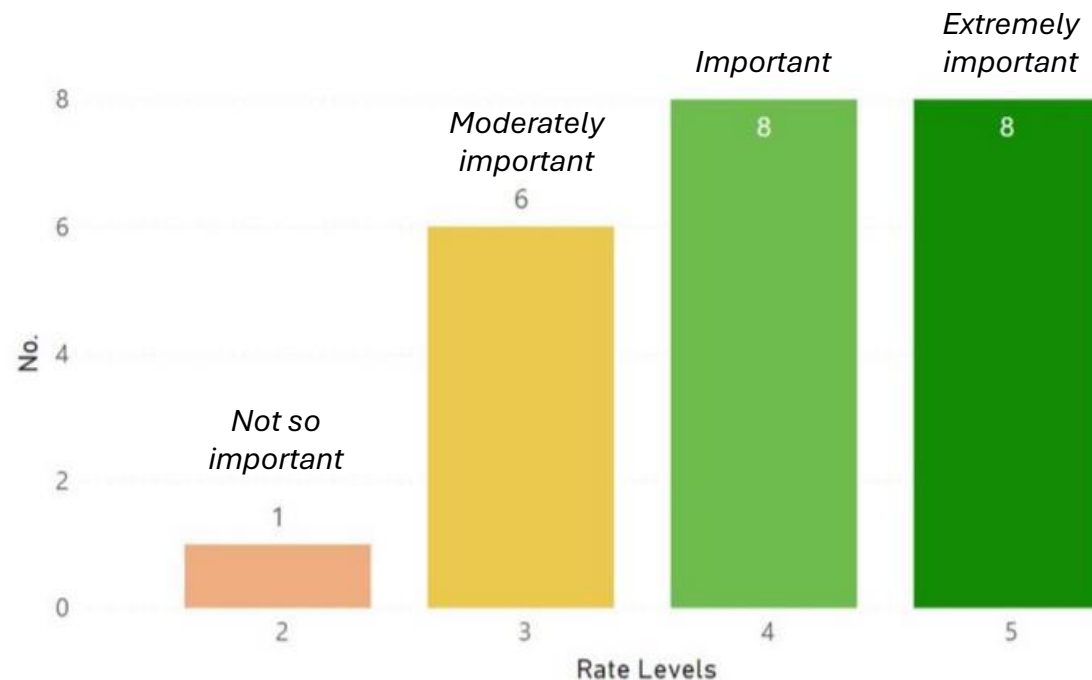


The foreseen future of IPMWORKS

Nicolas Munier-Jolain | INRAE | Coordinator

Continuation & expansion of IPMWORKS Nicolas Munier-Jolain

- IPMWORKS 2020-2024 : the proof-of-concept
- **Target for medium term**
≈ 300 Hubs, ≈ 4.000 farmers throughout Europe
22 hubs + 5 national networks + new welcomed hubs (including launched from other initiatives)



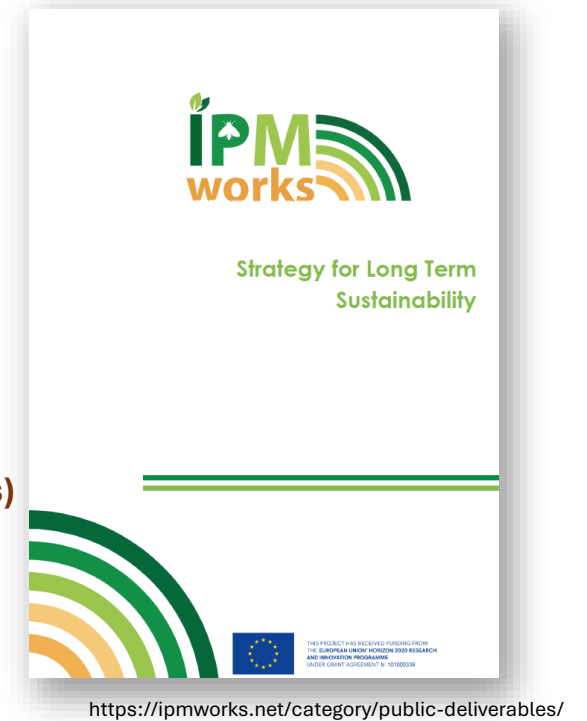
Question to IPMWORKS Hub Coaches
How important is it to have a European network to continue the work undertaken by IPMWORKS?

Continuation & expansion of IPMWORKS Nicolas Munier-Jolain

- IPMWORKS 2020-2024 : the proof-of-concept
- **Target for medium term**
≈ 300 Hubs, ≈ 4.000 farmers throughout Europe
22 hubs + 5 national networks + new welcomed hubs (including launched from other initiatives)



- ‘Self-funding’ of each Hub
Budget : adviser half-time, travel, functioning, rewards to farmers
Attract CAP funding dedicated to Farm Demo whenever possible !
- A EU budget for the coordination of the network
Working plan, capacity building, peer-to-peer knowledge exchange, communication, data collection, data analysis





THANK YOU!

Nicolas Munier-Jolain | INRAE | nicolas.munier-jolain@inrae.fr



Questions & Answers

Facilitation : Calypso Picaud (CA Occitanie)

***Use the Q&A button to ask questions, and to vote for your preferred questions
(the most voted questions will be asked first !)***



Short Break

Sessions 2 – Interactive Workshop – starts at 16:00 CET

Facilitation : Joaquin Balduque (CIHEAM Zaragoza)