First round of Practice Abstracts produced and available in the EIP AGRI platform

Deliverable D6.3

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

Coordination and Support Action (CSA)

01 October 2020 – 30 September 2024 (48 months)

Deliverable D6.3

First round of Practice Abstracts produced and available in the EIP AGRI platform

Due date (as planned in DoA): Month 22 – July 2022

Actual submission date: 30/10/2023

Work package: WP6 – Dissemination, Communication and Training

Work package leader: CONSULAI

Work package co-leader: IAMZ-CIHEAM

Deliverable leader: ACTA

Author List: Philippe DELVAL (ACTA)

Reviewed by Leader and/or Co-leader of Work Package: Marta MENDES (CONSULAI)

Type: Report

Version: 1.0

Dissemination Level

☒	**PU**	Public
☐	**CO**	Confidential, only for members of the consortium (including the Commission Services)

Abstract

18 booklets, entitled "How I implemented IPM", were produced by hub coaches. The aim of these booklets was to describe an interesting IPM strategy on a specific farm, in a holistic way (combination of technical solutions for managing pests and diseases), and to show the overall results of this strategy for several criteria, namely pesticide use, economic performance, workload and quality of pest, weed and disease control.

Each booklet consists of 4 pages: 1_description of the farm, 2_IPM strategy in the system, 3_results, 4_feedback from the farmer and the hub coach.

Support has been provided by ACTA and other partners, through a template for the booklet, two examples of finalised booklets, and a practical guide.

All the booklets are available on the IPM Resource Toolbox platform in English and local language.

Each booklet is the support for one Practice Abstract. Information has been selected from booklets and summarised into "practice abstracts" format for posting on the EIP AGRI platform.

Practice Abstracts contain the same information as the summary of booklets displayed on the IPM Resource Toolbox, with the addition of crops, pests and main IPM solutions used, as well as a link to access the complete booklet on the IPM Resource Toolbox.

The Practice Abstracts file was sent to EIP-AGRI by the project coordinator on October 12, 2023.

Contents

1. IPMWORKS: Summary

IPM*WORKS*: Summary

Integrated Pest Management (IPM) is based on a diversity of pest management measures (prevention, non-chemical control, best practices for optimizing pesticide efficiency, etc.). These are combined at the farm level to enable reduced reliance on pesticides, and therefore a decrease in the exposure of the environment and people to pesticides. Pioneer farmers throughout Europe are testing such IPM strategies and are succeeding in achieving good outcomes with low pesticide inputs. However the majority of European farmers still rely heavily on pesticides, with major environmental and societal impacts, because most of them have not adopted a comprehensive, farm-level and holistic IPM strategy so far.

The objective of IPMWORKS is to promote the adoption of IPM strategies, based on an EU-wide demonstration network of farmers, who both progress further in the adoption of IPM – through peer-to-peer learning, and joint efforts – and demonstrate to other farmers that holistic IPM "works"; i.e. allows a low reliance on pesticides with better pest control, reduced costs and enhanced profitability. IPMWORKS coordinates existing networks promoting IPM and launch new hubs of farms in regions or sectors where IPM pioneers are not yet engaged in a relevant network. Advisors coordinating hubs have a major role in facilitating knowledge sharing, coaching farmers to find their own IPM solutions, and organizing local demonstration activities. IPMWORKS stimulates access to the 'IPM Decisions' platform and provide information on the IPM methods. It collects data for comparing IPM strategies, and shares results and dissemination material through channels widely used by farmers, broadcasting IPM success stories. It is organising training, and produced training material, targeting both farmers outside the network and advisory services, in order to prepare for the future dissemination of the peer-to-peer learning approach and the general adoption of IPM throughout the EU.

The demonstration of cost-efficiency of IPM is based on data describing the details of cropping systems and pest management in farms involved in the network. IPMWORKS also produces a range of data of various nature for dissemination and communication purpose videos of farmers' testimonies, videos of demonstration events, leaflets describing cost-effective IPM-based strategies, etc.).

Project Acronym	IPMWORKS
Project title	An EU-wide farm network demonstrating and promoting cost-effective IPM strategies
Grant agreement No.	101000339
Project coordination	Dr Nicolas Munier-Jolain, INRAE, Dijon
Email	nicolas.munier-jolain@inrae.fr

2. Design of the template and guidelines

2.1. Objectives and content

Each booklet is to be prepared by the hub coach, and is intended to describe a practical example of an IPM strategy implemented by one IPMWORKS farmer of the hub. The aim of these booklets is to describe a set of interesting IPM strategies implemented in real farms, in a holistic way (combination of technical solutions for managing pests and diseases), and to show the overall results various criteria covering pesticide use, economic performance, workload and quality of pest, weed and disease control.

Each booklet is the support for one Practice Abstract. Selected information from each booklet was formatted in the "practice abstract" format for posting on the EIP-AGRI platform.

2.2. Working method

ACTA produced a first version of the booklet template, during the summer of 2022. This template was discussed with WP6 (communication and dissemination) and the project coordinator, to produce a second version that was finally edited/formatted by CIHEAM Zaragoza.

This "how I implemented IPM" template consists of 4 pages: 1_description of the farm, 2_IPM strategy in the system, 3_results with several criterias, 4_feedback from the farmer and the hub coach.

It was accompanied by a complete guide [annex 1] setting out the template and expectations for each page and part, and two examples translated from resources from the French DEPHY network [Annexes 2 & 3], one on arable crops and, one on a perennial crop.

The booklet template, the guideline, and the overall method were presented at the annual meeting held in Switzerland in October 2022, during a plenary session and parallel sector sessions.

They were disseminated to hub coaches and sector leaders by e-mails, and uploaded on the project's collaborative SharePoint workspace.

Hub coaches are expected to produce two versions for each booklet, one in local language and one in English.

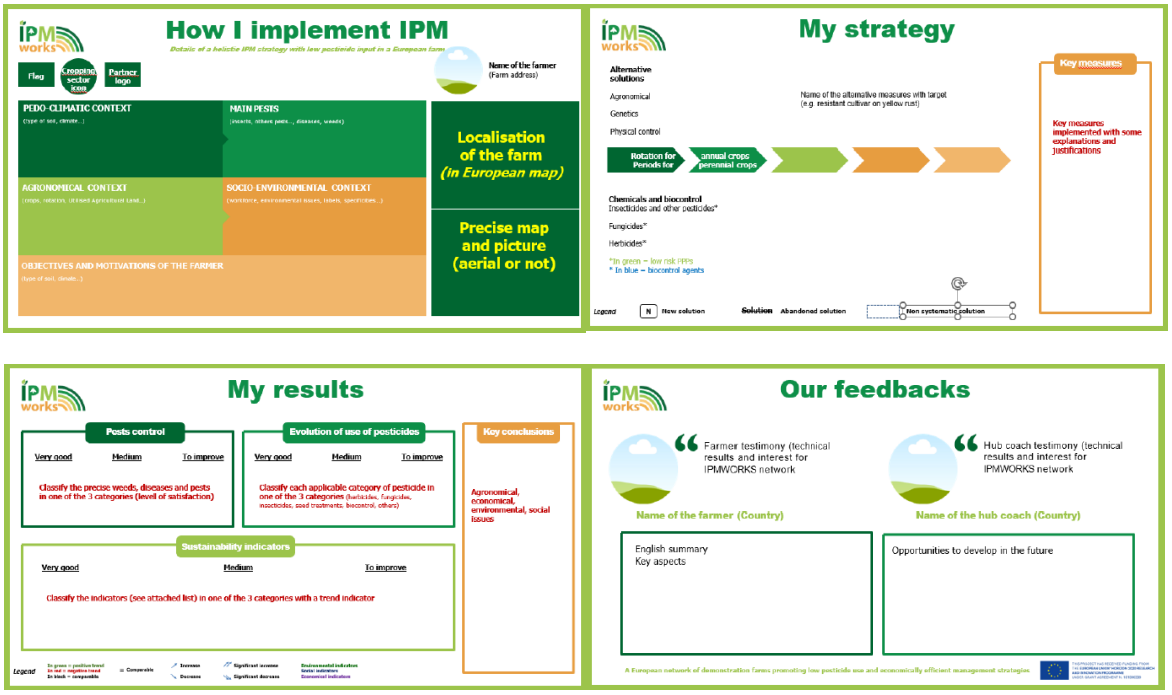


Fig.1. The 4 pages of the first booklet

A space was also created on the SharePoint to store the ppt versions and pdf versions of booklets when finalised by hub coaches:

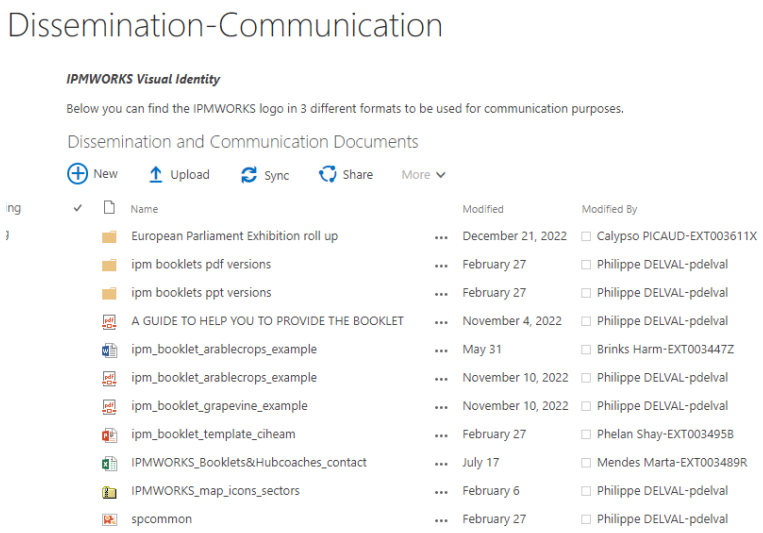


Fig.2. Collaborative workspace – *« booklet » section*

3. Collecting the booklets

3.1. Working method

Hub coaches were able to work on booklets and finalise them (both in local language and English) mainly in spring 2023.

With the help of WP2 (newsletters, e-mails) and of sector leaders (reminders during sector meetings), ACTA had to recall frequently hub coaches to remind them about this task.

The first versions of the booklets were checked by ACTA and sector leaders. Clarifications and additional information had often to be requested before finalising booklets with two .pdf versions, one in English and one in local language.

3.2. Modification of deadlines

The deadline for submitting the booklets has been extended in order to gather more relevant examples of practical application.

Despite numerous reminders, only 18 of the 22 booklets initially planned were finalised before the new deadline of summer 2023. The four missing booklets will be included in the second round of booklets and Practice Abstracts.

3.3. Posting on the IPM toolbox

All the booklets were then uploaded to the IPM Resource Toolbox, so that they could be promoted. A selection of key elements in English and in the local language was used to present each booklet: the agronomic context, the farmer's objectives, and the advantages and limitations of the presented IPM strategy.

Booklets can be accessed by selecting 'IPMWORKS hub resources' under 'Resource types'.

Fig.3. Selection of the "IPM toolbox" search engine

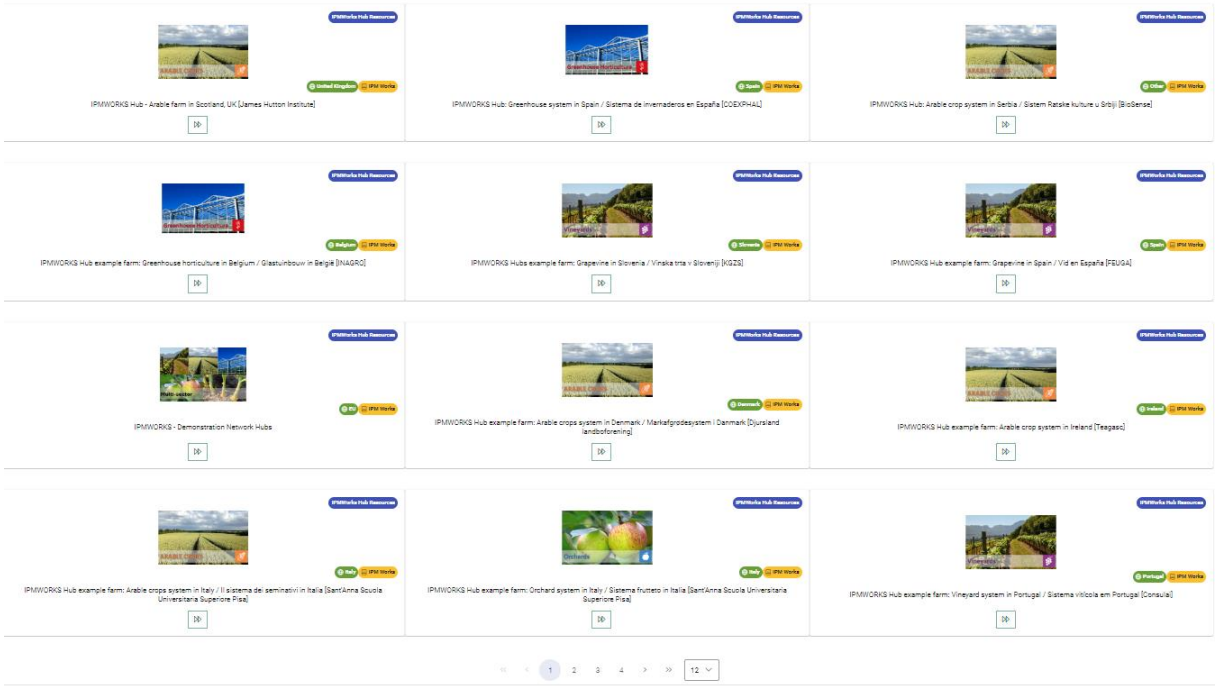


Fig.4. Access to booklets on the IPM toolbox

All booklets are available following the links on the following table (table 1)

Table 1. Links to the booklets on the IPM toolbox

Cropping sector	PA number	Country	Partner	Booklet on IPM toolbox
Arable field crops	1		JKI Julius Kühn-Institut	link
	2		velas	link
	3		velas	link
	4		eagasc	link
	5		Sant'Anna Scuola Universitaria Superiore Pisa	link
	6		KUJAWSKO-POMORSKI OŚRODEK DORADZTWA ROLNICZEGO w Minikowie	link
	7		INTIA	link
	8			link
	9		The James Hutton Institute Science connecting land and people	link

Cropping sector	PA number	Country	Partner	Booklet on IPM toolbox
Open-air vegetables, soft fruits & ornamentals	10		inagro	link
	11		ProAgria	link
	12			link
Vineyards	13			link
	14		Kmetijsko gozdarska zbornica Slovenije KMETIJSKO GOZDARSKI ZAVOD MARIBOR	link
	15		feuga fundación empresa universidad gallega	link
Orchards	16		Sant'Anna Scuola Universitaria Superiore Pisa	link
Greenhouse horticulture	17		inagro	link
	18		COEXPHAL unidosexportandoFuturo	link

4. Preparing the practice abstracts

4.1. Working method

Finally, a "practice abstracts" Excel file was compiled from the booklets received, i.e. 18 instead of the 22 expected. The "practice abstracts" contain the same information as the summary for the IPM Resource Toolbox, with the addition of the crops, pests and methods used in the IPM strategy, as well as the link to access the complete booklet on the IPM Resource Toolbox.

The Practice Abstracts file was sent to EIP-AGRI by the project coordinator on October 12, 2023.

4.2. Example

Below is an example of a booklet produced by the Spanish hub coach on Greenhouse horticulture crops and its "practice abstract" version.

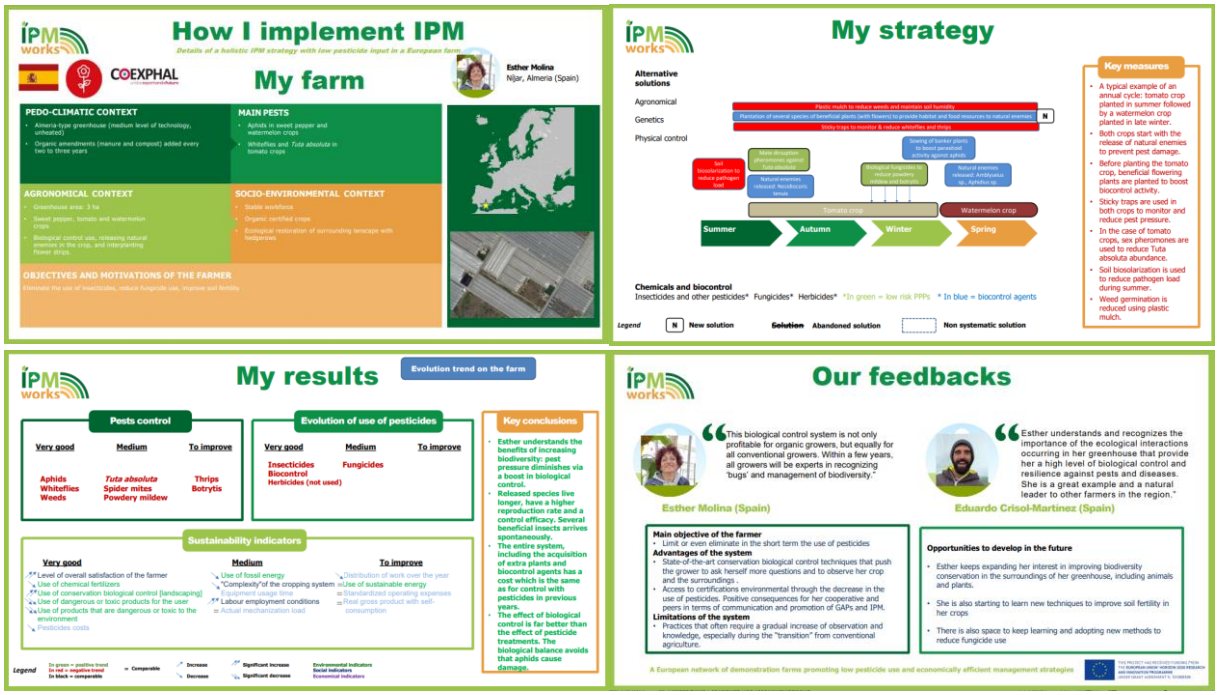


Fig.5. Example of one booklet (#18 – Greenhouse horticulture in Spain)

Practice "abstract" 18:

Short title in English	**IPMWORKS Hub: Greenhouse system in Spain [COEXPHAL]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Níjar, Almeria, Spain **AGRONOMICAL CONTEXT OF THE FARM** • Greenhouse area: 3 ha • Sweet pepper, tomato and watermelon crops • Biological control use, releasing natural enemies in the crop, and interplanting flower strips **MAIN PESTS** • Aphids in sweet pepper and watermelon crops • Whiteflies and Tuta absoluta in tomato crops **STRATEGIES IMPLEMENTED** • Plastic mulch to prevent weeds and maintain soil moisture • Plantation of several species of beneficial plants (with flowers) to provide habitat and food resources to natural enemies • Mating disruption using pheromones • Biological fungicides • Sticky traps to monitor and reduce whiteflies and thrips • Release of natural enemies • Soil bio-solarization to reduce pathogen load **MAIN OBJECTIVE OF THE FARMER** • Limit or even eliminate in the short term the use of pesticides **KEY CONCLUSIONS** • The farmer understands the benefits of increasing biodiversity: pest pressure diminishes via a boost in biological control. • Released species live longer, have a higher reproduction rate and a control efficacy. Several beneficial insects arrives spontaneously. • The entire system, including the acquisition of extra plants and biocontrol agents has a cost which is the same as for control with pesticides in previous years. • The effect of biological control is far better than the effect of pesticide treatments. The biological balance avoids that aphids cause damage **LIMITATIONS OF THE SYSTEM** • Practices that often require a gradual increase of observation and knowledge, especially during the "transition" from conventional agriculture. **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/63dbcbd031a5b75f4cbaf7e0

Short title in native language	**IPMWORKS Hub: Sistema de invernaderos en España [COEXPHAL]**
Short summary for practitioners in native language	La explotación está situada en Níjar, Almería, Níjar, Almería, España **CONTEXTO AGRONÓMICO DE LA EXPLOTACIÓN** • Superficie de invernaderos: 3 ha • Cultivos: pimiento, tomate y melón • Uso de control biológico por conservación, con sueltas de enemigos naturales en el cultivo y siembra de plantas reservorio y bandas florales en el invernadero **PRINCIPALES PLAGAS** • Pulgón en pimiento y melón • Mosca blanca y Tuta absoluta en tomate **ESTRATEGIAS APLICADAS** • Mantillo de plástico para evitar las malas hierbas y mantener la humedad del suelo • Plantación de varias especies de plantas beneficiosas (con flores) para proporcionar hábitat y recursos alimenticios a los enemigos naturales • Interrupción del apareamiento mediante feromonas • Fungicidas biológicos • Trampas adhesivas para controlar y reducir la mosca blanca y los trips • Liberación de enemigos naturales • Biosolarización del suelo para reducir la carga de patógenos **OBJETIVO PRINCIPAL DE LA AGRICULTORA** • Limitar o incluso eliminar el uso de plaguicidas en sus invernaderos **CONCLUSIONES** • El agricultor entiende los beneficios de aumentar la biodiversidad: el nivel de plagas disminuye a través del control biológico. • Los auxiliares viven más tiempo, se reproducen y actúan mejor. Además, muchas especies entran de forma espontánea. • El sistema, incluyendo la adquisición de plantas y agentes de control biológico tiene un coste similar al convencional que usaba anteriormente. • El efecto del control biológico es mejor que el de los tratamientos químicos. El equilibrio biológico evita que los pulgones causen daño al cultivo. **LIMITACIONES DEL SISTEMA** • Estas prácticas requiren una dedicación de tiempo para observer y mejorar , especialmente durante la transición de agricultura convencional a ecológica **Enlace al folleto completo**: https://ipmworks.net/toolbox/es/#/resource/63dbcbd031a5b75f4cbaf7e0

Fig.6. Example of the practice abstracts (#18 – Greenhouse horticulture in Spain)

Annex 1. A GUIDE TO HELP YOU TO PROVIDE THE BOOKLET

Philippe DELVAL

Objective

Booklets are one deliverable of WP6 (Dissemination – Communication). The booklet is provided in **local language** to facilitate the dissemination at the country level but also in **English** to transfer results of the project at the European level. National Focal Points could translate other booklets in his own language if they find interest of it.

In the DoA, it is precised that each hub coach has to provide two booklets:

- One on implementation of IPM in one farmer of the hub [at the end of winter – February – March 2023]
- One on the collective functioning of the group and the progress made [at the end of the project [Summer 2024]

Process

Please provide a draft of the complete booklet of the chosen farm. Template is available on the internal SharePoint.

Philippe DELVAL is available to help you to achieve this objective. Don't hesitate to contact him philippe.delval@acta.asso.fr

Sector leaders and national focal points can provide help, as well.

Send it the Powerpoint file but also all pictures, maps separately in jpg or png files in high resolution (300 dpi or more) to Philippe.

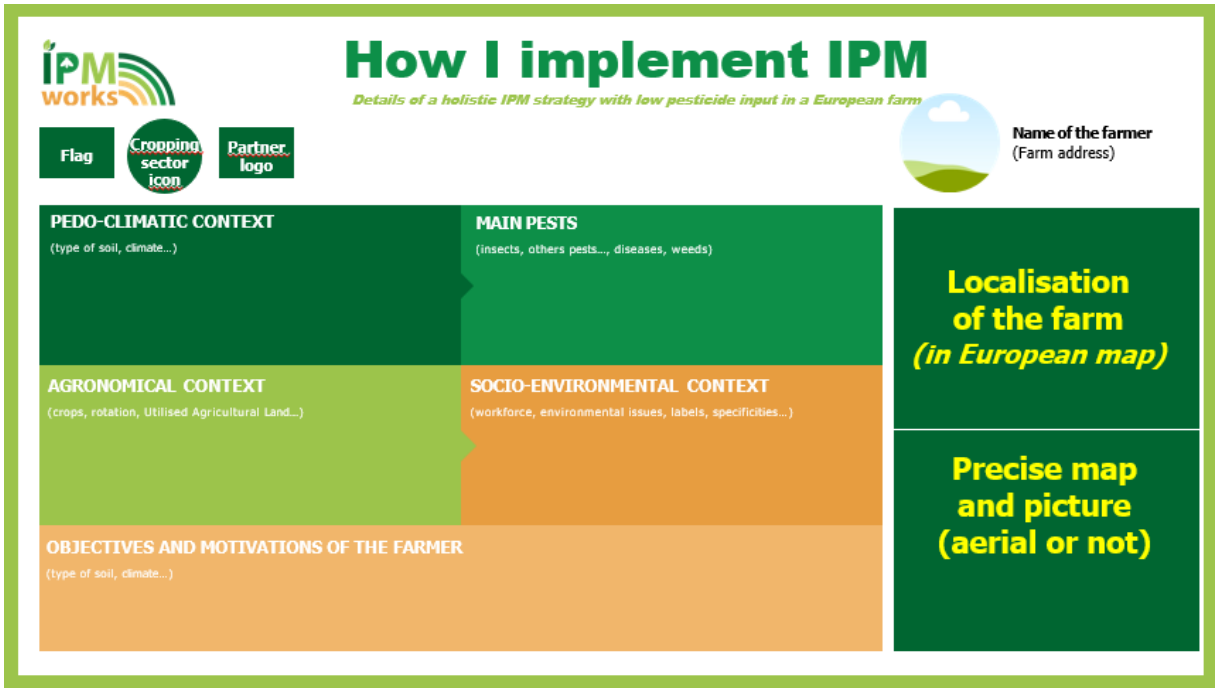
Content

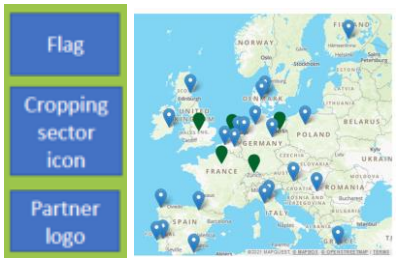
The booklet includes four pages describing a holistic IPM strategy in **one chosen farm** of your hub.

Each page is a part : description of the farm, description of the strategy, achieved results, farmer's and hub coach's feedbacks.

"MY FARM" SECTION

The first page is a quick description of the farm:





Use flags, icons, maps provided by Consulai.

Take a picture of the farmer and precise his/her name and address

Give the main information concerning :

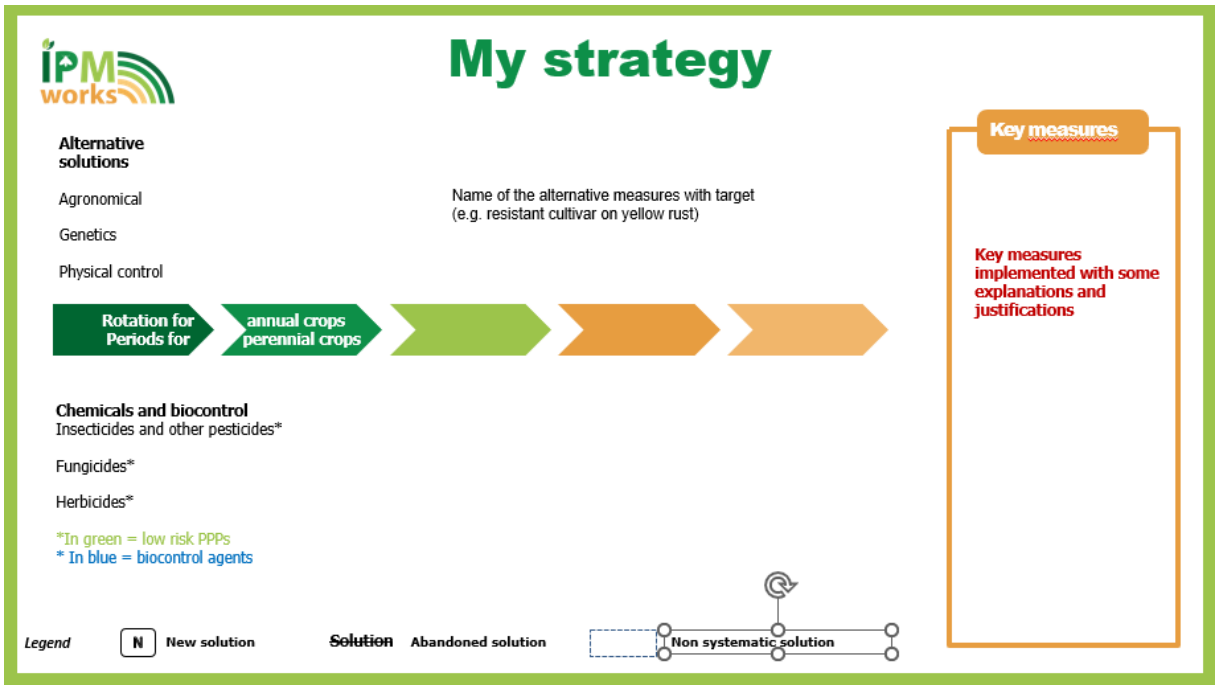
- Pedo-climatic context
- Main pests
- Agronomical context
- Socio-environmental context

Give, in one sentence, the main farmer's objectives and motivations

See the two examples provided for details

"MY STRATEGY" SECTION

The second page describes the strategy laid out by the farmer. This page is based on a decision schema of the cropping system (rotation cropping for annual crops, seasons for perennial crops]



Complete all information on implemented alternative solutions and use of chemical and biocontrol products in squares and indicate the period of use of each technique with an arrow.

Use different colours for each type of methods [Agronomicals, Genetics, Physical control]

You can add  for all new solutions implemented by the farmer

You can erase an abandoned solution by the farmer ~~***Solution***~~

You can precise a non systematic solution with a blank square

The list of low risk PPPs substances is available on the European website [link]. Please indicate it in a green square.

Biocontrol agents are macro-organisms ; please indicate it in a blue square

A specific space is reserved to describe key measures

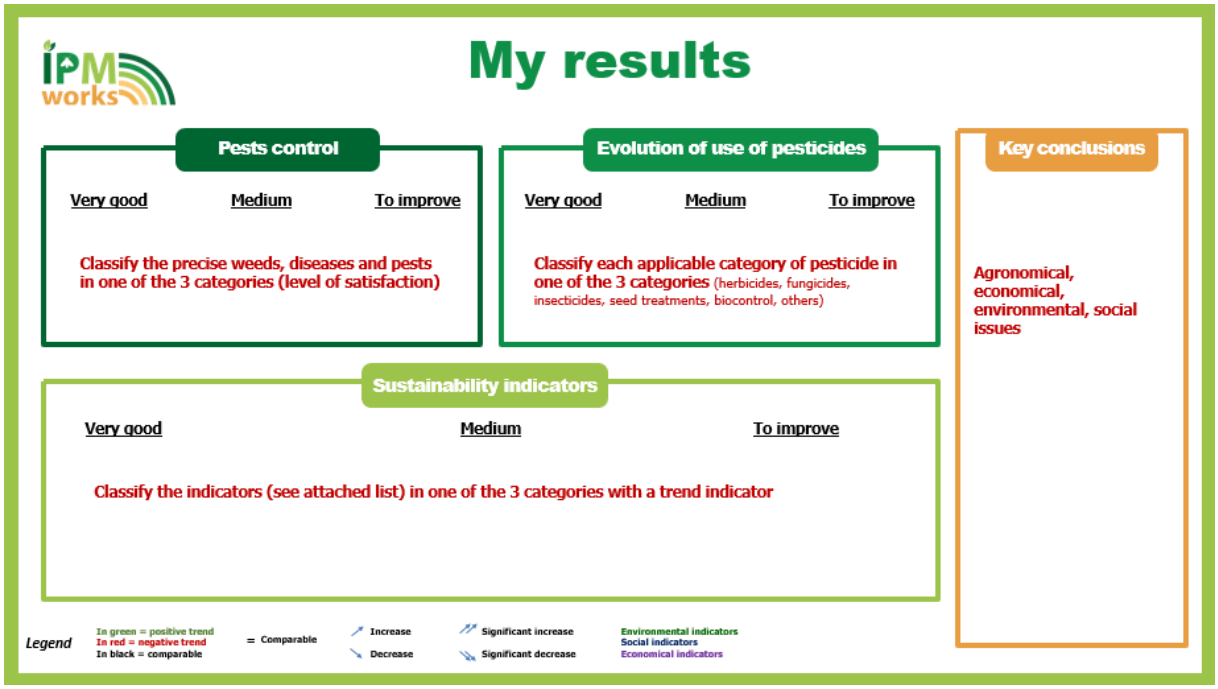
See the two examples provided for details

"MY RESULTS" SECTION

The third page brings the main results using different indicators. Choose if you compare the farmer's results with standard or if you show the evolution trend and indicate it next to the page title.

Evolution trend on the farm

Comparison with standards



Characterize the following topics using marks in legend and colours of families' indicators

In green = positive trend
in red = negative trend,
in black = comparable

Pests control :

Indicate the major pests and the evolution of their level of control

Use different colours to indicate the trend of each category and place it in one of the three column depending of your feeling.

In green = positive trend
in red = negative trend,
in black = comparable

Evolution of use of pesticides:

Characterize the evolution of the uses on the farm or the comparison with standards/neighbourgs of each category of pesticides with indicators used in the country: TFI, number of products, quantity of active ingredient

Use different colours to indicate the trend/comparison of each category and place it in one of the three column depending of your feeling.

Evolution of sustainability indicators :

Environmental indicators

Social indicators

Economical indicators

= Comparable
↗ Increase
↘ Decrease
↗↗ Significant increase
↘↘ Significant decrease

Characterize the evolution on the farm or the comparison with standards/neighbors of several indicators using different colours and arrows to indicate the type and the trend/comparison of the indicator as explain in the legend and place it in one of the three column depending of your feeling.

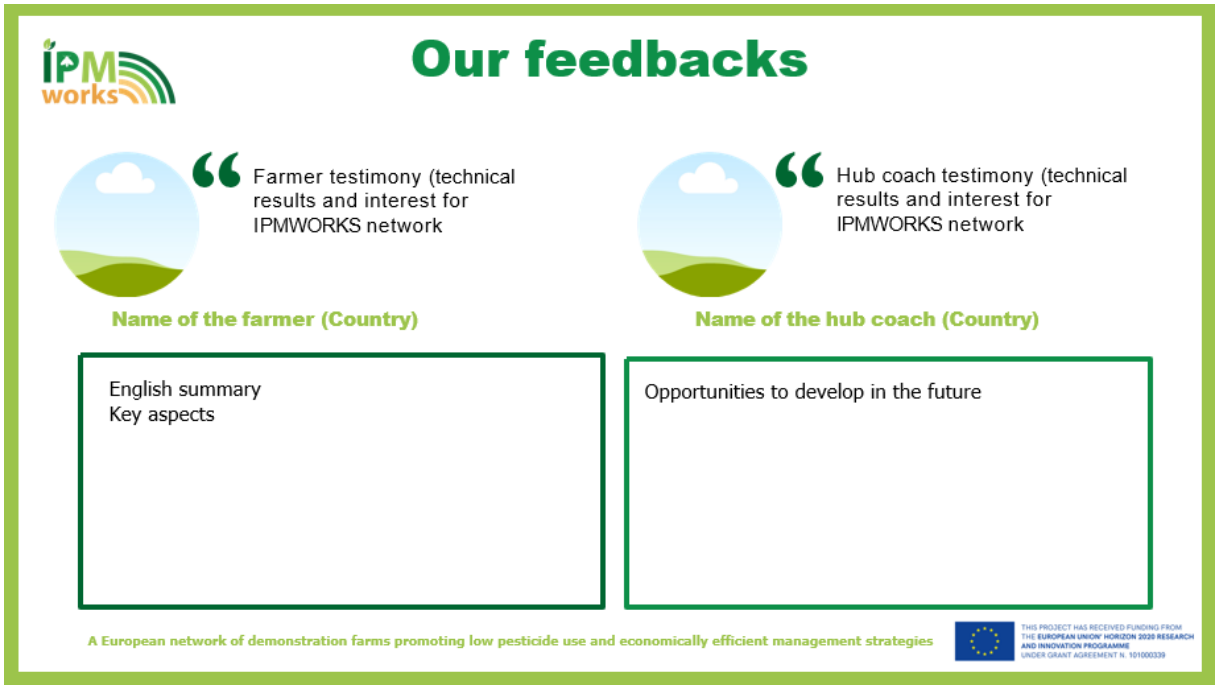
Suggested list of indicators :

Environment	Social	Economical
• Use of fossil energy • Use of sustainable energy • Use of products that are dangerous or toxic to the environment • Irrigation (amount of water) • Use of chemical fertilizers • Use of conservation biological control [landscaping] • Establishment of grass cover or multi-annual crops	• Use of dangerous or toxic products for the user (and the consumer) • Level of overall satisfaction of the farmer and his/her entourage • Workload • Equipment usage time • Complexity"of the cropping system • Labour employment • Drudgery of work • Distribution of work over the year	• Real gross product with self-consumption • Standardized operating expenses • Actual mechanization load • Semi-net margin • Pesticides costs • Energy costs

See the two examples provided for details

"OUR FEEDBACKS" SECTION

The fourth and last page renders the farmer's and hub coach's testimonies and gives the oppportunities to develop in the next years. Farmer's and hub coach's photos are welcome. Write the farmer's and hub coach's names under the pictures.



Farmer testimony = a testimony from the farmer on his progression and the evolution of his practices, the triggering events that prompt this evolution, successes that have been achieved and what difficulties were encountered

Hub coach testimony = a testimonial from the hub coach providing an outside perspective on these developments and more generally the positive points of the group of farmers

Opportunities = a brief testimonial of the two about their vision for the future and the prospects for improving the system

A summary in English will be useful to provide "practice abstracts" to the European Commission.

See the two examples provided for details

PRACTICE ABSTRACT

Philippe DELVAL will establish the practice abstract from the information given in the booklet, using the EIP-AGRI template for this.

He will add a link to the complete booklet that will be available on the IPMWORKS website – IPM toolbox.

He will send all the practice abstracts to EIP-AGRI.

Annex 2. Booklet example in annual crop

How I implement IPM

Details of a holistic IPM strategy with low pesticide input in a European farm

My farm

Cyril DUFFAUT
MONTAUT-LES-CRENEAUX
(Occitanie)

PEDO-CLIMATIC CONTEXT
- Loamy clay at clay-limestone with a medium useful water reserve
- Wet spring, dry summers with possibly storm

MAIN PESTS
- Summer weeds
- Slugs
- Brown rust & powdery mildew on cereals

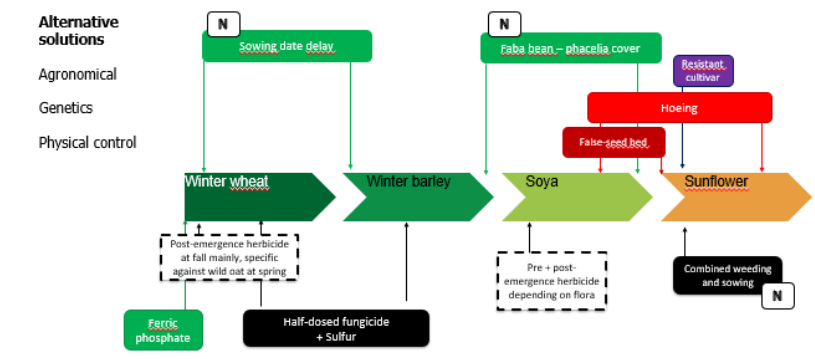
AGRONOMICAL CONTEXT
- Crop succession: Winter wheat - Barley - Soya – Sunflower
- Simplified tillage
- Utilised Agricultural Land = 136 ha

SOCIO-ENVIRONMENTAL CONTEXT
- Workforce : 2 workers
- Farm certified High Environmental Value

OBJECTIVES AND MOTIVATIONS OF THE FARMER

Reduction of the sprayed surface up to 66%. Maintain or improve the efficiency of weeding on the row equivalent to a passage in total surface. Reduce the economic weight of pesticides inputs. Increase gross margin.

My strategy



Key measures

Combined weeding & sowing consists of the application of an herbicide at the time of the sowing operation using a seeder equipped with specific nozzles at the level of the sowing elements and the addition of a tank at the front of the tractor. The herbicide treatment can then be localized only on the row of seedlings in order to limit the early competition of weeds on the crop during emergence. A hoeing operation can then complete the weeding on the inter-row.

The savings on the cost of the product and the passage of the sprayer makes it possible to compensate for the additional cost linked to the passage of the hoe.

Chemicals and biocontrol
Insecticides and other pesticides, Fungicides*, Herbicides**

*In green = low risk PPPs
* In blue = biocontrol agents*

Legend N New solution ~~Solution~~ Abandoned solution Non systematic solution

My results

Comparison with standards

Pests control

Very good	Medium	To improve
Summer weeds	Cereals disease Slugs	

Evolution of use of pesticides

Very good	Medium	To improve
Herbicides No use of insecticides, regulating and molluscicides	Fungicides Low risk PPPs	

Sustainability indicators

Very good	Medium	To improve
- Use of fossil energy - Use of dangerous or toxic products for the user - Level of overall satisfaction of the farmer and his entourage - Labour employment - Workload - Drudgery of work - Equipment usage time - Semi-net margin - Pesticides costs	= - Use of chemical fertilizers = - Use of sustainable energy - "Complexity" of the cropping system = - Distribution of work over the year - Standardized operating expenses - Actual mechanization load - Energy costs - Establishment of grass cover or multi-annual crops	= - Use of products that are dangerous or toxic to the environment = - Use of conservation biological control (landscaping) - Real gross product with self-consumption

Legend: In green = positive trend; In red = negative trend; In black = comparable; = Comparable; Increase; Decrease; Significant increase; Significant decrease; Environmental indicators; Social indicators; Economical indicators

Key conclusions

Implementation and conditions for success

- On fields where weeding is carried out locally, it is important to anticipate the need for hoeing (working time, weather window).
- In order to adapt the choice of herbicide treatment, it is necessary to know the expected flora on the field.
- The use of clod removers on the seed drill is a guarantee of success in the case of cloddy or dry soil on the surface and in the presence of plant residues.
- The technique can be combined with the realization of a spring false seed bed in order to raise some species of weeds.
- By using specific nozzles (mirror nozzles) it is also possible to spray the entire width of the seeder.

Our feedbacks

"The savings in chemical products is real: 50% reduction in the total dose used while concentrating the product where it is most useful on the row. In addition, thanks to the seeder and the adaptation of the "tailor-made" equipment with the help of a local manufacturer, we have the possibility of carrying out, if desired, 4 interventions once: micro granule insecticide, weeding of the row, localization of boron on the seeding line and sowing of course! This is as much time saved when sowing, especially on the plots furthest from the farm.

Farmer : Cyril DUFFAUT (France)

Combined weeding and sowing is a technique requiring a moderate economic investment which can be quickly amortized thanks to the savings in herbicides that it allows. In addition, the investment in Machinery Pool is a definite advantage in order to make the cost of the equipment profitable. However, this requires a little more organization to ensure the availability of equipment. Hoeing is made easier thanks to the weeding carried out during sowing. It is not necessary to go as close as possible to the young plants because the row is already clean.."

Hub coach : Anthony PAGE (France)

MAIN OBJECTIVE OF THE FARMER

Reduction of the sprayed surface up to 66%. Maintain or improve the efficiency of weeding on the row equivalent to a passage in total surface. Reduce the economic weight of pesticides inputs. Increase gross margin.

ADVANTAGES OF THE SYSTEM

To be able to carry out all the interventions in a single pass. Be less dependent on windy conditions for treatment (drift limited by the height of the nozzles). Reduction of the surface treated (- 66%) and of the total quantity of herbicide used. Effectiveness of weeding on the row equivalent or superior to a treatment in full.

LIMITS

Requires the adaptation of specific equipment. Mechanical intervention at the 6-8F stage of the sunflower for hoeing: need to have an efficient guidance system in the case of large areas. Be more attentive during the sowing operation.

Opportunities to develop in the future

Work on the choice of nozzles to reason and adjust the pressure optimally according to the working speed

Adapt and test combined weeding-seeding on soybeans

Work on the choice of the most suitable herbicide products for the combined weeding-seeding technique

A European network of demonstration farms promoting low pesticide use and economically efficient management strategies

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Annex 3. Booklet example in perennial crop

How I implement IPM

Details of a holistic IPM strategy with low pesticide input in a European farm

My farm

Mathieu MAURAN
Château Mossé / Ste Colombe de la Commanderie (Occitanie)

PEDO-CLIMATIC CONTEXT
- Quaternary terraces, sometimes stony, silty-clayey, with a low to medium useful water reserve
- Dry weather with not much storm

MAIN PESTS
- Weeds
- "Flavescence dorée"
- Grape moth
- Downy and powdery mildews

AGRONOMICAL CONTEXT
- Grapevine varieties : Syrah, grenache noir, carignan, mourvèdre, muscat petits grains, muscat d'alexandrie, cabernet sauvignon
- Utilised Agricultural Land = 25 ha

SOCIO-ENVIRONMENTAL CONTEXT
- Seasonal workforce
- Vineyards in PDO
- 100% of vineyard can be mechanized

OBJECTIVES AND MOTIVATIONS OF THE FARMER

Limit or even eliminate in the short term the use of herbicides on the vineyard

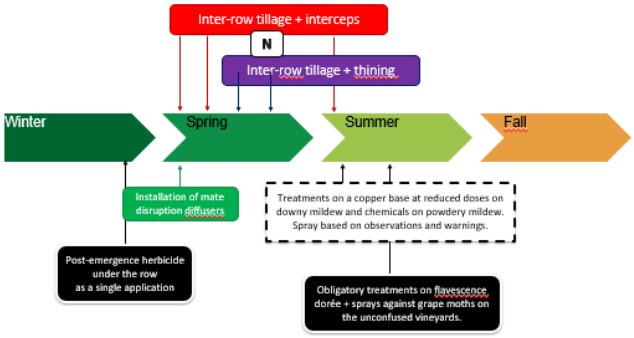
My strategy

Alternative solutions

Agronomical

Genetics

Physical control



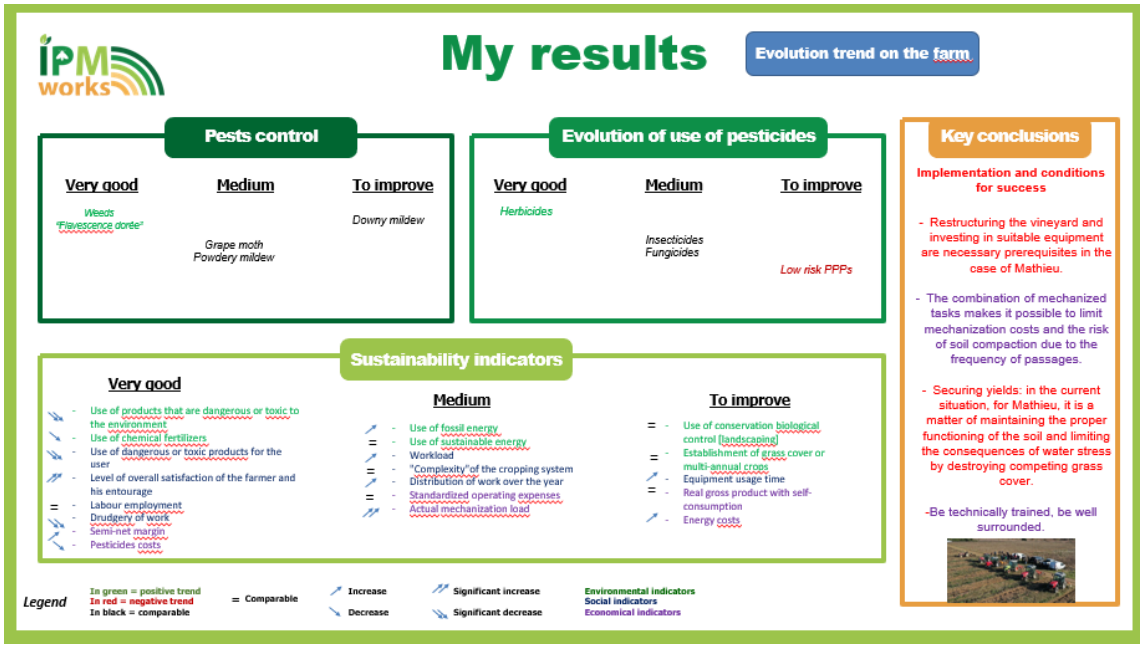
Chemicals and biocontrol
Insecticides and other pesticides, Fungicides*, Herbicides**

**In green = low risk PPPs*
** In blue = biocontrol agents*

Legend N **New solution** ~~**Solution**~~ **Abandoned solution** **Non systematic solution**

Key measures

- Gradual restructuring of the vineyard: removal of narrow goblet vines and replanting of vines formed in a trellised cordon at 2.5 m.
- Maintenance of inter-rows without herbicide by working the soil throughout the farm.
- Total elimination of pre-emergence herbicides below the row since 2016.
- Change in recent years from two applications of post-emergence herbicides below the row to a single application.
- Progressive use of a mechanical intercep tool in summer since 2016.
- Acquisition in 2020 of a hydraulic intervine blade with slope correction and mounting of ridging shares on the plow frame.
- End of the use of herbicides on the majority of plots planned for 2021.


My results
Evolution trend on the farm
Pests control
Very good
Weeds
"Flavescence dorée"
Medium
Grape moth
Powdery mildew
To improve
Downy mildew
Evolution of use of pesticides
Very good
Herbicides
Medium
Insecticides
Fungicides
To improve
Low risk PPPs
Sustainability indicators
Very good
Use of products that are dangerous or toxic to the environment
Use of chemical fertilizers
Use of dangerous or toxic products for the user
Level of overall satisfaction of the farmer and his entourage
Labour employment
Drudgery of work
Semi-net margin
Pesticides costs
Medium
Use of fossil energy
Use of sustainable energy
Workload
"Complexity" of the cropping system
Distribution of work over the year
Standardized operating expenses
Actual mechanization load
To improve
Use of conservation biological control (landscaping)
Establishment of grass cover or multi-annual crops
Equipment usage time
Real gross product with self-consumption
Energy costs
Key conclusions
Implementation and conditions for success
- Restructuring the vineyard and investing in suitable equipment are necessary prerequisites in the case of Mathieu.
- The combination of mechanized tasks makes it possible to limit mechanization costs and the risk of soil compaction due to the frequency of passages.
- Securing yields: in the current situation, for Mathieu, it is a matter of maintaining the proper functioning of the soil and limiting the consequences of water stress by destroying competing grass cover.
-Be technically trained, be well surrounded.
Legend
In green = positive trend
In red = negative trend
In black = comparable
= Comparable
Increase
Decrease
Significant increase
Significant decrease
Environmental indicators
Social indicators
Economical indicators


Our feedbacks
It is important to take your time, to do things correctly. Doing without herbicides without being prepared for them is heading for disaster. Too many cases demonstrate this to us.
The evolution of practices and adaptation to environmental issues is possible, even if it can be slower and more gradual in our situation with low levels of yield and limited product valuation.
Collective work, sharing and my personal investment in the cooperative cellar helps and encourages me.
Farmer : Mathieu MAURAN (France)
The socio-economic context of the local wine sector is difficult: insufficient valuation, poor sales, drop in yields over the last few years, viticultural decline...
This crisis situation is not necessarily conducive to changes in practices. However, Mathieu like the other members of the DEPHY group are willing to react. Doing without herbicides requires strong thinking, human and material investment, reconfiguration of the vineyard. Mathieu is turning a corner and demonstrates it brilliantly.
Hub coach : Éric NOEMIE (France)
MAIN OBJECTIVE OF THE FARMER
Limit or even eliminate in the short term the use of herbicides on the vineyard.
ADVANTAGES OF THE SYSTEM
Gradual transition to tillage integral without depressing effect on the vine.
State-of-the-art techniques that push the winegrower to ask himself more questions and to observe his vineyard .
Access to certifications environmental through the decrease in the use of chemicals and precisely herbicides. Positive consequences for cooperative in terms of communication and promotion of wines.
LIMITS
Practices that often lead to additional production costs, especially during their implementations. A more energy-intensive technique energy and an increased risk of soil compaction by repeated passages.
Opportunities to develop in the future
Many hopes in the collective irrigation project in the sector which will be a means of securing yields and maintaining satisfactory quality. Mathieu signed up for the approach on 10 ha.
Access to controlled and reasoned irrigation may lead to a new approach to soil management and maintenance.
A European network of demonstration farms promoting low pesticide use and economically efficient management strategies
THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION' HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT N. 101000339

Annex 4. The Practice Abstracts

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION' HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT N. 101000339

EIP-AGRI practice abstracts (First round)

Document Summary

EIP-AGRI practice abstracts (First wave)

Version: **1**

Milestone Lead: **ACTA**

Related Work package: WP6

Author(s): **Philippe DELVAL**

Contributor(s): **Hub Coaches**

Communication level:
PU Public

Project Number: 101000339

Grant Agreement Number: **101000339**

Programme: **IPMWORKS**

Start date of Project: 01/10/2020

Duration: **4 years**

Project coordinator**: Nicolas MUNIER-JOLAIN - INRAE**

Abstract

The objective of IPMWORKS is to promote the adoption of IPM strategies, based on a EU-wide network of farmers, who will both progress further in the adoption of IPM – through peer-to-peer learning and joint efforts – and demonstrate to other farmers that holistic IPM "works"; i.e. allows a low reliance on pesticides with better pest control, reduced costs and enhanced profitability.

Table of contents

Introduction

What is the EIP-AGRI Practice Abstract?

The agricultural European Innovation Partnership (EIP-AGRI) works to foster competitive and sustainable farming and forestry. Through the EIP-AGRI's website, users can share innovative project ideas and practices, information about research and innovation projects, including projects' results. Various EIP-AGRI-related publications are available for download on the website.

The EIP-AGRI common format facilitates knowledge flows on innovative and practice-oriented projects from the start till the end of the project. The use of this format also enables farmers, advisors, researchers and all other actors across the EU to contact each other.

Summary

Sharing good practices resulting from the implementation of the IPMWORKS project

The present document is intended to describe the activities for developing the practice abstracts of the IPMWORKS project. A first set of 18 Practice Abstracts are intended to communicate a short summary of some practical information or recommendation that has been observed or developed during the lifetime of the IPMWORKS project. They mainly focus on issues which are relevant and attractive for farmers, farm advisers and other related practitioners, but at the same time they also aim to be interesting, accessible and understandable to a broader audience too.

Under the project IPMWORKS, existing IPM networks in five European countries (FR, DE, NL, CH and UK) will be pursued and new hubs (new demo farm groups) in 14 European countries will be established. Hubs are groups of typically 10-15 farms in the same agricultural sector and the same region, where farmers can interact, meet frequently to exchange knowledge and experience on IPM strategies, and have specific activities for in-farm design of IPM-based strategies. All farmers with their "hub coaches" are ready to support demonstration events, communicate, and provide requested information to describe their IPM strategy and evaluate their farm performance.

In line with the H2020 policy on multi-actor research projects involving the agricultural community and interlinking EIP-AGRI and H2020, IPMWORKS contributes to sharing measures to to enhance knowledge exchanges, cross fertilisation among actors and efficient innovation uptake in the farming sector through peer-to-peer demonstration of techniques.

Annex 1: Set of 18 Practice Abstracts

Project identification

Please indicate whether the information refers to a multi-actor project or a thematic network	Multi-actor project	*Mandatory*

Project Information

Project identifier (see INSTRUCTIONS)	H2020-SFS-2020-1_101000339_IPMWORKS
Title of the project in native language	IPMWORKS - An EU-wide farm network demonstrating and promoting cost-effective IPM strategies
Title of the project in English	IPMWORKS - An EU-wide farm network demonstrating and promoting cost-effective IPM strategies

Geographical location

Country (*of the coordinator*)	FR
Main geographical location (NUTS3) (of coordinator - *for geolocalisation on map*)	FR101 - Paris

Editor of the text: person/organisation responsible for delivering the text	Agricultural Advisory Center

Project coordinator (lead-partner) according to the cooperation/consortium agreement:

Name	INRAE
Address	INRAE, rue de l'Université 149, 75007 Paris, France
E-mail	nicolas.munier-jolain@inrae.fr
Telephone	+33 0(3) 80 69 30 35

Project period:

start year (YYYY)	2020
end year (YYYY)	2024

Project status: ongoing (after selection of the project) or completed (after final payment)	ongoing
Main **funding source**	H2020
Total budget of the project (total costs - in euros)	6 000 005,00
Objective of the project in English: what problems/opportunities does the project address that are relevant for the practitioner/end-user, and how will they be solved?	The objective of IPMWORKS is to promote the adoption of IPM strategies, based on a EU-wide network of farmers, who will both progress further in the adoption of IPM – through peer-to-peer learning and joint efforts – and demonstrate to other farmers that holistic IPM "works"; i.e. allows a low reliance on pesticides with better pest control, reduced costs and enhanced profitability. IPMWORKS will coordinate existing networks promoting IPM and launch new hubs of farms in regions or sectors where IPM pioneers are not yet engaged in a relevant network.

Objective of the project in native language	L'objectif d'IPMWORKS est de promouvoir l'adoption de stratégies de protection intégrée (PIC) contre les bioagresseurs, en s'appuyant sur un réseau européen d'agriculteurs qui progresseront dans l'adoption des principes de la PIC - grâce à l'apprentissage entre pairs et aux efforts conjoints - et démontreront aux autres agriculteurs que la PIC "fonctionne", c'est-à-dire qu'elle permet une faible dépendance à l'égard des pesticides, une meilleure maîtrise des bioagresseurs, une réduction des coûts et une amélioration de la rentabilité. IPMWORKS coordonnera les réseaux existants et lancera de nouveaux groupes dans les régions ou les secteurs.
Description of project activities in English.	Under the project IPMWORKS, existing IPM networks in five European countries (FR, DE, NL, CH and UK) will be pursued and new hubs (new demo farm groups) in 14 European countries will be established. Hubs are groups of typically 10-15 farms in the same agricultural sector and the same region, where farmers can interact, meet frequently to exchange knowledge and experience on IPM strategies, and have specific activities for in-farm design of IPM-based strategies. All farmers with their "hub coaches" are ready to support demonstration events, communicate, and provide requested information to describe their IPM strategy and evaluate their farm performance.
Description of project activities in native language.	Dans le cadre du projet IPMWORKS, les réseaux existants dans cinq pays européens seront poursuivis et de nouveaux hubs (nouveaux groupes de fermes de démonstration) seront établis dans 14 pays européens. Les "hubs" sont des groupes de 10 à 15 exploitations agricoles, où les agriculteurs peuvent interagir, se rencontrer fréquemment pour échanger des connaissances et des expériences et avoir des activités spécifiques pour la conception de stratégies. Tous les agriculteurs et leurs "accompagnateurs" sont prêts à soutenir les événements de démonstration, à communiquer et à fournir les informations requises pour décrire leur stratégie et évaluer les performances de leur exploitation.

Description of the context of the project in English	The reliance of European agriculture on pesticides is high. Across most European farms (excluding organic), the protection of crops from pests (insect pests, diseases, weeds, and others) to avoid crop yield losses relies mainly (and even sometimes exclusively) on pesticides. This high pesticide use has led to increasing concerns about their impact on the environment and on human health and can cause long term technical problems as resistance. Conforming to Directive 2009/128/EC on the Sustainable Use of Pesticides (SUD), EU Member States have established national action plans, some of which explicitly target the decrease in reliance on pesticides. Reducing pesticide use is considered as the best way to minimise exposure of the environment, animals and human beings, and therefore decrease negative impacts. The SUD promotes Integrated Pest Management, i.e. a combination of alternative approaches and techniques contributing to regulating pests to keep the use of plant protection products to levels that minimize risks to human health and the environment. According to this directive, compliance with IPM principles is mandatory for all professional users of pesticides throughout EU Member States and has been since January 2014. Despite the SUD and national action plans, the overall use of pesticides in the EU has not decreased since 2011. One major problem for the promotion and monitoring of IPM adoption is that IPM is a flexible concept. The big challenge for European agriculture is to broaden this group and promote the more general adoption of advanced IPM. IPMWORKS aims to achieve this by using “success stories” on IPM, as these have proved to be a powerful validatory demonstration tool. It will also engage with, and use existing IPM demo farms.

Additional information on the project in English	Dans la plupart des exploitations agricoles européennes à l'exception des biologiques, la protection des cultures contre les bioagresseurs reste très dépendante des pesticides afin d'éviter les pertes de rendement. Cela a suscité des inquiétudes croissantes quant à l'impact sur l'environnement et la santé humaine et peut entraîner des problèmes techniques à long terme tels que la résistance. Conformément à la directive 2009/128/CE sur l'utilisation durable des pesticides (SUD), les États membres de l'UE ont établi des plans d'action nationaux, dont certains visent à réduire la dépendance à l'égard des pesticides. La réduction de l'utilisation des pesticides est considérée comme le meilleur moyen de minimiser l'exposition et donc de diminuer les impacts négatifs. La SUD encourage la protection intégrée des cultures (PIC), c'est-à-dire une combinaison d'approches et de techniques alternatives contribuant à réguler les bioagresseurs afin de maintenir l'utilisation de pesticides à des niveaux qui minimisent les risques. Néanmoins, l'utilisation globale des pesticides dans l'UE n'a pas diminué 12 ans. Un problème majeur pour la promotion et le suivi de l'adoption de la PIC est que la celle-ci est un concept flexible. Des agriculteurs pionniers à travers l'Europe testent et mettent en œuvre avec succès des stratégies avancées en obtenant de bons résultats avec une faible dépendance à l'égard des pesticides. Le grand défi est d'élargir ce groupe et de promouvoir l'adoption plus générale de la lutte intégrée avancée. IPMWORKS vise à atteindre cet objectif en utilisant des "exemples de réussite" qui se sont révélés être un puissant outil de démonstration. Il s'appuiera également sur les fermes de démonstration existantes.
Additional comments (in English)	

Project partners (mandatory information) - *N.B. : "Name" can be that of an organisation - "Address" should include the country*

	Name	Address	E-mail	Telephone	Type of partner
project coordinator (lead partner) *from PROJECT INFORMATION*	INRAE	INRAE, rue de l'Université 149, 75007 Paris, France	nicolas.munier-jolain@inrae.fr	+33 0(3) 80 69 30 35	research institute
project partner	INRAE Transfert (IT)	France			
project partner	EIGEN VERMOGEN VAN HET INSTITUUT VOOR LANDBOUW- EN VISSERIJONDERZOEK (EVILVO)	Belgium			
project partner	ASSEMBLEE PERMANENTE DES CHAMBRES D'AGRICULTURE (APCA)	France			
project partner	DELPHY BV (DELPHY)	Netherlands			
project partner	RSK ADAS LIMITED (ADAS)	UK			
project partner	CONSULAI, CONSULTORIA AGROINDUSTRIAL LDA (CONSULAI)	Portugal			
project partner	Mediterranean Agronomic Institute of Zaragoza / International Centre for Advanced Mediterranean Agronomic Studies (IAMZ-CIHEAM)	Spain			
project partner	STICHTING WAGENINGEN RESEARCH (WR)	Netherlands			
project partner	AARHUS UNIVERSITET (AU)	Denmark			
project partner	KUJAWSKO-POMORSKI OSRODEK DORADZTWA ROLNICZEGO W MINIKOWIE (KPODR)	Poland			
project partner	UNIVERSITA CATTOLICA DEL SACRO CUORE (UCSC)	Italy			
project partner	THE JAMES HUTTON INSTITUTE (JHI)	UK			
project partner	Association de Coordination Technique Agricole (ACTA)	France			
project partner	LINKING ENVIRONMENT AND FARMING LBG (LEAF)	UK			
project partner	INSTITUTO NAVARRO DE TECNOLOGIAS E INFRAESTRUCTURAS AGROALIMENTARIAS SA (INTIA)	Spain			
project partner	INAGRO, PROVINCIAAL EXTERN VERZELFSTANDIGD AGENTSCHAP IN PRIVAATRECHTELIJKE VORM VZW (INAGRO)	Belgium			
project partner	KMETIJSKO GOZDARSKA ZBORNICA SLOVENIJE KMETIJSKO GOZDARSKI ZAVOD MARIBOR (KGZS MB)	Slovenia			
project partner	FUNDACION EMPRESA UNIVERSIDAD GALLEGA (FEUGA)	Spain			
project partner	DJURSLAND LANDBOFORENING (DL)	Denmark			
project partner	VELAS I/S (VELAS)	Denmark			
project partner	PROAGRIA ETELA-SUOMI RY (PROAGRIA)	Finland			
project partner	TEAGASC - AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY (TEAGASC)	Ireland			
project partner	GRUENLANDZENTRUM NIEDERSACHEN/BREMEN E.V. (GLZ)	Germany			
project partner	ASOCIACION DE ORGANIZACIONES DE PRODUCTORES DE FRUTAS Y HORTALIZAS DE ALMERIA (COEXPHAL)	Spain			
project partner	INTERNATIONAL FEDERATION OF ORGANIC AGRICULTURE MOVEMENTS EUROPEAN UNION REGIONAL GROUP (IFOAM)	Sweden			
project partner	JULIUS KUHN-INSTITUT BUNDESFORSCHUNGSINSTITUT FUR KULTURPFLANZEN (JKI)	Germany			
project partner	SCUOLA SUPERIORE DI STUDI UNIVERSITARI E DI PERFEZIONAMENTO S ANNA (SSSA)	Italy			
project partner	GEOPONIKO PANEPISTIMION ATHINON (AUA)	Greece			
project partner	EIDGENOESSISCHES DEPARTEMENT FUER WIRTSCHAFT, BILDUNG UND FORSCHUNG (AGROSCOPE)	Switzerland			
project partner	BIOSENSE INSTITUTE - RESEARCH AND DEVELOPMENT INSTITUTE FOR INFORMATION TECHNOLOGIES IN BIOSYSTEMS (BIOSENSE)	Serbia			

Keyword - category

Keyword - category 1	Agricultural production system
Keyword - category 2	Farming practice
Keyword - category 3	Plant production and horticulture

Audiovisual material which is useful and attractive for practitioners (e.g. YouTube link, videos, other dissemination material)

Title/description (in English)	URL
#IPMWORKSInterviews | Virginia Bagnoni & Dimitri Zietti from Italy	https://www.youtube.com/watch?v=22f0Oi2CZm8
#IPMWORKSInterviews | Alice Caselli from Italy | Participatory Monitoring	https://www.youtube.com/watch?v=lDebt9z2KrQ
#IPMWORKSInterviews | Alice Caselli from Italy	https://www.youtube.com/watch?v=wOdjl1t4s1k
#IPMWORKSInterviews | Giovanni Pecchioni & Simone Bensi from Italy | H2020 Project	https://www.youtube.com/watch?v=lwavA6Mzk44
#IPMWORKSInterviews | Bartlomiej Piskorski from Poland | H2020 Project	https://www.youtube.com/watch?v=eq1OO_vOSGk
#IPMWORKSInterviews | Wim Mahieu from Belgium | H2020 Project	https://www.youtube.com/watch?v=6mKNplWHlBQ
#IPMWORKSInterviews | Matti Uotila and Marika Lehtinenom from Finland | H2020 Project	https://www.youtube.com/watch?v=uUTmEbeHCoc
#IPMWORKSInterviews | Florian Farkaš from Serbia | H2020 Project	https://www.youtube.com/watch?v=aK__jiLYJus
#IPMWORKSInterviews | Tom from East of Scotland | H2020 Project	https://www.youtube.com/watch?v=LRMfMZDC9ws
#H2020IPMWORKS | Second Demo-Event of the Portuguese Horticulture Hub	https://www.youtube.com/watch?v=3OYvbz93yLI
#IPMWORKSInterviews | Sergio Hernández from Spain | H2020 Project	https://www.youtube.com/watch?v=u0USQf45BCI
#IPMWORKSInterviews | José Nieto & Esther Molina from Spain | H2020 Project	https://www.youtube.com/watch?v=2YAIsKf-YHc
Hub from Germany | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=ZnTahhlFCiE
IPMWORKS in a minute: Calypso Picaud | H2020 Project | RCA Occitania in France	https://www.youtube.com/watch?v=zrs1DK0uxHA
IPMWORKS in a minute: David Lafond | H2020 Project | French Wine and Vine Institute	https://www.youtube.com/watch?v=mWEgo2kPF_Y
IPMWORKS in a minute: Per Kudsk | H2020 Project | Aarhus University	https://www.youtube.com/watch?v=l4F-4E62uKY
IPMWORKS in a minute: Eduardo Crisol | H2020 Project | COEXPHAL	https://www.youtube.com/watch?v=k2TXQPCspdM
IPMWORKS in a minute: Nicolas Munier-Jolain | H2020 Project | INRAE	https://www.youtube.com/watch?v=H4Ng-N5tM0Q
IPMWORKS Resource Toolbox | How to use it?	https://www.youtube.com/watch?v=edjtbSN3RBs
IPMWORKS Resource Toolbox | Quick Presentation	https://www.youtube.com/watch?v=MtrPx0XivhQ&t=1s
Hub from Spain | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=E9y2dW5aYl0
Hub from Netherlands | Outdoor vegetables and arable | IPMWORKS	https://www.youtube.com/watch?v=T0vzb0zBuVM
Hub from Denmark | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=mAO_0P_KyMA
Hub from Slovenia | Arable field crops, Vineyards & Orchards | IPMWORKS	https://www.youtube.com/watch?v=PV0QARZ5jzI
Hub from Finland | Outdoor vegetables, soft fruits and ornamentals | IPMWORKS	https://www.youtube.com/watch?v=vc4nLkebwM4
Hub from Serbia| Outdoor vegetables, soft fruits and ornamentals | IPMWORKS	https://www.youtube.com/watch?v=sD1w5NnOb7A&t=1s
Hub from United Kingdom | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=9XZRT4a6bUA
Hub from Italy | Orchards | IPMWORKS	https://www.youtube.com/watch?v=2WXoYkJggU8&t=2s
Capacity building event | IPMWORKS H2020 project	https://www.youtube.com/watch?v=uSQK-D14JP0
Hub from Portugal | Vineyards & Outdoor vegetables, soft fruits and ornamentals | IPMWOR	https://www.youtube.com/watch?v=prPaMXdkxRA
Hub from Spain | Vineyards | IPMWORKS	https://www.youtube.com/watch?v=PjapvAX_9hw
Hub from Spain | Greenhouse Horticulture | IPMWORKS	https://www.youtube.com/watch?v=UqENwbbyYA4
Hub from Italy | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=G-F7tqxGavI
Hub from Ireland | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=wTMMEfle5Qg
Hub from Greece | Vineyards | IPMWORKS	https://www.youtube.com/watch?v=hfhZg9QFQF8
Hub from Germany | Arable field crops | IPMWORKS	https://www.youtube.com/watch?v=mhITHn-36zE&t=1s
Hub from Belgium | Outdoor vegetables, soft fruits and ornamentals | IPMWORKS	https://www.youtube.com/watch?v=rAAK6iBUsE4
Hub from Belgium | Greenhouse Horticulture | IPMWORKS	https://www.youtube.com/watch?v=HFLqtxG_o98
The role of Hub Coach | IPMWORKS	https://www.youtube.com/watch?v=7zLqcKrjD7U
#H2020IPMWORKS | First Demo-Event of the Portuguese Viticulture Hub	https://www.youtube.com/watch?v=-CH7y-S7Riw
#H2020IPMWORKS | First Demo-Event of the Portuguese Horticulture Hub	https://www.youtube.com/watch?v=C4-cCd-mruA
#H2020IPMWORKS | Short Presentation	https://www.youtube.com/watch?v=ozNtggOpcuM
H2020 IMPWORKS at #EUGreenWeek 2021	https://www.youtube.com/watch?v=xv3HinSBgxA

Official website of the project

Title/description	URL
	https://www.ipmworks.net/

Links to other website(s) hosting information on the project (results) that are available after the project has ended, by preference using the existing local/regional/national communication channels that practitioners most often use.

Title/description	URL
IPMWORKS project's platform	https://www.ipmworks.net/
IPMWORKS project's Twitter account	https://twitter.com/H2020IPMWorks
IPMWORKS project's Youtube account	https://www.youtube.com/@ipmworks8141
IPMWORKS project's LinkedIn account	https://fr.linkedin.com/company/h2020ipmworks
IPMWORKS project's Toolbox	https://www.ipmworks.net/toolbox/en/#/

Practice "abstract" 1:

Short title in English	**IPMWORKS Hub: Arable crops system in Germany [JKI]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Zeulenroda-Triebes, Thuringia, Germany **AGRONOMICAL CONTEXT** • 1,600 ha arable land • Crop-rotation: Peas, winter barley, winter oilseed-rape, winter wheat, cover crops, maize + hemp, linen, spelt, alfalfa, cup-plant (Silphium perfoliatum) **MAIN PESTS** Insects: • cabbage-stem flea beetle (Psylliodes chrysocephala) • pea moth (Cydia nigricana) Weeds: • catchweed (Galium aparine) • cornflower (Centaurea cyanus) • cutleaf geranium (Geranium dissectum) • hemp-nettle (Galeopsis) **STRATEGIES IMPLEMENTED** • Later sowing to slow pest development • Reduced sowing density • Increased mechanical weed control • Increased proportion of legumes in rotation • Permanent soil cover, including cover crops and undersowing • Precision spraying **MAIN OBJECTIVES OF THE FARMER** • To find alternative methods / solutions of plant protection to reduce chemical plant protection to the necessary minimum. • Environmentally friendly crop production, animal welfare and sustainable energy production. • Production of healthy food, renewable raw materials and renewable energies in ecologically intact agricultural landscapes **KEY CONCLUSIONS** • Agronomic challenges: breaking of work peaks (no-till instead of ploughing) • Ecological challenges: keep soil-health (soil-life), humus content and fertility at a high level and protection of surface and groundwater • Economic challenges: risk spreading through diverse crop rotation and better machine utilization due to fewer work peaks • Social challenges: labour recruitment, increase of salaries comparable with industry-level, maintain acceptance of consumers **Link to the complet booklet**: https://www.ipmworks.net/toolbox/en/#/resource/646f1f97abdd4f6c5c7475f8

Short title in native language	**IPMWORKS Hub: Ackerbausystem in Deutschland [JKI]**
Short summary for practitioners in native language	Der Betrieb liegt in Zeulenroda-Triebes, Thüringen, Deutschland **ACKERBAU** • Ackerfläche: ca. 1600 ha • Fruchtfolge: Erbse, W-Gerste, W-Raps, W-Weizen, Zwischenfrucht, Mais Zusätzlich: Hanf, Öl-Lein, Hafer, Luzerne, Durchwachsene Silphie **HAUPTSCHADORGANISMEN** Schadinsekten: Rapserdfloh, Erbsenwickler Unkräuter: Klettenlabkraut, Kornblume, Storchenschnabel, Hohlzahn **UMGESETZTE STRATEGIEN** • Spätere Aussaat zur Verlangsamung der Schädlingsentwicklung • Geringere Aussaatdichte • Verstärkte mechanische Unkrautbekämpfung • Erhöhter Anteil von Leguminosen in der Fruchtfolge • Permanente Bodenbedeckung, einschließlich Deckfrüchten und Untersaaten • Präzisionsspritzen **ZIELE UND MOTIVATION DES LANDWIRTES** • alternative Methoden / Lösungen finden, um den chemischen Pflanzenschutz auf das notwendige Maß zu reduzieren • umweltorientierte Pflanzenproduktion, artgerechte Tierhaltung und eine nachhaltige Energiegewinnung • Produktion von gesunden Lebensmitteln, nachwachsenden Rohstoffen und erneuerbaren Energien in lebenswerten und ökologisch intakten Kulturlandschaften **SCHLUSSFOLGERUNGEN** • Agronomisch: Arbeitsspitzen brechen (no-till statt pflügen) • Ökologisch: Bodengesundheit (Bodenleben), Humusgehalt und Fruchtbarkeit auf hohem Niveau halten, Oberflächengewässer & Grundwasser • Ökonomisch: Risikostreuung durch Fruchtfolge, Bessere Maschinenauslastung durch weniger Arbeitsspitzen • Sozial: Arbeitskräftegewinnung, Lohn auf Industrieniveau anheben, Akzeptanz beim Verbraucher sichern **Link zur vollständigen Broschüre**: https://www.ipmworks.net/toolbox/de/#/resource/646f1f97abdd4f6c5c7475f8

Practice "abstract" 2:

Short title in English	**IPMWORKS Hub: Arable crops system in Denmark [Landboforening]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Rønde, Mid Jutland, Denmark **AGRONOMICAL CONTEXT OF THE FARM** • 422 ha • Crops = Oat: 16%. Winter barley: 9%. Winter wheat: 13%. Winter rapeseed: 12%. Winter triticale: 23%. Spring barley: 6%. Spring barley with underseeded grass: 7% **MAIN PESTS** Weeds: Grass weeds, Primarily Italian Ryegrass **STRATEGIES IMPLEMENTED** • Increased diversity of crop rotation • Habitat creation for beneficial insects • Hand weeding in problematic areas **MAIN OBJECTIVES OF THE FARMER** • Knowledge sharing amongst other farmers • Identifying new tools and methods to handle the weed Italian Ryegrass **KEY CONCLUSIONS** • Agronomical: Focus on the optimal composition of crops I rotation to prevent a huge pest problem. • Economical: Continuously optimizing the machine park to fit to the farms needs. • Environmental: Not use more additives than actual needed, e.g. pesticides and mineral fertilization. • Social issues: Do not be problem for the surrounding social environment. Adapt to critique **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/643e58ceabdd4f6c5c74758f

Short title in native language	**IPMWORKS Hub: Markafgrødesystem i Danmark [Landboforening]**
Short summary for practitioners in native language	Gården er beliggende i Rønde, Midtjylland, Danmark **AGRONOMISK FORHOLD** • 422 ha • Havre: 16%. Vinterbyg: 9%. Vinterhvede: 13%. Vinterraps: 12%. vintertriticale: 23%. vårbyg: 6%. Vårbyg med græsudlæg: 7% **PRIMæRE SKADEVOLDERE** • Græs ukrudt, Primært italiensk rajgræs **IMPLEMENTEREDE STRATEGIER** • Øget mangfoldighed i sædskiftet • Skabelse af levesteder for gavnlige insekter • Håndlugning i problematiske områdern **FORMÅL OG MOTIVATION HOS LANDMANDEN** • Prjektet kan medvirke til gode oplevelser og vidensdeling landmænd i mellem. • Med et fokus på italiensk rajgræs, kan projektet forhåbentlig vise vejen med nye værktøjer og metoder til at bekæmpe ukrudt. **PRIMæRE KONKLUSIONER** • Agronomisk: Fokus på optimering af sædskiftet, ift. at forebygge problemer med store skadevolder. Øknomisk: Vedvarende optimering af maskinparken, så den passer lige præcis til behovet på bedriften. • Miljømæssigt: Lad være med at bruge flere tilsætningsstoffer end der er behov for, f.eks. Pesticider og handelsgødning. • Socialle forhold: Lad være med at være et problem for lokalmiljøet. Lyt til kritik. **Link til det komplette hæfte**: https://ipmworks.net/toolbox/da/#/resource/643e58ceabdd4f6c5c74758f

Practice "abstract" 3:

Short title in English	**IPMWORKS Hub: Arable crops system in Denmark [Velas]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Broby, Funen, Denmark **AGRONOMICAL CONTEXT** • 312 ha in grain-based crop rotation • Winter wheat: 43% • Spring barley: 25% • Oil-seed rape: 12% • Oat (spring): 2% • Rye-grass for grass seed production: 5% **MAIN PESTS** • Resistant Italian ryegrass **STRATEGIES IMPLEMENTED** • Autumn ploughing to encourage grass weed germination prior to crop establishment • Increased proportion of spring crops in the rotation • Delayed sowing • Avoidance of ALS herbicides • Rotational ploughing every 4-5 years **MAIN OBJECTIVES OF THE FARMER** • Improved knowledge sharing between other farmers • Identification of new tools and methods to control Italian rye-grass **KEY CONCLUSIONS** • Agronomical: Focus on optimizing the crop rotation, in relation to keeping the grass weeds under control. • Environmental: Avoid using extra herbicides in relation to grass weeds. **Link to the complete booklet**: https://www.ipmworks.net/toolbox/da/#/resource/646f212fabdd4f6c5c747601

Short title in native language	**IPMWORKS Hub: Markafgrødesystem i Danmark [Velas]**
Short summary for practitioners in native language	Gården er beliggende i Broby, Funen, Danmark **AGRONOMISK FORHOLD** • 312 ha i kornrigt sædskifte • Vinterhvede: 43% • Vårbyg: 25% • Vinterraps: 12% • Havre: 2% • Rajgræs til frø: 17 ha **PRIMæRE SKADEVOLDERE** • Græsukrudt: resistent italiensk rajgræs **IMPLEMENTEREDE STRATEGIER** • Efterårspløjning for at fremme spiring af græsukrudt forud for etablering af afgrøder. • Øget andel af vårafgrøder i sædskiftet • Forsinket såning • Undgåelse af ALS herbicider • Rotationspløjning hvert 4-5 år **FORMÅL OG MOTIVATION HOS LANDMANDEN** • Projektet kan medvirke til gode oplevelser og vidensdeling landmænd i mellem. • Med et fokus på italiensk rajgræs, kan projektet forhåbentlig vise vejen med nye værktøjer og metoder til at bekæmpe ukrudt. **PRIMæRE KONKLUSIONER** • Agronomisk: Fokus på optimering af sædskiftet, ift. at holde græsukrudtet nede. • Miljømæssigt: Undgå at bruge ekstra herbicider ift. Græsukrudt. **Link til det komplette hæfte**: https://www.ipmworks.net/toolbox/en/#/resource/646f212fabdd4f6c5c747601

Practice "abstract" 4:

Short title in English	**IPMWORKS Hub: Arable crops system in Ireland [Teagasc]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Brownstown Navan, Co. Meath, Ireland **AGRONOMICAL CONTEXT OF THE FARM** • Crops grown include winter wheat, winter barley, winter oilseed rape, spring beans and cover crops. • Crops are established using a Vaderstadt rapid drill with minimum soil disturbance. • The cover crops are destroyed with a heavy disc before drilling with beans. • No ploughing has been carried out on the farm in a number of years. **MAIN PESTS** • Fungal diseases such as septoria, rynchosporium, net blotch • Aphid pests e.g. R Padi, and Mysus persicae which can spread Barley Yellow Dwarf Virus (BYDV) • Grass weeds, specifically Italian ryegrass, sterile brome although lesser now and wild oats **STRATEGIES IMPLEMENTED** • Cover crops and reduced ploughing to improve soil structure • Use of resistant wheat varieties • Pest monitoring • Increased diversity of crop rotation **MAIN OBJECTIVES OF THE FARMER** • To reduce dependence on pesticides • Make the farm more profitable • Crop rotation to improve soil structure • Pest monitoring to reduce **KEY CONCLUSIONS** • Monitoring crop for pests is important and carrying out in field observations/trials provide important information for crop agronomy during the season. • Wild oats seem to be less of an issue now than previously, however Italian ryegrass is an issue in certain fields. • The farmer only used an insecticide on a small area of winter barley in 2022 as part of a trial **Link to the complete booklet** : https://ipmworks.net/toolbox/en/#/resource/643e5b94abdd4f6c5c747596

Short title in native language	**IPMWORKS Hub: Arable crops system in Ireland [Teagasc]**
Short summary for practitioners in native language	The farm is located in Brownstown Navan, Co. Meath, Ireland **AGRONOMICAL CONTEXT OF THE FARM** • Crops grown include winter wheat, winter barley, winter oilseed rape, spring beans and cover crops. • Crops are established using a Vaderstadt rapid drill with minimum soil disturbance. • The cover crops are destroyed with a heavy disc before drilling with beans. • No ploughing has been carried out on the farm in a number of years. **MAIN PESTS** • Fungal diseases such as septoria, rynchosporium, net blotch • Aphid pests e.g. R Padi, and Mysus persicae which can spread Barley Yellow Dwarf Virus (BYDV) • Grass weeds, specifically Italian ryegrass, sterile brome although lesser now and wild oats **TECHNIQUES EMPLOYED ON THE FARM** • Crop establishment techniques, crop monitoring, constant knowledge updating, rotations all play, use of as many IPM techniques as possible all help to reduce the reliance on pesticides **MAIN OBJECTIVES OF THE FARMER** 1. To reduce dependence on pesticides 2. Make the farm more profitable 3. Crop rotation to improve soil structure 4. Pest monitoring to reduce **KEY CONCLUSIONS** • Monitoring crop for pests is important and carrying out in field observations/trials provide important information for crop agronomy during the season. • Wild oats seem to be less of an issue now than previously, however Italian ryegrass is an issue in certain fields. • The farmer only used an insecticide on a small area of winter barley in 2022 as part of a trial **Link to the complet booklet**: https://ipmworks.net/toolbox/en/#/resource/643e5b94abdd4f6c5c747596

Practice "abstract" 5:

Short title in English	**IPMWORKS Hub: Arable crops system in Italy [SSSA]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Spicchiaiola, Volterra (Tuscany), Italy **AGRONOMICAL CONTEXT** • 300 ha in a hilly area including 700 olive plants and 0.4 ha of vineyard and forest • Limited crop rotations (cereals, forage crops, pulses) • No or very rarely grown warm-season crops **MAIN PESTS** • Weeds: Italian ryegrass , Brassicacee ,Phalaris spp . • Cereals fungi diseases: Rusts, Septoria, Take all disease **STRATEGIES IMPLEMENTED** • No fertilizers or pesticides applied • Resistant cultivars • Early sowing and false seedbed preparation • Mechanical weeding • Intercropping wheat with lentil, sulla or clovers **MAIN OBJECTIVES OF THE FARMER** • Reduce weed pressure and improve N soil content. • Cope with summer drought and have the soil covered. • Increased knowledge of intercropping which could be a good compromise to produce lentil which has a good price but is not easy to be grown as a sole crop (difficult harvesting and weed control) **KEY CONCLUSIONS** The way to organic farming full implementation • The combination of no fertilization and high soil tillage frequency and depth can deplete the soil fertility in the long term, it is important to find a good amendment or organic fertilizer • The transition to lower tillage operations can improve fertility and reduce the workload • The crop species are diversified but the rotation is limited to winter cereals and legumes • Intercropping techniques, cover crops and better residues management can be crucial factors and can give multiple benefits (cope with summer drought, improve soil fertility, reduce weed pressure, having a double revenue) • Landscape diversification (trees, field margins, agroforestry) can help in soil fertility and erosion reduction. **LIMITATIONS OF THE SYSTEM** • The post harvest lentil and durum wheat separation is not easy and results in higher workload. • The lentil relay seeding is more precise but it is prone to summer drought. • The contemporary seeding is better for water requirements but the machineries are not optimized for seeding two crops in alternate rows **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/643e5e41abdd4f6c5c74759b

Short title in native language	**IPMWORKS Hub: Il sistema dei seminativi in Italia [SSSA]**
Short summary for practitioners in native language	L'azienda si trova a Spicchiaiola, Volterra (Toscana), Italia **CONTESTO AGRONOMICO** • 300 ha in una zona collinare incluso 700 piante di olivo e 0.4 ha di vigneto, più bosco • Rotazioni limitate (cereali, colture foraggere, leguminose da granella) • Assenza o rara presenza di colture estive **PRINCIPALI AVVERSITà** • Infestanti : Loietto, Brassicacee , Phalaris spp . • Malattie fungine dei cereali : Ruggini, Septoriosi , Mal del piede **STRATEGIE IMPLEMENTATE** • Non vengono applicati fertilizzanti o pesticidi • Cultivar resistenti • Semina precoce e preparazione del falso letto di semina • Diserbo meccanico • Intercrocio del grano con lenticchie, sulla o trifogli **OBIETTIVO PRINCIPALE DELL'AGRICOLTORE** • Ridurre la pressione delle infestanti e migliorare il contenuto di N nel suolo. • Convivere con la siccità estiva e manenere il suolo coperto. • Le consociazioni possono aiutare e essere un buon compromesso per produrre lenticchia che spunta un buon prezzo e non è semplice da coltivare come coltura pura (difficoltà alla raccolta e nel controllo delle infestanti) **CONCLUSIONI CHIAVE** Il percorso verso la completa adozione della agricoltura biologica • La combinazione di assenza di ferti-lizzazione e l'alta frequenza di lavora-zioni del terreno può diinuire la ferti-lità del terreno nel lungo period, è importante trovare un valido ammen-dante e/o uno o più fertilizzanti orga-nici • La conversione verso un sistema con lavorazioni ridotte può migliorare la fertilità e ridurre il carico di lavoro • Le specie coltivate sono diverse ma la rotazione è di fatto limitata a cereal vernini e leguminose • Le consociazioni, le colture di co-pertura e una migliore gestione dei residui colturali possono essere fattori cruciali e dare molteplici bene-fici (convivere con la siccità estiva, migliorare la fertilità del suolo, ridurre la pressione delle nfestanti, avere un doppio reddit) • La diversificazione del paesaggio (alberi, siepi e margini dei campi, pratiche di agroforestazione) possono aiutare a migliorare la fertilità e a ridurre l'erosione del suolo **LIMITI DEL SISTEMA** • La separazione post raccolta di lenticchia e frumento duro non è semplice e porta ad un Maggiore carico di lavoro. • La trasemina primaverile della lenticchia è più precisa ma più suscettibile alla siccità estiva e la semina contemporanea autunnale soddisfa meglio il fabbisogno idrico ma le seminatrici non sono ottimizzate per seminare due colture a file alternate **Link al libretto completo**: https://ipmworks.net/toolbox/it/#/resource/643e5e41abdd4f6c5c74759b

Practice "abstract" 6:

Short title in English	**IPMWORKS Hub: Arable crops system in Poland [KPODR]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Kujawsko-Pomorskie, Lipnowski, Poland **AGRONOMICAL CONTEXT** • Farm size: 100ha • Crops: beetroot, winter rape, cereals (bristle and regular wheat, rye, triticale) grown without ploughing, peas, catch crops * Crop rotation: sugar beet->wheat->winter rape->wheat->pea->wheat (or rye/triticale)->sugar beet • Catch/Cover crops: winter catch crop for beetroot, straw left in the field, after rape, oats and phacelia as a catch crop before wheat; phacelia, lupins and oats before peas • Animal production: pigs 1000 head per year **MAIN PESTS** • CEREALS: aphids, fusariosis , powdery mildew, rhinchosporiosis, septoria, • RAPE rape beetle, turnip gall weevil, sclererotinia, • SUGAR BEET aphid and cabbage moth, Cercospora, Leaf Spot • PEA Fusarium wilt, Legume root rot • WEEDS common windgrass , comon poppy, red root amaranth , cornflower, field chamomile, lambsquarters , volunteer rape, grasses **STRATEGIES IMPLEMENTED** • Attraction of beneficial insects and pollinators • Biostimulants • Selection of resistant varieties adapted to soil and climatic conditions • No-tillage cultivation of cereals • Nighttime precision application of PPPs **MAIN OBJECTIVE OF THE FARMER** • Innovation and development of the farm's potential • Use of cereal mixtures, research and continuous search for the most effective varieties • Improved farm profitability • Reduction of PPP doses (30-50%) by using better and better adjuvants • Sharing knowledge and experience with other farmers, • Testing new machines and technological solutions, certification for quality systems and striving for agriculture and carbon agriculture **KEY CONCLUSIONS** • Analysis of soil, its structureand profile, selection of varieties resistant to drought, diseases, heat stress and appropriate crop rotation and the use of catch crops. • Management of fertilization and PPP including pest monitoring analyses, and the use of adjuvants alongside with water acidification in order to reduce the dose of PPP used. • Rethinking whether the use of PPP is necessary and economically justified **LIMITATIONS OF THE SYSTEM** • Costs of purchasing modern equipment - need to be careful not to over-invest in equipment • Integrated Production and carbon farming are the next challenges **Link to the complete booklet**: https://www.ipmworks.net/toolbox/en/#/resource/646f4d76abdd4f6c5c747608

Short title in native language	**IPMWORKS Hub: System roślin uprawnych w Polsce [KPODR]**
Short summary for practitioners in native language	Gospodarstwo znajduje się w województwie Kujawsko-Pomorskim, Lipnowski, Polska **KONTEKST ROLNICZY** • Uprawy: burak, rzepak ozimy, zboża (pszenica oścista i nieoścista, żyto, pszenżyto) uprawiane bezorkowo, groch, międzyplony • PŁodozmian: burak->pszenica->rzepak ozimy->pszenica ->groch->pszenica (lub żyto/pszenżyto)->burak • Poplony/Międzyplony: poplon zimowy pod burak, słoma pozostawiana na polu, po rzepaku owies i facelia jako międzyplon przed pszenicą; facelia, łubin i owies przed grochem • Produkcja zwierzęca: Trzoda 1000 sztuk rocznie Wielkość gospodarstwa: 100ha **GłóWNE SZKODNIKI** ZBOŻA mszyce, pluskwiaki równoi różnoskrzydłe, fuzarioza, mączniak prawdziwy, rynchosporioza zbóż, septorioza RZEPAK słodyszek, chrząszcze, zgnilizna twardzikowa, chwościk BURAKI mszyca, śmietka kapuściana GROCH fuzaryjne więdnięcie, zgnilizna korzeni roślin, strączkowych CHWASTY miotła zbożowa, mak, szarłat szorstki, chaber bławatek, rumian polny, chaber bławatek oraz, komosa, rzepak samosiew, rumian jednoliścienne WDROŻONE STRATEGIE • Przyciąganie pożytecznych owadów i zapylaczy • Biostymulanty • Wybór odpornych odmian dostosowanych do warunków glebowych i klimatycznych • Uprawa zbóż bez orki • Precyzyjne stosowanie PPP w nocy **CELE I MOTYWACJA ROLNIKA** • Innowacyjność, rozwój potencjału gospodarstwa, stosowanie mieszanek zbóż, badanie i ciągłe poszukiwanie najbardziej efektywnych odmian, rentowność gospodarstwa, zmniejszenie dawek ŚOR (30-50%) przez użycie coraz lepszych adiuwantów, • dzielenie się wiedzą i doświadczeniem z innymi rolnikami, • testowanie nowych maszyn i rozwiązań technologicznych, certyfikacja w systemach jakości oraz dążenie do rolnictwa 4.0 i rolnictwa węglowego **GłóWNE WNIOSKI** • Analiza gleby, struktury, profilu, dobór odmian odpornych na susze, choroby, stres cieplny oraz odpowiedni płodozmian i stosowanie poplonów/ międzyplonów. • Zarządzanie nawożeniem i ŚOR z uwzględnieniem monitoringu agrofagów i analiz oraz stosowanie adiuwantów i zakwaszania wody, w celu obniżenia dawki stosowanego ŚOR. • Przemyślenie, czy zastosowanie ŚOR jest konieczne i ekonomicznie uzasadnione. **OGRANICZENIA SYSTEMU** • Koszty zakupu nowoczesnego sprzętu **Link do pełnej broszury**: https://www.ipmworks.net/toolbox/pl/#/resource/646f4d76abdd4f6c5c747608

Practice "abstract" 7:

Short title in English	**IPMWORKS Hub: Arable system in Spain [INTIA]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Valdorba, Navarra, Spain **AGRONOMICAL CONTEXT** • 160 ha • Wheat-Barley-Wheat-Alternative **MAIN PESTS** • Yellow rust / wheat • Lolium **STRATEGIES IMPLEMENTED** • No tillage • Resistant varieties • Delayed sowing dates **MAIN OBJECTIVES OF THE FARMER** • Trying to reduce the use of pesticides but maintaining high productivity and profitabily **KEY CONCLUSIONS** • Very small plots which difficult the management of the farm • The most difficult pest to control is Lolium. The control has improved since he delates the sowing date • The use of fungicides decreses with changing climatic conditions and the use of tolerant varieties in wheat. **Link to the complete booklet**: https://www.ipmworks.net/toolbox/en/#/resource/6479ab3fabdd4f6c5c747618

Short title in native language	**IPMWORKS Hub: Sistema herbáceo en España [INTIA]**
Short summary for practitioners in native language	La explotación se encuentra en Valdorba, Navarra, España **CONTEXTO AGRONOMICÓ** • 160 ha • Trigo-cebada-Trigo-Cultivo alternativo • No laboreo **PRINCIPALES PLAGAS** • Roya amarilla / Trigo • Vallico **ESTRATEGIAS APLICADAS** • No labranza • Variedades resistentes • Fechas de siembra retrasadas **OBJETIVO Y MOTIVACIÓN DEL AGRICULTOR** • Tratar de reducir el uso de fitosanitarios manteniendo una alta productividad y rentabilidad **CONCLUSIONES** • Parcelas pequeñas que dificultan el manejo de la explotación. • El problema más importante es la gestión del vallico. Este problema se ha mejorado con el retraso de la fecha de siembra en algunos cultivos • El uso de fungicidas se está viendo reducido por una menor presión debido a las condiciones climáticas de la primavera y al mayor uso de variedades tolerantes. **Enlace al folleto completo**: https://www.ipmworks.net/toolbox/en/#/resource/6479ab3fabdd4f6c5c747618

Practice "abstract" 8:

Short title in English	**IPMWORKS Hub: Arable crop system in Serbia [BioSense]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Bački Vinogradi, Vojvodina, Serbia **AGRONOMICAL CONTEXT OF THE FARM** • Crop rotation: potato, corn, sunflower, barley • Processing according to the principles of Regenerative Agriculture • Cultivable area: 60 ha **MAIN PESTS** • Colorado Potato Beetle • Potato black spot and Potato blight • Ambrosia, White goosefoot and Scutch grass **STRATEGIES IMPLEMENTED** • No-till • Inter-row cultivation • Delayed sowing • Cover crops • Intercropping **MAIN OBJECTIVES OF THE FARMER** • Improvement of the quality of arable land • Reduction to the application of mineral fertilizers and pesticides, • Reduction of the participation of mechanical work and human work • Integration of agricultural activity into the surrounding landscape **KEY CONCLUSIONS** • Using IPM and Regenerative Agriculture, by harmonizing agronomic practices with natural processes and the environment, we reduce the pressure and impact on the natural environment. • As a result we get a reduction in the use of energy, human labor and inputs. At the same time, we increase the economy and profitability of production **LIMITATIONS OF THE SYSTEM** • Sandy soil and the need for irrigation **OPPORTUNITIES TO DEVELOP IN FUTURE** • Work on further increasing soil health. Increasing soil moisture capacity in order to reduce the need for irrigation. • Further reduction of pesticide application, with particular emphasis on minimizing herbicide use. • Further development of cover crops and combined crops (combined sowing of barley and peas, for example) **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/63dbd08d31a5b75f4cbaf7e9

Short title in native language	**IPMWORKS Hub: Sistem Ratske kulture u Srbiji [BioSense]**
Short summary for practitioners in native language	Farma se nalazi u Bački Vinogradi, Vojvodina, Serbia **AGRONOMSKE KARAKTERISTIKE** • Plodored: krompir kukuruz suncokret ječam • Obrada po principima Regenerativne poljoprivrede • Obradiva površina: 60 ha **GLAVNE BOLESTI I šTETOčINE** • Krompirova zlatica • Crna pegavost krompira (Alternaria) i Plamenjača krompira • Ambrozija, Pepeljuga i Zubača **SPROVOĐENE STRATEGIJE** • No-till • Međuredna kultivacija • Odložena setva • Pokrijte useve • Međusekovanje **GLAVNI CILJEVI POLJOPRIVREDNOG PROIZVODACA** • Unapređenje zdravlja parcele i oko parcele. • Osim azotnih, potpuno izostavljanje pirmene mineralnih đubriva. • Redukcija upotrebe pesticida u što većoj meri. • Povećanje održivosti gazdinstva. **KLJUčNI ZAKLJUčCI** • Usklađivanjem agronomskih praksi sa prirodnim procesima i okruženjem, pomoću IPM-a i Regenerativne poljoprivrede, smanjujemo pritisak i uticaj na prirodno okruženje. • Kao rezultat dobijamo smanjenju upotrebu energije, ljudskog rada i inputa. Istovremeno povećavamo ekomomičnost i profitabilnost proizvodnje. **OGRANIČENJA** • Peskovito zemljište i potreba za navodnjavanjem **Link do kompletne brošure**: https://ipmworks.net/toolbox/sr/#/resource/63dbd08d31a5b75f4cbaf7e9

Practice "abstract" 9:

Short title in English	**IPMWORKS Hub - Arable farm in Scotland, UK [James Hutton Institute]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Leven, Fife, Scotland - UK, part of the IPMWORKS network, Scottish Arable Hub **AGRONOMICAL CONTEXT OF THE FARM** • Crop Rotation: Winter Wheat Spring Barley Break Crop (Bean, Pea, Linseed, Oat or cereal/legume intercrops) • No Till Regenerative system • 340 ha arable area **MAIN PESTS** • Grass weeds – mainly Brome and Wild Oat • Yellow Rust/Septoria in Wheat & Rhynchosporium/Ramularia in Barley **STRATEGIES IMPLEMENTED** • Straw rake before drilling cover crops • Roller crimper to destroy cover crops before sowing • Increase rotation diversity, including cover crops • Intercropping of cereals and legumes **MAIN OBJECTIVES OF THE FARMER** • Limit inputs of PPP's to minimum to reduce financial risk with holistic approach to IPM. • Improve soil health through no-till crop establishment and grow cover crops for living roots over winter. • Work with nature rather than against it. **KEY CONCLUSIONS** • Moving away from ploughing means less work and energy used for establishment but this has been replaced by other operations to make the no-till + cover cropping successful • Grass weed burden remains the main issue in system – double straw raking to target brome before sowing cover crop has helped • Climate restricts potential to eliminate PPP use completely but targeted use gives significant reductions in input cost for both spring and winter crops • Diverse rotation with several species reduce disease and pest build up; inclusion of legumes reduces overall fertiliser use • Green cover, less soil disturbance and fewer fungicides help build a healthier soil rhizosphere with higher soil organic matter leading to healthier crops **LIMITATIONS OF THE SYSTEM** • Grass weed burden increase which often comes with a yield hit, requiring additional work to control and adding complexity to the system. • Wet, mild climate means PPP's use cannot be eliminated fully as crimping alone not effective for cover crop destruction and disease epidemics often occur during critical periods. **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/63dbc53631a5b75f4cbaf7db

Short title in native language	**IPMWORKS Hub - Arable farm in Scotland, UK [James Hutton Institute]**
Short summary for practitioners in native language	The farm is located in Leven, Fife, Scotland - UK, part of the IPMWORKS network, Scottish Arable Hub **AGRONOMICAL CONTEXT OF THE FARM** • Crop Rotation: Winter Wheat Spring Barley Break Crop (Bean, Pea, Linseed, Oat or cereal/legume intercrops) • No Till Regenerative system • 340 ha arable area **MAIN PESTS** • Grass weeds – mainly Brome and Wild Oat • Yellow Rust/Septoria in Wheat & Rhynchosporium/Ramularia in Barley **STRATEGIES IMPLEMENTED** • Straw rake before drilling cover crops • Roller crimper to destroy cover crops before sowing • Increase rotation diversity, including cover crops • Intercropping of cereals and legumes **MAIN OBJECTIVES OF THE FARMER** • Limit inputs of PPP's to minimum to reduce financial risk with holistic approach to IPM. • Improve soil health through no till crop establishment and grow cover crops for living roots over winter. • Work with nature rather than against it. **KEY CONCLUSIONS** • Moving away from ploughing means less work and energy used for establishment but this has been replaced by other operations to make the no-till + cover cropping successful • Grass weed burden remains the main issue in system – double straw raking to target brome before sowing cover crop has helped • Climate restricts potential to eliminate PPP use completely but targeted use gives significant reductions in input cost for both spring and winter crops • Diverse rotation with several species reduce disease and pest build up; inclusion of legumes reduces overall fertiliser use • Green cover, less soil disturbance and fewer fungicides help build a healthier soil rhizosphere with higher soil organic matter leading to healthier crops **LIMITATIONS OF THE SYSTEM** • Grass weed burden increase which often comes with a yield hit, requiring additional work to control and adding complexity to the system. • Wet, mild climate means PPP's use cannot be eliminated fully as crimping alone not effective for cover crop destruction and disease epidemics often occur during critical periods. **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/63dbc53631a5b75f4cbaf7db

Practice "abstract" 10:

Short title in English	**IPMWORKS Hub: Vegetable system in Belgium [INAGRO]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Hooglede, West-Flanders **AGRONOMICAL CONTEXT** • Cultivation in plastic tunnel greenhouses • A/B – fertilization system • Drain and recirculation • Utilised Agricultural Land = 3 ha plastic tunnels for zucchini **MAIN PESTS** Zucchini : Powdery mildew, Aphids, Whitefly, Pythium **STRATEGIES IMPLEMENTED** • Substrate cultivation in pots • A/B fertigation system with recirculation strategy • Virus resistant cultivars • Plastic mulching against weeds to minimise herbicide use **OBJECTIVES AND MOTIVATIONS OF THE FARMER** • Substrate cultivation as an evasion technique for soil-borne pathogens • Cultivation without herbicides • Transition to an almost organic system, as is the rest of the farm **KEY CONCLUSIONS** • By moving away from soilbound cultivation, soilborne diseases like fusarium are evaded. • Oomycetes like Pythium are to be controlled with hygiene measures. • Recirculation of the fertigation water optimizes the irrigation and nutrients in the cropping system • As complement to the organic farming practices in the other crops on the farm, biocontrol is used to control aphid populations • Labour organization and time needed is optimized! **Link to the complete booklet**: https://www.ipmworks.net/toolbox/en/#/resource/648700feabdd4f6c5c74761f

Short title in native language	**IPMWORKS Hub: Veld groenten in België [INAGRO]**
Short summary for practitioners in native language	De bedrijf is gelegen in Hooglede, West-Vlaanderen **AGRONOMISCHE CONTEXT** • Teelt in plastic tunnelserres • A/B – bemestingssyteem • Drain and recirculatie • Oppervlakte voor de courgettes onder afdekking = 3 ha **BELANGRIJKSTE ZIEKTEN EN PAGEN** Courgette: Witziekte, Bladluizen, Wittevlieg, Waterschimmels (Pythium) **GEÏMPLEMENTEERDE STRATEGIEËN** • Substraatteelt in potten • A/B fertigatie systeem met recirculatie strategie • Virusresistente cultivars • Plastic mulch tegen onkruid om het gebruik van herbiciden te minimaliseren **DOELSTELLINGEN EN MOTIVATIE VAN DE TELER** • Teelt op substraat als een strategie om bodemgebonden ziektes te vermijden • Teelt zonder gebruik van herbiciden • Zo veel als mogelijk volgen de teler een biologisch teeltschema, in lijn met de rest van het bedrijf Als het toegestaan zou zijn om te telen in substraat voor biologische landbouw zoals in de Verenigde Staten, zouden we graag overstappen op het biologisch telen van courgettes. **BELANGRIJKSTE CONCLUSIES** • Door af te stappen van grondgebonden teelt worden bodemziekten zoals Fusarium vermeden. • Oomyceten zoals Pythium moeten worden bestreden met hygiënemaatregelen. • Recirculatie van het fertigatiewater optimaliseert de irrigatie en voedingsstoffen in het teeltsysteem. • Als aanvulling op de biologische landbouwpraktijken in de andere gewassen op de boerderij, worden biologische bestrijders gebruikt om bladluispopulaties onder controle te houden. • Arbeidsorganisatie en benodigde tijd worden geoptimaliseerd! **Link naar het volledige boekje**: https://www.ipmworks.net/toolbox/nl/#/resource/648700feabdd4f6c5c74761f

Practice "abstract" 11:

Short title in English	**IPMWORKS Hub: Vegetable system in Finland [PROAGRIA]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Hollola, Päijät-Häme, Finland **AGRONOMICAL CONTEXT** • 55 hectare fields • Strawberry and green asparagus • Crop rotation: grass-grass-winter oilseed rape/winter cereal-faba bean-cereal/oil hemp • Organic farming **MAIN PESTS** • Weeds : Sonchus , Elymus repens • Strawberry: phytonemus pallidus and Botrytis cinerea **STRATEGIES IMPLEMENTED** • Cover crop mixes and maintaining green cover year-round • Biocontrol using mites to control Phytonemus pallidus • Use of bio-fungicides • Plastic covers and grass strips between rows to suppress weeds **MAIN OBJECTIVE OF THE FARMER** • Reduction of tillage • Improving environmental diversity in the farm ecosystem • Increasing green cover in fields through the year **KEY CONCLUSIONS** • Cultivating without chemicals needs more planning • The whole farm ecosystem must take for consideration • Most important thing for also pest management is that the soil is in good growing condition and there is lots of good microbes **Link to the complete booklet**: https://www.ipmworks.net/toolbox/fr/#/resource/6479aa48abdd4f6c5c747611

Short title in native language	**IPMWORKS Hub: Kasvisjärjestelmä Suomessa [PROAGRIA]**
Short summary for practitioners in native language	Tila sijaitsee Hollolassa, Päijät-Hämeessä **VILJELY** • 55 ha • Mansikka ja vihreä parsa • Viljelykierto: monilajinen nurmi 2 vuotta-rapsi tai syysvilja-härkäpapu tai öljysiemenhamppu • Luomu **TÄRKEIMMÄT KASVINTUHOOJAT** • Rikkakasvit: valvatit ja juolavehnä • Mansikan taudit: harmaahome • Mansikan tuholaiset: mansikkapunkki **TOTEUTETUT STRATEGIAT** • Peitekasviseokset ja viherpeitteen säilyttäminen ympäri vuoden. • Biologinen torjunta punkkien avulla Phytonemus pallidus -kasvintuhoojan torjumiseksi. • biosienimyrkkyjen käyttö • Muovipeitteet ja nurmikaistaleet rivien välissä rikkakasvien tukahduttamiseksi. **TAVOITTEET VILJELIJÄNÄ** • Vähentää maan muokkausta • Ympäristön monimuotoisuuden lisääminen • Kasvipeitteisyyden lisääminen **JOHTOPääTöKSET** • Kemikaalittoman viljelyn onnistuminen vaatii enemmän suunnitelmallisuutta • Koko maatilan viljelytoimenpiteet on huomioitava • Kasvinsuojelun onnistumiseksi maan kasvukunnon on tärkeä olla hyvä. Myös maamikrobitason tulee olla hyvä. **Linkki koko esitteeseen**: https://www.ipmworks.net/toolbox/fi/#/resource/6479aa48abdd4f6c5c747611

Practice "abstract" 12:

Short title in English	**IPMWORKS Hub: Vegetable system in Portugal [CONSULAI]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Tourinha, Mafra, Portugal **AGRONOMICAL CONTEXT OF THE FARM** • Open air crop rotation: lettuce with 4 plantings per year and Portuguese cabbage (only in winter) • Selection of varieties resistant to the main diseases • Utilised Agricultural Land = 5 ha **MAIN PESTS** • Lettuce: caterpillars , thrips (Thysanoptera), Botrytis cinerea, Downy mildew and Fusarium • Cabbage: caterpillars and aphids **STRATEGIES IMPLEMENTED** • Resistant varieties • Cover crops and flowers to provide natural enemy habitat • Release of natural enemies • Use of plastic covers to reduce herbicide needs • Application of bio-fungicides **MAIN OBJECTIVE OF THE FARMER** • Achieve the best quality of products: produce a clean and "beautiful" product with reduced use of PPPs **KEY CONCLUSIONS** • The producer has a high degree of mechanisation on the farm and therefore he has fossil energy use and energy costs, but he is trying to improve with some ideas to reduce the use of machines. He intends, in the future, to replant, in each season, without soil mobilization • The cultivation system has become more and more technical over time, which has added complexity • As it is practically the same crop all year and although the tasks vary from day to day, every week, the processes are repeated, which makes the work a little monotonous • There is more work in summer than in winter, which limits the distribution of work throughout the year. The problem of the lack of skilled labour is of great concern to the producer • With the major improvements at farm level, the producer can deliver a hazard-free product to customers, generating added value for his company **DISADVANTAGES OF THE SYSTEM** • Difficulty in large-scale production, which can limit the availability of food and thus make it more expensive for consumers • Possibility of requiring more manual labour, a resource which is very scarce • Lack of affordable and more sustainable production solutions and knowledge **Link to the complet booklet**: https://ipmworks.net/toolbox/en/#/resource/643e649babdd4f6c5c7475b7

Short title in native language	**IPMWORKS Hub: Sistema de hortaliças de campo em Portugal [Consulai]**
Short summary for practitioners in native language	A quinta situa-se em Tourinha, Mafra, Portugal **CONTEXTO AGRONÓMICO** • Rotação de culturas ao ar livre: 4 plantações de alface por ano e de couve portuguesa apenas no inverno • Seleção de variedades resistentes às principais doenças • Recurso ao controlo biológico, utilizando fungos, bactérias, ácaros e plantação de faixas de flores • SAU= 5 ha **PRINCIPAIS INIMIGOS DAS CULTURAS** • Alface: lagartas, tripes (Thysanoptera), Podridão cinzenta, Míldio e Fusarium • Couve: lagartas e afídeos **ESTRATÉGIAS IMPLEMENTADAS** • Variedades resistentes • Culturas de cobertura e flores para criar um habitat para os inimigos naturais • Libertação de inimigos naturais • Utilização de coberturas de plástico para reduzir as necessidades de herbicidas • Aplicação de bio-fungicidas **PRINCIPAL OBJETIVO DO AGRICULTOR** • Atingir a melhor qualidade dos produtos: produzir um produto limpo e "bonito" com utilização reduzida de PFs **CONCLUSõES PRINCIPAIS** • O produtor tem um elevado grau de mecanização na exploração o que, aumenta o uso de energia fóssil e os custos com energia; mas está a tentar melhorar ao ir considerando alternativas a esta utilização. Pretende, no futuro, replantar sem mobilizar o solo • O sistema de produção tem-se vindo a tornar cada vez mais técnico ao longo dos anos, o que tem vindo a adicionar complexidade ao processo • Como a alface é a cultura principal durante todo o ano, embora as tarefas variem ao longo das semanas, os trabalhos repetem-se, o que torna o processo produtivo um pouco monótono • Existe maior quantidade de trabalho no verão do que no inverno, o que limita a distribuição de trabalho ao longo do ano. O problema da falta de mão de obra especializada é uma grande preocupação para o agricultor • Com as grandes melhorias ocorridas a nível da exploração, o produtor consegue fornecer um produto sem riscos para os clientes, gerando um acréscimo de valor para a sua empresa **DESVANTAGENS DO SISTEMA** • Dificuldade de produzir em larga escala, o que pode limitar a disponibilidade dos alimentos e, assim, torná-los mais caros para os consumidores • Possibilidade de exigir maior trabalho manual especializado, um recurso que é muito escasso • Falta de soluções de produção acessíveis e mais sustentáveis e de conhecimento **Ligação para a brochura completa**: https://ipmworks.net/toolbox/pt/#/resource/643e649babdd4f6c5c7475b7

Practice "abstract" 13:

Short title in English	**IPMWORKS Hub example farm: Grapevine in Portugal [CONSULAI]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Albernoa, Beja, Portugal **AGRONOMICAL CONTEXT** • Varieties in the vineyard: Touriga Nacional, Alicante, Syrah, Aragonez, Trincadeira, Tinta Miúda, Arinto, Alvarinho, Sousão, Touriga Franca, Viosinho, Alfrocheiro, Roupeiro, Antão Vaz, Encruzado • Regenerative agriculture and biological techniques • Diversified farm: Vineyards (133 ha), olive grove, permanente grassland, animal production **MAIN PESTS** • Main weeds: Conyzas, malvas and grass • Main pests: Green leafhopper and aphids • Main diseases: Downy mildew, powdery mildew, scale, scoriawood **STRATEGIES IMPLEMENTED** • Mulching and inter-row key line sub-soiling to reduce soil compaction • Use of sheep grazing to reduce use of shredders and inter-row weeders • Permanent cover crops between rows and around field borders • Plating of hedgerows and pollinator mixes to provide on-farm habitats **KEY CONCLUSIONS** • Due to IPM and other techniques, the cultivation system has become more and more technical over time, which has added complexity • The farm has become less dependent on external factors as they no longer use herbicides nor pesticides, only biologic products • Although vine is a permanent crop, it has been integrated with different vegetation covers, permanent grazing and other plant structures such as shrubs and flowers, which improves the biodiversity of surrounding areas • Most pests are very well managed using mainly biological, cultural and mechanical practices **MAIN OBJECTIVE OF THE FARMER** • Adapt agricultural practices to climate change and incorporating them into the surrounding landscape, in order to implement a more sustainable and “risk-free” agriculture • Less dependence on external factors, such as reducing the need of organic material • Improve conditions for employees and surrounding community **ADVANTAGES OF THE SYSTEM** • Less dependence on external factors by replacing herbicides with more innovative and sustainable techniques, which are environmental harmless • More access to environmental certifications linked to the sustainability of the grapes produced with positive consequences on the promotion of the wines **LIMITATIONS OF THE SYSTEM** • New techniques may require more skilled labour, a resource that is very scarce today, especially in the farm region (Alentejo) • Practices that lead to additional production costs and huge crop adaptation at the beginning **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/643e625fabdd4f6c5c7475ae

Short title in native language	**IPMWORKS Hub: Sistema vitícola em Portugal [Consulai]**
Short summary for practitioners in native language	A quinta situa-se em Albernoa, Beja, Portugal **CONTEXTO AGRONÓMICO** • Castas: Touriga Nacional, Alicante, Syrah, Aragonez, Trincadeira, Tinta Miúda, Arinto, Alvarinho, Sousão, Touriga Franca, Viosinho, Alfrocheiro, Roupeiro, Antão Vaz, Encruzado • Aplicação de agricultura regenerativa e práticas biológicas • Exploração diversificada: Vinhas (133 ha), olival, pastagens permanentes, produção animal **PRINCIPAIS INIMIGOS DA CULTURA** • Principais infestantes: Conyzas, malvas e gramíneas • Principais pragas: cigarrinha verde e aranhiço amarelo • Principais doenças: míldio, oídio, doenças do lenho (Esca, escoriose) **ESTRATÉGIAS IMPLEMENTADAS** • Mulching e subsolagem entre linhas-chave para reduzir a compactação do solo • Utilização de pastoreio de ovelhas para reduzir a utilização de trituradores e de mondas entre fileiras • Culturas de cobertura permanentes nas entrelinhas e à volta dos limites dos campos • Plantação de sebes e misturas de polinizadores para criar habitats nas explorações agrícolas **PRINCIPAL OBJETIVO DO AGRICULTOR** • Adaptar as práticas agrícolas às alterações climáticas e incorporá-las na paisagem circundante, a fim de implementar uma agricultura mais sustentável e minimizando os riscos **CONCLUSõES PRINCIPAIS** • Devido à proteção e produção integrada e outras técnicas que se têm vindo a introduzir, o sistema de produção tornou-se cada vez mais técnico ao longo do tempo, o que aumentou a complexidade do sistema • A exploração tornou-se menos dependente de fatores externos, uma vez que já não utilizam herbicidas nem inseticidas, apenas produtos biológicos • Embora a vinha seja uma cultura permanente, foi integrada com diferentes coberturas vegetais, pastagens permanentes e outras estruturas vegetais tais como arbustos e flores, o que melhora a biodiversidade das áreas circundantes • A maioria das pragas são muito bem geridas utilizando principalmente práticas biológicas, culturais e mecânicas **LIMITE DO SISTEMA** • Novas técnicas podem exigir mão-de-obra qualificada, um recurso muito escasso nos dias de hoje, especialmente na região da exploração (Alentejo) • Práticas que conduzem a custos adicionais de produção e a uma enorme adaptação das culturas no início do processo **Ligação para a brochura completa**: https://ipmworks.net/toolbox/pt/#/resource/643e625fabdd4f6c5c7475ae

Practice "abstract" 14:

Short title in English	**IPMWORKS Hubs example farm: Grapevine in Slovenia [KGZS]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Svetinje, Ivanjkovci **AGRONOMICAL CONTEXT** • Vineyards 500 ha **MAIN PESTS/DISEASES** • European grapevine moth Lobesia botrana, European grape berry moth Eupoecilia ambiguela, American grapevine leafhopper Scaphoideus titanus, Grapevine powdery mildew Erysiphe necator, Downy mildew Plasmopara viticola, Grey mould Botrytis cinerea, Grapevine trunk diseases, ESCA **STRATEGIES IMPLEMENTED** • Non-chemical method of mating disruption used to suppress grape moth populations to reduce the number of insecticide applications **MAIN OBJECTIVE OF THE FARMER** • To decrease the use of pesticides and to use the mating disruption method against grapevine and grape berry moth. • Environmentally friendly production **KEY CONCLUSIONS** • The farmer replaced insecticide treatment with the IPM method to control the grape moth. Dispensers were used and the farmer monitored the number of male moths on pheromone traps weekly. Before harvesting, farmer learned to recognize damaged bunches and evaluate their percentage. • The method is plant protection products residue free method and by reducing the use of pesticides it contributes positively to a sustainable environment. • Educated buyers pay more and more attention to where and how the farmer grows grapes. Satisfied customers consequently influence the better economic and social position of the growers **LIMITATIONS OF THE SYSTEM** • The price is less acceptable, due to the cost of installation dispensers and labour costs **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/6407523b31a5b75f4cbaf856

Short title in native language	**IPMWORKS Hubs example farm: Vinska trta v Sloveniji [KGZS]**
Short summary for practitioners in native language	Kmetija se nahaja na Svetinje, Ivanjkovci **KMETIJSKA RABA** • Vinograd 500 ha **GLAVNI ŠKODLJIVCI/BOLEZNI** • Lobesia botrana, Eupoecilia ambiguela, Scaphoideus titanus • Erysiphe necator, Plasmopara viticola , Botrytis cinerea , ESCA **IZVEDENE STRATEGIJE** • Uporaba nekemične metode prekinitve parjenja za zatiranje populacije grozdnega moka, da se zmanjša število uporabe insekticidov **KLJUčNI SKLEPI** • Kmet je nadomestil tretiranje z insekticidi z metodo IPM za zatiranje grozdnega sukača. Uporabil je dispenzorje in je tedensko spremljal število moške populacije sukača na feromonskih pasteh. Pred obiranjem grozdja se je kmet naučil prepoznati poškodovane grozde in oceniti odstotek poškodbe. • Metoda je metoda brez ostankov fitofarmacevtskih sredstev in tako pozitivno prispeva k trajnostnemu varovanju okolju. • Izobraženi kupci so vedno bolj pozorni na to, kje in kako kmet prideluje grozdje. • Zadovoljni kupci posledično vplivajo na boljši ekonomski in socialni položaj pridelovalca. **OMEJITVE SISTEMA** • Cenovno je manj sprejemljiva, zaradi stroška namestitve dispenzerjev in pomanjkanje delovne sile **Povezava do celotne knjižice**: https://ipmworks.net/toolbox/sl/#/resource/6407523b31a5b75f4cbaf856

Practice "abstract" 15:

Short title in English	**IPMWORKS Hub example farm: Grapevine in Spain [FEUGA]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Meis , Rias Baixas, Galicia **AGRONOMICAL CONTEXT** • Alvariño grape: native Galician variety • 3 hectares of vineyards **MAIN PESTS** • Downy mildew Plasmopara viticola, Powdery mildew Erysiphe necator, Botrytis cinerea, Grape moth Lobesia botrana, green mosquito **STRATEGIES IMPLEMENTED** • Non-chemical method of mating disruption used to suppress grape moth populations • Reduced soil tillage • Cover crops • Pest monitoring and use of Decision Support Systems (DSS) • Installation of bat boxes to increase moth predation **MAIN OBJECTIVE OF THE FARMER** • Reduce the environmental impact of agricultural activity while maintaining crop profitability. **KEY CONCLUSIONS** • Agronomic issues Soil management using organic fertilisers and technical cover crops will reduce the dependency on chemical fertilisers. • Economic Cost reduction is achieved due to less use of chemicals and cover crop management while maintaining crop productivity. • Environmental Increase awareness and dissemination of more environmentally friendly techniques. • Social Increase environmental and economic sustainability, which will have an impact on the active population in rural areas **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/6407554f31a5b75f4cbaf85f

Short title in native language	**IPMWORKS Hub example farm: Vid en España [FEUGA]**
Short summary for practitioners in native language	La explotación se encuentra en Meis , Rias Baixas, Galicia **CONTEXTO AGRONÓMICO** • Uva albariño, variedad autóctona de Galicia. • 3 hectáreas de viñedos. **PRINCIPALES PLAGAS** • Mildiu (Plasmopara vitícola), Oídio (Erysiphe necátor), Botrytis cinerea, Polilla del racimo (Lobesia botrana), Mosquito verde **ESTRATEGIAS APLICADAS** • Utilización de un método no químico de interrupción del apareamiento para suprimir las poblaciones de polilla del racimo. • Reducción del laboreo del suelo • Cultivos de cobertura • Seguimiento de las plagas y uso de sistemas de ayuda a la toma de decisiones (SAD) • Instalación de cajas para murciélagos para aumentar la depredación de la polilla PRINCIPAL OBJETIVO DEL AGRICULTOR • Reducir el impacto medioambiental de la actividad agrícola manteniendo la rentabilidad del cultivo . **CONCLUSIONES** • Cuestiones agronómicas La gestión del suelo mediante el empleo de abonos orgánicos y cubiertas técnicas disminuirá la dependencia de abonos de origen químico • Económicas Se consigue una reducción de costes debido a un menor uso de productos químicos y la gestion de cubiertas manteniendo la productividad del cultivo • Medioambientales Ampliar la sensibilización y divulgación de técnicas más respetuosas con el medio ambiente. • Sociales Aumentar la sostenibilidad medioambiental y económica, que repercuta en la fijación de población activa en el rural **LIMITACIONES DEL SISTEMA** • Climáticas debido a la humedad y las altas precipitaciones en la region. **Enlace al folleto completo**: https://ipmworks.net/toolbox/es/#/resource/6407554f31a5b75f4cbaf85f

Practice "abstract" 16:

Short title in English	**IPMWORKS Hub example farm: Orchards in Italy [SSSA]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Monte Pisano (Tuscany), Italy **AGRONOMICAL CONTEXT OF THE FARM** • Contiguity between woods and centuries-old olive groves on terraced land with dry stone walls, grassed edges and related water canalization systems • High slopes • Olive trees varieties: frantoio, moraiolo, leccino, local varieties • Non-irrigated crops **MAIN PESTS / OLIVE TREES** • Insects: Olive fly Bactrocera oleae, Asian bed bugs (Halyomorpha halys • Cryptogams: Olive caries (Phellinus fresianus), Olive mange (Pseudomonas savastanoi) • Weeds: Black locust (Robinia) **STRATEGIES IMPLEMENTED** • Pest monitoring using chromotrophic traps • Grazing of hens under trees to help control fly larvae • Planting of aromatic and melliferous plants to increase pollinators and to maintain a balanced olive grove ecosystem. • Soil fertilization using bio-shredded prunings **MAIN OBJECTIVE OF THE FARMER** • Economically sustainable solutions and strategies as an alternative to chemistry. **KEY CONCLUSIONS** • The farmer fully understands the benefits coming out to his farm from a correct management of biodiversity and existing ecosystem services. • Especially after Dimethoate, the base product in the fight against the olive fly, was banned, his multifunctional choices are aimed to a complete renounce of chemical treatments to safeguard health of environment, workers and consumers. • Innovative methods are tested: own-produced essential oils used as a repellent and canopy spiders monitoring to consider the predation of olive fly spiders in the canopy. • The complexity of his cultivation system leads to a considerable workload, but there seems to be a high level of general satisfaction, of him and his entourage. **LIMITATIONS OF THE SYSTEM** • The great difficulties linked to the characteristics of the territory and the difficult mechanization require support from the political institutions. • Complex system results in increased workloa **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/643e6051abdd4f6c5c7475a6

Short title in native language	**IPMWORKS Hub : Sistema frutteto in Italia**
Short summary for practitioners in native language	L'azienda si trova a Monte Pisano (Toscana), Italy **CONTESTO AGRONOMICO** • Contiguità tra bosco e oliveti secolari su sistemazioni terrazzate con muretti a secco, ciglioni inerbiti e relativi sistemi di canalizzazione dell'acqua • Pendenza elevata dei terreni coltivati • Varietà di olivo: frantoio, moraiolo, leccino, varietà autoctone • Coltivazioni non irrigue **PRINCIPALI PARASSITI / OLIVO** • Insetti: Mosca dell'olivo Bactrocera oleae, Cimice asiatica Halyomorpha halys • Crittogame: Lupa o Carie dell'olivo Phellinus fresianus, Rogna olivo Pseudomonas savastanoi • Infestanti: Acacia (Robinia pseudoacacia) **STRATEGIE IMPLEMENTATE** • Monitoraggio dei parassiti con trappole cromotropiche • Pascolo di galline sotto gli alberi per aiutare a controllare le larve di mosca • Piantagione di piante aromatiche e mellifere per aumentare gli impollinatori e mantenere un ecosistema olivicolo equilibrato. • Fertilizzazione del terreno con potature biotriturate **OBIETTIVO PRINCIPALE DELL'AGRICOLTORE** • Adottare soluzioni e strategie economicamente sostenibili alternative alla chimica **CONCLUSIONI CHIAVE** • L'agricoltore comprende a fondo i benefici che possono derivare alla sua azienda da una corretta gestione della Biodiversità e dei servizi ecosistemici esistenti. • Soprattutto dopo che è stato bandito il Dimetoato, prodotto base nella lotta alla mosca, le sue scelte multifunzionali sono tese ad avvantaggiare l'oliveto rinunciando a trattamenti chimici e salvaguardando la salute dell'ambiente, di chi lavora e di chi consuma le sue produzioni. • Vengono testati metodi innovativi: oli essenziali di produzione propria utilizzati come repellente; monitoraggio dei ragni della chioma, come predatori della mosca dell'olivo. • La complessità del suo sistema colturale comporta un notevole carico di lavoro compensato però da un alto livello di soddisfazione generale, suo e del suo entourage. **LIMITI DEL SISTEMA** • La Le grandi difficoltà legate alle caratteristiche del territorio e alla difficile meccanizzazione necessitano di un supporto da parte delle istituzioni politiche. • Il progetto potrebbe aiutare l'olivicoltura del Monte Pisano ad essere riconosciuta come l'ultimo vero baluardo al mantenimento del sistema terrazzato e allo sviluppo agro-ecologico di quest'area. **Link al libretto completo**: https://ipmworks.net/toolbox/it/#/resource/643e6051abdd4f6c5c7475a6

Practice "abstract" 17:

Short title in English	**IPMWORKS Hub example farm: Greenhouse horticulture in Belgium [INAGRO]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Jabbeke, West Flanders **AGRONOMICAL CONTEXT** • Highly specialized in hydroponic cultivation of strawberries nursery and production) • Varieties: Sonsation and Elsanta • Horticulture area: 6,7 ha • Biological control, releasing natural enemies in the crop **MAIN PESTS** • Strawberries: Spider mites and aphids, Powdery mildew in late crop **STRATEGIES IMPLEMENTED** • Releasing natural enemies against aphids • Sticky traps to monitor & reduce whiteflies and thrips • Tolerant cultivar • Reduced no. of Fungicide sprays and Using low riks PPPs against Powdery mildew if possible **MAIN OBJECTIVE OF THE GROWER** • A sustainable and profitable strawberry crop with a limited use of insecticides and fungicides **KEY CONCLUSIONS** • The farmer replaced almost all his insecticide sprayings by natural enemies. He experimented during the project also with natural enemies to control aphids, but the strategy is time consuming and more expensive, than a pesticide application. Moreover, it asks a lot of expertise. • Low risk plant protection products are used against Powdery mildew, but Mathias is still looking for other alternatives. • A good climate and growth is maintained to reduce the infection by Botrytis. Further no alternatives are used yet, because the offer is very limitedand the efficiency is mainly lower. **LIMITATIONS OF THE SYSTEM** • Practices need more time for monitoring and more knowledge. • Some strategies are not ready yet to use in practice, because they are too expensive. **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/64074eed31a5b75f4cbaf84f B6

Short title in native language	**IPMWORKS Hub example farm: Glastuinbouw in België [INAGRO]**
Short summary for practitioners in native language	De boerderij is gelegen aan Jabbeke, West-Vlanderen **AGRONOMISCHE CONTEXT** • Gespecialiseerd in substraatteelt van aardbeien (plantopkweek en productie) • Rassen: Sonsation en Elsanta - Oppervlakte tuinbouwbedrijf: 6,7 ha • Biologische beheersing, uitzetten van biologische bestrijders in het gewas **BELANGRIJSKTE PLAGEN EN ZIEKTEN** • Aardbei : Spintmijten en bladluizen, Witziekte in najaarsteelten **GEÏMPLEMENTEERDE STRATEGIEËN** • Uitzetten van biologische bestrijders tegen bladluizen • Vangplaten om te monitoren en reduceren van wittevlieg en trips • Tolerant ras • Beperkt aantal fungicidebehandelingen / Gebruik van laag risico gewasbeschermingsmiddelen tegen witziekte indien mogelijk **HOOFDDOELSTELLING VAN DE TELER** • Een duurzame en rendabele aardbeienteelt met een gelimiteerd gebruik aan insecticiden en fungiciden **BELANGRIJKSTE CONCLUSIES** • De landbouwer verving bijna al zijn insecticidenbehandelingen door biologische bestrijders. Tijdens het project experimenteerde hij ook met biologische bestrijders om bladluizen te beheersen, maar de strategie is tijdrovend en duurder dan een toepassing van pesticiden. Bovendien vergt het veel expertise. • Tegen echte meeldauw worden gewasbeschermingsmiddelen met een laag risico gebruikt, maar Mathias zoekt nog steeds naar andere alternatieven. • Een goed klimaat en een goede plantontwikkeling worden gestimuleerd om de aantasting door Botrytiste beperken. Verder worden er nog geen alternatieven gebruikt, omdat het aanbod zeer beperkt is en de effectiviteit vooral lager ligt. **BEPERKINGEN** • Strategieën hebben meer nood aan tijd en expertise. Sommige strategieën zijn nog niet klaar voor gebruik in de praktijk , omdat ze te duur zijn **Link naar het volledige boekje**: https://ipmworks.net/toolbox/nl/#/resource/64074eed31a5b75f4cbaf84f

Practice "abstract" 18:

Short title in English	**IPMWORKS Hub: Greenhouse system in Spain [COEXPHAL]**
Short summary for practitioners in english on the (final or expected) outcomes	The farm is located in Níjar, Almeria, Spain **AGRONOMICAL CONTEXT OF THE FARM** • Greenhouse area: 3 ha • Sweet pepper, tomato and watermelon crops • Biological control use, releasing natural enemies in the crop, and interplanting flower strips **MAIN PESTS** • Aphids in sweet pepper and watermelon crops • Whiteflies and Tuta absoluta in tomato crops **STRATEGIES IMPLEMENTED** • Plastic mulch to prevent weeds and maintain soil moisture • Plantation of several species of beneficial plants (with flowers) to provide habitat and food resources to natural enemies • Mating disruption using pheromones • Biological fungicides • Sticky traps to monitor and reduce whiteflies and thrips • Release of natural enemies • Soil bio-solarization to reduce pathogen load **MAIN OBJECTIVE OF THE FARMER** • Limit or even eliminate in the short term the use of pesticides **KEY CONCLUSIONS** • The farmer understands the benefits of increasing biodiversity: pest pressure diminishes via a boost in biological control. • Released species live longer, have a higher reproduction rate and a control efficacy. Several beneficial insects arrives spontaneously. • The entire system, including the acquisition of extra plants and biocontrol agents has a cost which is the same as for control with pesticides in previous years. • The effect of biological control is far better than the effect of pesticide treatments. The biological balance avoids that aphids cause damage **LIMITATIONS OF THE SYSTEM** • Practices that often require a gradual increase of observation and knowledge, especially during the “transition” from conventional agriculture. **Link to the complete booklet**: https://ipmworks.net/toolbox/en/#/resource/63dbcbd031a5b75f4cbaf7e0

Short title in native language	**IPMWORKS Hub: Sistema de invernaderos en España [COEXPHAL]**
Short summary for practitioners in native language	La explotación está situada en Níjar, Almeria, Níjar, Almería, España **CONTEXTO AGRONÓMICO DE LA EXPLOTACIÓN** • Superficie de invernaderos: 3 ha • Cultivos: pimiento, tomate y melón • Uso de control biológico por conservación, con sueltas de enemigos naturales en el cultivo y siembra de plantas reservorio y bandas florales en el invernadero **PRINCIPALES PLAGAS** • Pulgón en pimiento y melón • Mosca blanca y Tuta absoluta en tomate **ESTRATEGIAS APLICADAS** • Mantillo de plástico para evitar las malas hierbas y mantener la humedad del suelo • Plantación de varias especies de plantas beneficiosas (con flores) para proporcionar hábitat y recursos alimenticios a los enemigos naturales • Interrupción del apareamiento mediante feromonas • Fungicidas biológicos • Trampas adhesivas para controlar y reducir la mosca blanca y los trips • Liberación de enemigos naturales • Biosolarización del suelo para reducir la carga de patógenos **OBJETIVO PRINCIPAL DE LA AGRICULTORA** • Limitar o incluso eliminar el uso de plaguicidas en sus invernaderos **CONCLUSIONES** • El agricultor entiende los beneficios de aumentar la biodiversidad: el nivel de plagas disminuye a través del control biológico. • Los auxiliares viven más tiempo, se reproducen y actúan mejor. Además, muchas especies entran de forma espontánea. • El sistema, incluyendo la adquisición de plantas y agentes de control biológico tiene un coste similar al convencional que usaba anteriormente. • El efecto del control biológico es mejor que el de los tratamientos químicos. El equilibrio biológico evita que los pulgones causen daño al cultivo. **LIMITACIONES DEL SISTEMA** • Estas prácticas requiren una dedicación de tiempo para observer y mejorar , especialmente durante la transición de agricultura convencional a ecológica **Enlace al folleto completo**: https://ipmworks.net/toolbox/es/#/resource/63dbcbd031a5b75f4cbaf7e0