Report on demonstrations in 2024-2025

Deliverable D3.6

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

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Report on Conducted Demonstrations in 2024-2025

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Abstract

On-farm demonstration events have been one of the major activities of the IPMWORKS project. Demonstrations are organized by IPMWORKS Hub Coaches, based on success stories of IPM adoption in farms engaged in the IPMWORKS network. The objective is to hit a large number of farmers from the region and to convince them that IPM-based strategies are efficient and cost-effective as soon as they are implemented consistently with a holistic approach to IPM.

This deliverable provides an overview of the IPM demonstration events held in 2024 - 2025 across each participating country and established hub during the fourth year of IPMWORKS. It includes:

- A summary of the IPMWORKS project,
- An introduction to the report's contents,
- A concise overview of the 2024 and 2025 demonstration events,
- Detailed descriptions of each event,
- A concluding section highlighting key aspects and outcomes of the 2024 - 2025 demonstrations.

Contents

1. IPMWORKS: Summary

Integrated Pest Management (IPM) is a sustainable approach to pest control that integrates various strategies, including preventative measures, non-chemical control methods, and techniques to optimize pesticide efficiency. By applying these methods at the farm level, IPM reduces reliance on chemical pesticides, thereby limiting environmental pollution and human exposure to harmful substances. While pioneer farmers across Europe have successfully implemented IPM strategies and achieved effective pest control with minimal pesticide use, the majority of European farmers still depend heavily on pesticides. This continued reliance has significant environmental and societal consequences, largely because many farmers have not yet adopted a comprehensive, farm-wide IPM strategy that integrates multiple techniques.

To accelerate the adoption of IPM practices, the EU-wide IPMWORKS initiative was established. This project is built around a demonstration network of farmers who actively develop and refine their IPM strategies. Through peer-to-peer learning and collaborative efforts, they continuously improve their approaches and demonstrate to other farmers that holistic IPM is both effective and economically viable.

At the core of IPMWORKS are regional hubs, each led by dedicated Hub Coaches who play a key role in facilitating knowledge exchange and supporting farmers in implementing customized IPM solutions. These coaches organize local demonstration events where successful IPM strategies are showcased, provide technical guidance to farmers, and promote the use of digital tools such as the 'IPM Decisions' platform, which offers decision-support systems for effective IPM implementation. They also collect and analyze data to compare different IPM strategies and share results through widely used agricultural channels, ensuring that success stories reach a broad audience.

To strengthen knowledge dissemination, IPMWORKS develops extensive training materials and organizes workshops aimed at both farmers and advisory services. These resources, available through the IPMWORKS website and the IPM Resource Toolbox, provide practical guidance on IPM implementation and support the long-term transition toward sustainable, low-pesticide farming across Europe. By fostering a culture of peer learning and collaboration, IPMWORKS is not only driving immediate improvements in pest management but also ensuring that IPM principles continue to spread and gain traction beyond the project's duration.

Project Acronym	IPMWORKS
Project title	An EU-wide farm network demonstrating and promoting cost-effective IPM strategies
Grant agreement No.	101000339
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2. Introduction

IPMWORKS organizes multiple demonstration events each year in every hub of the participating countries. Each IPMWORKS hub is required to organize at least ten demonstration events over the course of the project. These events aim to promote Integrated Pest Management (IPM) within local farming communities, highlighting success stories of IPM adoption on IPMWORKS farms and showcasing innovative techniques tested or implemented within the network. At the start of the project, guidelines were provided to support Hub Coaches in organizing these events effectively and maximizing their impact. A demonstration event may focus on a specific solution for pest management and pesticide reduction. However, each event should also address how this solution fits into a broader IPM strategy at the farm level, considering both its technical effectiveness and cost efficiency. To assess the impact of the events, exit polls are conducted at the end of each demonstration to gather feedback from attendees.

This document provides an overview of all demonstration events carried out within the project in 2024 - 2025. For each event, the following details are included:

- Event title, hub member, country, date, location, and number of visitors
- General topic and addressed pests and/or weeds
- Description of the IPM strategies presented during the event
- Goal and short description of demonstration.

A detailed description of this information follows in the next section.

3. Demonstration events in 2024 - 2025

Demonstration events overview

The table below provides an overview of the demonstration events organized for IPMWORKS in 2024 - 2025. It includes the event title, hub member, country, date (month) and the number of visitors for each demonstration. In total, 79 demonstrations were held in 2024 and 2025, attracting 3877 visitors.

Table 1: Demonstration events organized in 2024/2025

Sector	Event title	Hub	Country	Date	Number of visitors
Arable Crops	Study meeting: chemical control and spraying techniques for IPM	WUR	Netherlands	April	24
	PDO trials in winter barley, winter triticale and winter wheat	KPODR	Poland	June	10
	Crop rotation as a basic element of integrated plant protection	KPODR	Poland	June	9
	The use of nitrogen bacteria in corn cultivation	KPODR	Poland	July	14
	Beet&weheat field day	KPODR	Poland	July	26
	WOSR In-Field Comparison - field visit	JHI	Scotland UK	April	8
	Regenerative Techniques and New Cropping Opportunities	JHI	Scotland UK	July	280
	Using Evidence to Build Resilience	JHI	Scotland UK	August	500
	Agroecology training day - Intercropping and genetic diversity	SSSA	Italy	April	22
	Field day: innovation in weed control for organic agriculture in Tuscany	SSSA	Italy	May	51
	Selection of durum wheat varieties for organic agriculture	SSSA	Italy	May	17
	Agroecology day	SSSA	Italy	June	63
	Biological protection with drones against European corn borer	SSSA	Italy	July	63
	IPM prevention and/or suppression: Pesticide selection and anti resistance strategies	VELAS	Denmark	June	300
	Seeding time and grassweeds applied with different chemical solutions	VELAS	Denmark	June	400
	Different tillage regimes and how strategic ploughing can burry weed seeds	VELAS	Denmark	June	13
	Sowing rate in relation to weed competition	VELAS	Denmark	June	15
	Different advances in research within IPM, especially focusing on grass weed monitoring	VELAS	Denmark	October	31
	Introducing farmers to digital tools and modern methods in agriculture.	Biosense	Serbia	February	12
	Application of biological agents in the protection of tomatoes	Biosense	Serbia	April	15
	Application of biostimulator in sweet corn with unmanned aerial vehicle (UAV)	Biosense	Serbia	May	14
	Application of biocontrol agents by UAVs in sweet corn production	Biosense	Serbia	August	14
	Fertilization of arable crops in middle zone of Navarra	INTIA	Spain	April	16
	Field visit to arable crops	INTIA	Spain	May	13
	Explanation of the soil profile characteristic of the area	INTIA	Spain	October	30
	Fertilization trial results	INTIA	Spain	November	27
	Web Seminar "What role do biodiversity-promoting aspects play in the planning of cropping processes?	JKI	Germany	March	6
	Cultivar choice; potential of nursery crops in oilseed rape; DSS´s	JKI	Germany	May	26
	Mechanical weeding and use of dss´s in IPM; Talk and workshop with farmers from the national network for integrated plant production	JKI	Germany	June	40
	From trial to farm level - diversified crop rotation in sense of holistic IPM; mechanical Weeding; DSS	JKI	Germany	June	19
	Leguminosa in grassland - potentials and limits in IPM	GLZ	Germany	March	19
	Groundwater management	GLZ	Germany	April	16
	Water Protection	GLZ	Germany	April	15
	RumboJet	GLZ	Germany	June	35
	Drone Software	GLZ	Germany	June	35
	IPM and grassland management	GLZ	Germany	June	35
	Cover crop management	TEAGASC	Ireland	January	60
	Use of organic manures in winter cereal	TEAGASC	Ireland	April	100
	BYDV control in winter barley	TEAGASC	Ireland	May	15
	IPM in practice in potatoes	TEAGASC	Ireland	May	60
	Transitioning into organic tillage production	TEAGASC	Ireland	July	60
Greenhouse	The use of different varieties of soil-grown strawberries	INAGRO	Belgium	May	6
	Showing holistic IPM	INAGRO	Belgium	May	100
	Use of biological control agents against aphids	INAGRO	Belgium	May	7
	Use of different varieties and banker plants to support beneficials against aphids	INAGRO	Belgium	September	49

Sector	Event title	Hub	Country	Date	Number of visitors
Orchard	Olive tree pruning: chopping and use of crop residues	SSSA	Italy	May	10
	Weeding the olive grove: management, benefits, opportunities	SSSA	Italy	June	8
	Weather station and digital technologies to optimise actions and technical interventions	SSSA	Italy	July	8
	Olive fly monitoring and sustainable solutions for its control	SSSA	Italy	July	10
	Farm diversification: chickens in the olive grove to contain the olive fly and other pest	SSSA	Italy	September	18
Vegetables	Webinar - Sustainable control of late blight	Delphy	Netherlands	March	85
	Field-demonstration spotsprayer EcoRobotix ARA	Delphy	Netherlands	June	52
	Weed control & bean fly	Delphy	Netherlands	June	18
	Demo of FarmDroid	Delphy	Netherlands	June	18
	Sustainable weed control in onions	Delphy	Netherlands	July	15
	Holistic IPM view is not easy	INAGRO	Belgium	February	81
	Holistic IPM view is not easy	INAGRO	Belgium	March	52
	Fruit setting and cultivars	INAGRO	Belgium	May	15
	Cultivars, irrigation and powdery mildew control	INAGRO	Belgium	August	5
	How precision agriculture can help farmers to implement and upgrade IPM practices	CONSULAI	Portugal	April	13
	Biological control & Observation/Identification of Beneficials insects using stereoscopic loupes	CONSULAI	Portugal	January	10
	Soft fruit and berry farmers foundation annual meeting	ProAgria	Finland	February	7
	IPMWORKS national workshop Finland	ProAgria	Finland	March	18
	Summer excursion of the plant protection society's garden section	ProAgria	Finland	June	25
	Integrated farming and wearable technology in primary production -seminar	ProAgria	Finland	August	16
	Stakeholder hub farm visit	ProAgria	Finland	September	14
	Lepaa 60th Horticultural Exhibition	ProAgria	Finland	August	60
	E-learning Training Event on IPM	ProAgria	Finland	September	14
Vineyard	Soil fertility and microbiology in the vineyard	CONSULAI	Portugal	February	9
	Reducing the use and risk of pesticides	CONSULAI	Portugal	April	12
	The importance of biodiversity for the phytosanitary protection of vines	CONSULAI	Portugal	May	10
	Planting seeds of change in integrated pest management for a more sustainable viticulture	FUEGA	Spain	May	38
	Demoviña	FUEGA	Spain	July	400
	Innovation in organic waste treatment: composting and vermicomposting	FUEGA	Spain	July	30
	Conventional and organic farming	AUA	Greece	April	11
	Integrated Fertilization Management	AUA	Greece	September	15
	Smart spraying applications of PPTs	AUA	Greece	October	50
	Does IPM work?	AUA	Greece	November	20
	The role of organic matter in soil health for IPM	AUA	Greece	December	20
	Total number of visitors				**3877**

Realization and planning

A cumulative total of 250 demonstrations were conducted over the years 2021 till 2025. Table 2 provides an overview of the demonstration events organized within IPMWORKS all along the project duration. Each Hub reached or exceeded the expected number of 10 demo events, and the total number of events largely exceeds the planned number of 220 events (22 hubs x 10 events). The key insights are:

- A total of 250 demonstrations were conducted during this period;
- 2021 had very few events (only 13 demonstrations), likely due to the impact of COVID-19;
- From 2022 onwards, the number of demonstrations increased significantly, with 65 in 2022, 93 in 2023, and 79 in 2024-2025;
- The events covered all sectors, namely arable farming, greenhouses, vegetable production, orchards, and vineyards.

Despite the challenges in 2021, the project recovered well and successfully organized a large number of demonstration events.

Table 2. Total number of demonstrations per hub, conducted in 2021 - 2024/2025

Hub	Sector	Partner	Country	Organized 2021	Organized 2022	Organized 2023	Minimum 2024/2025	Organized 2024/2025	Total 2021-2024/2025
2	Arable	WR	NL		4	5	1	1	10
5	Arable	KPODR	PL		4	3	3	4	11
6	Arable	JHI	UK		2	7	1	3	12
9	Arable	SSSA	IT		4	3	3	5	12
11	Arable	DL	DK	3	4	3			10
12	Arable	VELAS	DK		2	3	5	5	10
13	Arable	BIOSENSE	RS		2	5	3	4	11
15	Arable	INTIA	ES	1	3	2	4	4	10
17	Arable	JKI	DE		4	3	3	4	11
18	Arable	GLZ	DE		1	3	6	6	10
22	Arable	Teagasc	IE		7	6		5	18
19	Arable, vegetable, ornamentals	KGZ MB	SL	1	9	4			14
4	Greenhouse	INAGRO	BE		5	5		4	14
16	Greenhouse	COEXPHAL	ES	3	3	4			10
10	Orchards	SSSA	IT		2	3	5	5	10
1	Vegetables	Delphy	NL			7	3	5	12
3	Vegetables	INAGRO	BE		3	3	4	4	10
8	Vegetables	Consulai	PT	3	1	4	2	2	10
20	Vegetables	ProAgria	FI		1	7	2	7	15
7	Vineyards	Consulai	PT	2	1	4	3	3	10
14	Vineyards	FEUGA	ES		3	4*	3	3	10
21	Vineyards	AUA	Gr			5	5	5	10
		Totals		**13**	**65**	**93**	**56**	**79**	**250**

*in deliverable D3.5_Demonstrations 2023 one event of Feuga is missing, this event is included in this deliverable

Specifics of demonstration events

The next section provides detailed information for each demonstration event, including the event date, topic, relevant crops, pests and weeds, and a brief description of the demonstration's objective.

Arable crops

Netherlands, WUR

Location & time: Wageningen, 05/04/2024

- Topic of the demonstration: Chemical control and spraying techniques for IPM
- Number of visitors: 24
- Crops: General, and potato in combination with late blight specifically
- Pest/weeds addressed: *Phytophthora infestans*; general on weeds, pests and diseases
- IPM strategy and tools: Control of *Phytophthora infestans*: resistant varieties & spraying schedules; Spraying techniques, drift reduction techniques. Monitoring and mapping of pests, weeds and diseases.
- Goal and short description of demonstration:
  The approach for control of *Phytophthora infestans* was discussed. Next, experts on (precision) spraying techniques presented the latest insights for the application of PPPs. How to increase efficacy and simultaneously reduce the inputs of chemicals. The precise application (time and place) of PPPs can be supported by using spraying maps. Adequate monitoring of pests, weeds and diseases was also discussed.

Poland, KPODR

Location & time: Falęcin, 11/06/2024

- Topic of the demonstration: variety trials in winter barley, winter triticale and winter wheat
- Number of visitors: 10
- Crops: winter barley, winter triticale, winter wheat
- Pest/weeds addressed: Cereal leaf beetle, aphids, saddle gall midge, cornflower, black-grass
- IPM strategy and tools: constant and precise monitoring, different treatment intensity
- Goal and short description of demonstration:
  The demonstration was aimed at introducing farmers to the varieties of the company's Registered Varietal Experimentation (PDO) trials. The company/farm conducts field experiments of various sorts for the evaluation of crop varieties for their suitability for cultivation in the Kujawsko-Pomorskie region. Some trials are conducted in variants with and without chemical protection. Farmers were interested in the topic. They were eager to ask questions and lead the discussion.

Location & time: Drzewianowo, 28/06/2024

- Topic of the demonstration: Crop rotation as a basic element of integrated plant protection
- Number of visitors: 9
- Crops: Common arable crops in region
- Pest/weeds addressed: weeds and polyphagous pests in crop rotation
- IPM strategy and tools: Crop rotation, sustainable fertilization and minimization of pest emergence in crop rotation
- Goal and short description of demonstration:
  The meeting covered the topics of crop rotation, sustainable fertilization and sustainable use of pesticides on farms typical for the Kuyavy region. Optimization of natural resources and reduction of fertilization in accordance to production outputs.

Location & time: Kruszka, 08/07/2024

- Topic of the demonstration: The use of nitrogen bacteria in maize cultivation
- Number of visitors: 13
- Crops: Maize
- Pest/weeds addressed: no specific focus on pests and weeds
- IPM strategy and tools: Crop rotation, biologization, reduction of synthetic fertilizers
- Goal and short description of demonstration:
  The meeting covered the topics of crop rotation, reduction of the dose of artificial fertilizers, detection of pests and appropriate agrotechnics.

Location & time: Tłuchowo, 09/07/2024

- Topic of the demonstration: Beet & wheat field day
- Number of visitors: 26
- Crops: Sugar beet and wheat
- Pest/weeds addressed: *Cercospora* leaf spot
- IPM strategy and tools: Crop rotation, microbiological products, cultivar mixtures and selection
- Goal and short description of demonstration:
  The aim of the event was to demonstrate the cultivation of sugar beet and winter wheat using microbiological products. The farmer showed how the plants were protected from pathogens and also pests. The demonstration attracted interest.

Scotland, JHI

Location & time: Balbeggie, 08/04/2024

- Topic of the demonstration: WOSR In-Field Comparison - field visit
- Number of visitors: 8
- Crops: Arable crops

- Pests/weeds addressed: weeds and pests in general
- IPM strategy and tools: Companion cropping WOSR with buckwheat & clover
- Goal and short description of the demonstration:
  Demonstration was an HUB farm visit, including a crop walk, the second year of testing the new technique of companion crop in WOSR, experimented with an in-field comparison trial. The agenda of the event included:
  - Host farmers' views and experiences after companion crop establishment;
  - Targeted applications of PPP for effective results, where timing is considered more important than treatment load
  - Use of agroecological practices where there is a net benefit to productivity.

Location & time: Balruddery, 02/07/2024

- Topic of the demonstration: Regenerative Techniques and New Cropping Opportunities
- Number of visitors: 280
- Crops: crops in general
- Pests/ weeds addressed: various
- IPM strategy and tools: Integrated management as a holistic approach represented by the breadth and variety of exhibitors on site. The demo plots and simulator captured the management practices from cropping platform trials in person and virtually.
- Goal and short description of the demonstration:
  As part of the Arable Scotland event - IPM techniques discussed using a simulator tool, regenerative platform crop walk, new crops for area (intercrop and flax), machinery demonstrations. Integrated pest management was presented as a holistic approach represented by the breadth and variety of exhibitors on site. The demo plots and simulator captured the management practices from cropping platform trials in person and virtually. Novel crops were presented for extended rotations to reduce pest and disease pressure.

Location & time: Balruddery, 08/08/2024

- Topic of the demonstration: Using Evidence to Build Resilience
- Number of visitors: 500
- Crops: main focus on potato
- Pests/ weeds addressed: Main focus was on aphids as virus vectors
- IPM strategy and tools: Cultural controls for aphid virus vectors, including strategies to disguise and detect in a data driven approach
- Goal and short description of the demonstration:
  This IPM demonstration focused on potato crop was part of a larger event with field plots, external exhibitors and machinery demonstrations. Aphid virus vectors were a major problem in 2024 and several exhibitors showed strategies for their cultural control and risk management. Theme was a hot topic and the joint approach to demonstration was effective as a part of the larger event. Plot demos were linked and followed a theme. Important messages communicated effectively with virus problems being a big issue in 2024.

Italy, SSSA

Location & time: San Piero a Grado (Pisa), 30/04/2024

- Topic of the demonstration: Agroecology training day - Intercropping and genetic diversity
- Number of visitors: 22
- Crops: Legumes with cereals in various compositions
- Pest/weeds addressed: suppression of weeds in general
- IPM strategy and tools: Intercropping, genetic diversity exploitation
- Goal and short description of demonstration:
  Field Day on agro-ecological crop protection principles with a focus on a field visit on a set of field trials on intercropping and genetic diversity exploitation. The event was jointly organized with an organic farmer network from the Marche region (Consorzio Marche Biologiche) and co-funded by the Rural Development Program of Marche region.

Location & time: San Piero a Grado (Pisa), 23/05/2024

- Topic of the demonstration: Selection of durum wheat varieties for organic agriculture
- Number of visitors: 17
- Crops: durum wheat, emmer wheat, common wheat
- Pest/weeds addressed: weeds, diseases (Fusarium graminearum, Septoria spp., Puccinia spp.)
- IPM strategy and tools: Variety selection, weed competition, resistance to lodging, protein content, fungi diseases resistance
- Goal and short description of demonstration:
  Field Day to learn how to select desirable characteristics of durum wheat and to choose varieties, including characteristics like weed competition, resistance to lodging, protein content, fungi diseases resistance etc., with emphasis on concerns relevant for the organic farmers. The participants firstly were trained on the criteria for organic durum wheat varieties selection and breeding studied at the field trial, to know the process of selection and breeding. Later on, they gave points to 32 different durum wheat varieties. The event was jointly organized with an organic farmer network from the Marche region (Consorzio Marche Biologiche) and with the breeders of the Foundation who are working on this.

Location & time: Albinia (Grosseto), 30/05/2024

- Topic of the demonstration: Field Day: innovation in weed control for organic agriculture in Tuscany
- Number of visitors: 51
- Crops: Cereals
- Pest/weeds addressed: weeds in general
- IPM strategy and tools: non chemical integrated weed management
- Goal and short description of demonstration:
  A farm display and live demonstration of 4 machines useful for organic agriculture and

integrated weed management. Three machines out of four could be seen operational on the field by the participants, and all of the four with a representative of the brand. This made the presentation very practical and left a lot of time for participants to ask questions and to see how these machines work. The participants were divided in four groups who rotated between the demo stations with some minibuses. Together with this, we were given a room moment in which we had the chance to explain to each group some basic concepts of weed control in organic agriculture. The event is jointly organized with the organic farmers association of Tuscany and with a farm machines retailer who already organized with us a demo event in September 2023.

Location & time: San Piero a Grado (Pisa), 04/06/2024

- Topic of the demonstration: Agroecology day
- Number of visitors: 63
- Crops: Cereals, maize and other in crop rotation
- Pest/weeds addressed: weeds in general
- IPM strategy and tools: genetic diversity, species diversity and landscape diversity
- Goal and short description of demonstration:
  Showcase of innovations and new field trials concerning holistic IPM, agroecological crop protection, through landscape, genetic and agronomic diversity. The main goal was to deepen agroecology principles in three steps: genetic diversity, species diversity and landscape diversity. This allowed us to address IPM at different levels and to broaden the perspective on the agroecosystem. In general, the trials shown could be seen as a series of agronomic and preventive measures to help weed control, soil fertility and reduced fertilization dependency, increasing biodiversity, increasing crop health and crop tolerance to abiotic and biotic stresses. The different trials could explain well to participants that IPM is not a single technique but has to be seen in a holistic strategy to be adapted for each farm site, with the objective of stabilizing yields, cut costs and reduce the environmental pressure.

Location & time: Vecchiano (Pisa), 11/07/2024

- Topic of the demonstration: Biological protection with drones against European corn borer
- Number of visitors: 63
- Crops: maize
- Pest/weeds addressed: European corn borer
- IPM strategy and tools: Pest monitoring and early detection, biological control
- Goal and short description of demonstration:
  The demo event was very practical and very interesting to see. It gave the opportunity to participants to see how the drone works, how the pest monitoring is done and to understand the speed and the effectiveness of the application of the biocontrol agent on the fields. Being a small group allowed us to speak with the technicians and advisors present and to have a whole picture of the European corn borer management. The use of the parasitoid *Trichogramma brassicae* is a very good alternative to insecticides against the European corn borer. Matching the spread of the parasitoid with the effectiveness of a good drone operator makes the treatment without a working load for the farmer and at an affordable cost. The nice thing was that all the farmers of the

cooperative growing maize agreed to use this technique, thus enhancing the effectiveness of it at landscape scale.

Denmark, DL

No demo events were organized in 2024/2025, since DL had already reached the minimum of ten demo events based on the previous seasons.

Denmark, Velas

Location & time: Aarslev, 06/06/2024

- Topic of the demonstration: IPM prevention and/or suppression: Pesticide selection and anti-resistance strategies
- Number of visitors: about 300
- Crops: Wheat
- Pest/weeds addressed: Lolium perenne and other grass species
- IPM strategy and tools: When to seed wheat - belated sowing and weed competition
- Goal and short description of demonstration:
  The idea was to demonstrate delayed sowing, with advantages and weaknesses. The field plots were sown on 5/9 and 4/10 with wheat, and shortly after with ryegrass. On top of that a combination of herbicides was tested, yielding 23 plots with differing treatments. The trial was demonstrated at a public field day in June and much interest was shown from farmers. With the farmers, we thoroughly assessed the effectiveness of the treatments in regards to the sowing dates. We emphasized that management practices are important for the effectiveness of herbicides. There was a clear difference in weed pressure both between the plots with different sowing-dates and between the plots with different herbicides. It was clearly showed that many problems with weeds and "hard to kill" grasses can be avoided be applying the IPM management practices (in the instance delayed sowing). It also emphasized to the attendance (of roughly 300 farmers) that chemical solutions are at best suboptimal, if not applied with other weed management techniques at the same time.

Location & time: Aarhus, 13/06/2024

- Topic of the demonstration: Management of grass weeds through seeding time and different chemical solutions
- Number of visitors: about 400
- Crops: Wheat
- Pest/weeds addressed: *Lolium perenne* and similar grass-weed species
- IPM strategy and tools: Seeding time combined with different chemical solutions.
- Goal and short description of demonstration:
  The idea was to demonstrate delayed sowing, with advantages and weaknesses. The field plots were sown on 5/9 and 4/10 with wheat, and shortly after with ryegrass. On top of that a combination of herbicides was tested, yielding 23 plots with differing treatments. The trial was demonstrated at a public field day in June and much interest was shown from farmers. With the farmers, we thoroughly assessed the effectiveness

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Location & time: Søndersø, 17/06/2024

- Topic of the demonstration: Different tillage regimes and how strategic ploughing can bury weed seeds and reduce weed infestation
- Number of visitors: 13
- Crops: Cereals (barley, wheat, canola)
- Pest/weeds addressed: Lolium perenne, Vulpia myuros, Alopecurus myosuroides – grass weeds
- IPM strategy and tools: Different tillage regimes, strategic ploughing, early ploughing, no-till etc.
- Goal and short description of demonstration:
  The goal was to demonstrate the effect of weed seed management in the soil. Where are the seeds and what can be done to combat their ability to sprout. During the event, we tried to assess the weed seed germination by manual monitoring (already also monitored by the Hub Coach beforehand), but we had to give up due to low emergence and survival of the weeds. The farmers' timeliness and awareness of IPM-tools to combat the grass weeds was raised. The attendees could see that IPM approaches succeeded in effectively reducing the soil seedbank, the seed germination and the survival of weeds. This demonstration was made in collaboration with Bayer who mounted their crop monitoring system to the combiner. It showed that there were very low differences of crop yields across treatments (with no significant difference). The demonstration also included the presentation of results from demonstration trials with logarithmic spraying and assessments of dose/response in relation to grass weed-herbicide resistance.

Location & time: Ejby, 03/06/2024

- Topic of the demonstration: Sowing rate in relation to weed competition
- Number of visitors: 15
- Crops: Oats and barley
- Pest/weeds addressed: Grasses and broadleaf species
- IPM strategy and tools: Prevention or suppression of weeds by:
  a. Competition through different spring cereals,
  b. Competition through differing sowing rates.
- Goal and short description of demonstration:
  The different sowing rates should suppress weeds due to shadowing and unidirectional competition. This was demonstrated – and it was clearly the case. We discussed this a lot, also in relation to tillering, seed prices etc. The general conclusion was that a higher

sowing rate works well for managing weeds, even though some grass species are very hard to suppress. It seemed that oats had slightly higher weed suppressive qualities than barley.

Location & time: Vissenbjerg, 22/10/2024

- Topic of the demonstration: Different advances in research within IPM, especially focusing on grass weed monitoring
- Number of visitors: 31
- Crops: Cereals, oats, spring barley, canola, wheat
- Pest/weeds addressed: Weeds, pests and diseases
- IPM strategy and tools: Alternate crop rotation and increased sowing rates, monitoring and decision making, non-chemical methods, precision spraying
- Goal and short description of demonstration:
  Paul Neve and Guy Coleman from the University of Copenhagen came and introduced themselves. The day was divided in 2 – first for consultants from Velas and then a slightly (not much) different presentation for farmers from our hub. Paul Neve talked about his work on grass weed monitoring, spread and resistance genes. How monitoring this had helped combat issues with grass weeds in England and how modified crop rotations reduced the problems with grass weeds in England – referring to how this is possible also in Denmark. The Hub Coach talked about biopesticides and RNAi pesticides. Paul Neve rounded up his speech by talking about a new collaboration between Aarhus university, Rothamsted university and Copenhagen university on a project called One Crop Health inviting the farmers to join this new project. Guy Coleman proceeded to talk about weed mapping and precision spraying, both how it works and how it is currently commercialized. He also introduced an open source option called Open Weed Locator, which is a very cool project where you can buy equipment for spot-spraying and develop the tool yourself. The day was ended by a hub meeting, with various IPMWORKS-related topics of discussion: evaluation of the work done within the hub (looking backward), implementation of IPMWORKS survey #3. The conclusion of the discussion was that the hub should continue its activities after the end of the H2020 IPMWORKS project.

Serbia, Biosense

Location & time: Kikinda, 11/02/2024

- Topic of the demonstration: Introducing farmers to digital tools and modern methods in agriculture.
- Number of visitors: 12
- Crops: Sweet corn, potato, wheat
- Pests: Early and late blight of potato, powdery mildew, septoria leaf blotch, codling moth, brown rust of barley, pollen beetle, cutworm
- IPM strategy and tools demonstrated: IPM decisions platform (pointing out its possibilities)
- Goal and short description of the demonstration:
  The goal of the session was to empower farmers with real-time, data-driven insights for early detection, monitoring, and efficient pest management. This approach enhances decision-making, improves crop protection, reduces reliance on pesticides, and

ultimately increases agricultural productivity while promoting sustainable farming practices.

Location & time: Kikinda, 10/04/2024

- Topic of the demonstration: Application of biological agents in the protection of tomatoes
- Number of visitors: 15
- Crops: Tomatoes
- Pests: *Tuta absoluta*, aphids, trips, mites
- IPM strategy and tools demonstrated: Biocontrol agents
- Goal and short description of the demonstration:
  The demonstration event aimed to educate farmers on using biological products for crop protection, while highlighting alternative methods that are less harmful than chemical pesticides. This initiative encourages the adoption of sustainable practices and helps reduce negative environmental impacts.

Location & time: Kikinda, 15/05/2024

- Topic of the demonstration: Application of biostimulator in sweet corn with unmanned aerial vehicle (UAV)
- Number of visitors: 14
- Crops: Sweet corn
- Pests: European corn borer, corn earworm, aphids
- IPM strategy and tools demonstrated: Precision application of bio-stimulants using unmanned aerial vehicles UAVs
- Goal and short description of the demonstration:
  The event demonstrated the application of bio-stimulants in sweet corn using unmanned aerial vehicles (UAVs) to showcase how UAV technology can enhance crop productivity and health. This approach reduces labor, improves precision in bio-stimulant application, optimizes growth conditions, and promotes more sustainable agricultural practices.

Location & time: Banatsko Karađorđevo, 10/08/2024

- Topic of the demonstration: Application of biocontrol agents by UAVs in sweet corn production
- Number of visitors: 14
- Crops: Sweet corn
- Pests: European corn borer, corn earworm
- IPM strategy and tools demonstrated: Biocontrol agents, UAVs, cultural practices, data-driven insights, monitoring techniques
- Goal and short description of the demonstration:
  The goal of the event was to educate farmers about innovative pest management solutions. This approach aimed to enhance pest control efficiency, to reduce reliance on chemical pesticides, to promote sustainable farming practices, and ultimately to

improve crop health and increase yields. A key focus was demonstrating the practical application of UAVs and the potential for area-wide application of biocontrol agents.

Spain, INTIA

Location & time: Olóriz, 30/04/2024

- Topic of the demonstration: Fertilization of arable crops in middle zone of Navarra
- Number of visitors: 16
- Crops: Wheat and malting barley
- Pest/weeds addressed: not applicable
- IPM strategy and tools: Fertilization
- Goal and short description of demonstration:
  The demonstration consisted in a field visit that included:
  - Organic fertilizer trials on cereals
  - Magnesium fertilisation trials
  - Fertilisation trials on malting barley.

Location & time: Barásoain, 08/05/2024

- Topic of the demonstration: Field visit to arable crops
- Number of visitors: 13
- Crops: Wheat, malting barley, oat and sunflower
- Pest/weeds addressed: Cereal diseases, Ryegrass
- IPM strategy and tools: New varieties, control of *Lolium sp.* and diseases
- Goal and short description of demonstration:
  Field visit related to disease trials of malting barley, new varieties of oat and wheat and strategies to control *Lolium* in sunflower.

Location & time: Barásoain, 11/10/2024

- Topic of the demonstration: Explanation of the soil profile characteristic of the area
- Number of visitors: 30
- Crops: Cereals
- Pest/weeds addressed: all weds and diseases
- IPM strategy and tools: Soil profile characterization and direct sowing
- Goal and short description of demonstration:
  Comparison between soils with conventional agriculture and conservation agriculture. Farmers experiences in the topic, especially regarding the consequences for the demography of weeds and the pressure of diseases.

Location & time: Barásoain, 25/11/2024

- Topic of the demonstration: Fertilization trial results
- Number of visitors: 27
- Crops: Wheat and Barley

- Pest/weeds addressed: not applicable
- IPM strategy and tools: Fertilization and soil management
- Goal and short description of demonstration:
  Fertilizer management and dosage in cereals. New technologies: Biofertilization and biostimulants

Germany, JKI

Location & time: Online, 06/03/2024

- Topic of the demonstration: Web Seminar "What is the role of biodiversity-promoting aspects in the planning of cropping processes?"
- Number of visitors: 6
- Crops: arable crops
- Pest/weeds addressed: Common pests in arable crops
- IPM strategy and tools: Demonstrated Biodiversity enhancing methods in holistic IPM, e.g flowering strips and mixed cropping
- Goal and short description of demonstration:
  The goal of the webinar was to show how biodiversity enhancing methods can be implemented on farm level and which role they can play in a holistic IPM approach. The Webinar included 3 talks, about types and ways of implementation of flowering strips and an economical assessment of flowering strips and intercropping systems.

Location & time: Drogen, 17/05/2024

- Topic of the demonstration: Cultivar choice; potential of companion crops in oilseed rape; DSS´s
- Number of visitors: 26
- Crops: Oilseed rape, wheat, barley
- Pest/weeds addressed: Typical pests in the 3 crops in general, cabbage stem fly in oilseed rape specifically
- IPM strategy and tools: Cultivar choice, companion crops in oilseed rape, DSS´s
- Goal and short description of demonstration:
  Giving an overview of new cultivars, emphasizing most useful resistances, and the potential of companion crops in OSR and DSS´s to reduce PPP use. The event included talks and a field walk. Speakers/experts: the farmer, two seed company experts and a plant protection advisor from the state's official advisory institution.

Location & time: Gut Brockhof, 12/06/2024

- Topic of the demonstration: Mechanical weeding and use of DSS´s; Talk and workshop with farmers from the national network for integrated plant production
- Number of visitors: 40
- Crops: Arable crops in general
- Pest/weeds addressed: Typical weeds in arable crops

- IPM strategy and tools: DSS ("Innoherb") to reduce pesticide inputs up to 50 % in cereals and maize; mechanical weeding in general
- Goal and short description of demonstration:
  The objective was to get farmers discussing about potentials and challenges to implement DSS´s and mechanical weeding in their plant production system to manage weeds. Theevent consisted of an expert talk, a workshop in groups, presentation of the results and field demonstrations of sensor-based mechanical weeding (Location: agronomy fair "DLG Feldtage").

Location & time: Dahnsdorf, 20-21/06/2024

- Topic of the demonstration: From trial to farm level - diversified crop rotation as a component of holistic IPM; mechanical weeding; DSS
- Number of visitors: 19
- Crops: Arable crops in general
- Pest/weeds addressed: Several pests and weeds in arable crops
- IPM strategy and tools: Diversified crop rotation, intensified monitoring, DSS "Innoherb", sensor-based mechanical weeding
- Goal and short description of demonstration:
  Showing the transition from the scientific to the farm level of various strategies of IPM, especially diversified crop rotation; two-day event on JKI research station and a demonstration farm for integrated plant production. The event agenda included:
    - economical assessment of crop rotations;
    - integration of legume crops like chickpea and pea on dry sites;
    - Mechanical weeding with sensor assisted hoe;
    - DSS (Innoherb) and intensified monitoring as part of holistic IPM.

Germany, GLZ

Location & time: Online, 05/03/2024

- Topic of the demonstration: Legume species in grassland - potentials and limits in IPM
- Number of visitors: 19
- Crops: grasslands
- Pest/weeds addressed: not applicable
- IPM strategy and tools: biodiversity, system resilience
- Goal and short description of demonstration:
  In this webinar with participation of regional experts, discussion was about the role of legume species in the context of IPM, and how they can contribute to IPM and be successfully integrated into grasslands. Clover is an important and unique component of grassland. White clover has the greatest advantages in permanent grassland. The condition of the land and cultivation management are decisive factors and form the basis of IPM. In addition, clover increases protein yields and promotes the resilience of grasslands.

Location & time: Aurich, 23/04/2024

- Topic of the demonstration: Groundwater management
- Number of visitors: 16
- Crops: grasslands, arable crops
- Pest/weeds addressed: not applicable
- IPM strategy and tools: IPM is essential part of groundwater management
- Goal and short description of demonstration:
  The goal was to address general regional groundwater management issues and to focus on pesticides in groundwater. Pesticide active substances and their degradation products in groundwater play a major role in agricultural groundwater protection and drinking water production. The roles of farmers and water management were highlighted, but the social question of how groundwater protection can be achieved together was also outlined. Interesting regional and national evaluations were presented by external experts. The main topics presented were boundary conditions and parameters which influence the quality of groundwater and introduction to groundwater management in East Frisia - with a focus on pesticide active substances and their degradation products in groundwater.

Location & time: Aurich, 23/04/2024

- Topic of the demonstration: Water Protection
- Number of visitors: 15
- Crops: grasslands, arable crops
- Pest/weeds addressed: not applicable
- IPM strategy and tools: IPM is essential part of water management
- Goal and short description of demonstration:
  Aim was to stress out an important pillar of the cooperation work between authorities and farmers as water protection advice for farmers in the drinking water extraction areas. The local water protection advisors are also the point of contact for the conclusion of voluntary agreements on groundwater protection. The tasks of water protection advice in the areas of fertilization, “voluntary agreements” and IPM, possible measures and their financing as well as the challenges and potentials are presented.

Location & time: Uplengen, 17/06/2024

- Topic of the demonstration: RumboJet
- Number of visitors: 35
- Crops: grasslands
- Pest/weeds addressed: *rumex* and *ragwort* species
- IPM strategy and tools: spot spraying method with the RumboJet, which specifically detects *rumex* and *ragwort* species
- Goal and short description of demonstration:
  The focus point was the use of modern technology, which can make a significant contribution to reducing the use of pesticides and, in addition to protecting our

environment, preserving valuable herbs. An image-processing method was presented that contributes to the efficient detection and control of weeds, diseases and pests.

Location & time: Uplengen, 17/06/2024

- Topic of the demonstration: Drone Software
- Number of visitors: 35
- Crops: grasslands, arable crops
- Pest/weeds addressed: weeds in general
- IPM strategy and tools: AI image detection of pests and weeds with use of drones
- Goal and short description of demonstration:
  An image-processing method that contributes to the efficient detection and control of weeds, diseases and pests was presented. A new drone software that supports precision agriculture was demonstrated, and can therefore aim to optimize use of fertilizers and pesticides as well as general pasture management. Digitized and automated recognition of plant species and analysis of biomass growth can facilitate both grassland management and funding opportunities for ecological measures.

Location & time: Grünes Zentrum, 26/06/2024

- Topic of the demonstration: IPM and grassland management
- Number of visitors: 35
- Crops: grasslands
- Pest/weeds addressed: mainly weeds
- IPM strategy and tools: linked to climate adaptation and mitigation aspects of farming, grassland management, spot spraying and drone techniques
- Goal and short description of demonstration:
  General grassland management practices were presented. IPM in grasslands, and the contribution of temporary grasslands for the IPM strategy at the cropping system level, were both addressed. Important weed species have been shown. Drone technique and RumboJet technique were presented and explained. This event was based on practices tested by the IPMWORKS demo farms, and targeted farmers and students from another part of Germany, to make them familiar with our grassland management.

Ireland, Teagasc

Location & time: Wexford, 18/01/2024

- Topic of the demonstration: Cover crop management
- Number of visitors: 60
- Crops: Spring barley & cover crops
- Pest/weeds addressed: non-chemical destruction of cover crops before drilling a spring malting barley crop
- IPM strategy and tools: We used various different mechanical tools to try to destroy cover crops in frosty weather, to replace the use of glyphosate.

- Goal and short description of demonstration:
  The goal of the demonstration was to try to use the weather i.e. frost with a variety of different mechanical cultivators to destroy the cover crops, thus eliminating the need for glyphosate. We had approx. 40 different farmers on the day who saw the different tools in action, including a roller, a crimper and disc harrow and combinations of a disc and crimper.

Location & time: Meath, 07/04/2024

- Topic of the demonstration: Use of organic manures in winter cereals
- Number of visitors: 100
- Crops: Winter wheat
- Pest/weeds addressed: fungal diseases
- IPM strategy and tools: We used a dribble bar system to apply slurry to growing winter wheat crops
- Goal and short description of demonstration:
  The idea of the demo was to show how to efficiently use cattle slurry on winter wheat crops in the spring. The slurry partly replaces the chemical fertilizers. The slurry also contains other elements rather than just NPK, including trace elements which should improve crop health and assist the crop in its defense against diseases.

Location & time: Kildare, 03/05/2024

- Topic of the demonstration: BYDV control in winter barley
- Number of visitors: 15
- Crops: Winter barley
- Pest/weeds addressed: BYDV (Barley Yellow Dwarf Virus)
- IPM strategy and tools: Use of crop monitoring to assess the risk of BYDV infection in winter barley
- Goal and short description of demonstration:
  The aim of the demo was to show how a DSS system can help growers make accurate decisions when applying pesticides. The DSS system used was Acrobat and we used it alongside untreated plots and standard practice, where we were able to demonstrate that while there was BYDV in the untreated plots, the decision made by the Acrobat system to apply a pesticide only when the threshold was reached worked.

Location & time: Wexford, 21/05/2024

- Topic of the demonstration: IPM in practice in potatoes
- Number of visitors: 60
- Crops: Potatoes
- Pest/weeds addressed: Blight
- IPM strategy and tools: Using a decision support system and cultural control methods to delay the spread of potato blight

- Goal and short description of demonstration:
  The demo was used to show that cultural control methods (i.e., destroying dumps and volunteer potatoes) can reduce the sources of infection on commercial crops, thereby reducing the pressure of potato crops.

Location & time: Wexford, 15/07/2024

- Topic of the demonstration: Weed management in a farm transitioning to organic
- Number of visitors: 60
- Crops: Wheat, barley, beans
- Pest/weeds addressed: weeds
- IPM strategy and tools: How to use crop rotation and seed rate to reduce weed competition in organic crops
- Goal and short description of demonstration:
  The demo took place on an organic farm to see how they adapted to farming organically on part of the farm that started transitioning to organic three year ago. The demonstration showcased management options and progresses made in the farm during the three years.

Greenhouse horticulture

Belgium, INAGRO

Location & time: Zwevezele, 03/05/2024

- Topic of the demonstration: The use of different varieties of soil-grown strawberries
- Number of visitors: 6
- Crops: strawberry
- Pests: Root rot pathogens, powdery mildew, grey mold
- IPM strategy and tools: Uses beneficials and banker plants to manage pests. The farmer also uses more resistant varieties against diseases.
- Goal and short description of the demonstration:
  Share knowledge on several varieties as a basis to implement IPM on your farm. Taste new varieties and have a look at their plant health, yield and quality potential to have an idea on their potential on the market.

Location & time: Brussel, 14/05/2024

- Topic of the demonstration: Showing holistic IPM
- Number of visitors: 100
- Crops: Soft fruits & vegetables
- Pests: Thrips, spider mite, grey mold
- IPM strategy and tools:

  - Soft fruits: rotation (in soil), use of beneficials, monitoring and before also flying doctors in strawberries (unfortunately not any more implemented, because Flying Doctors are not any more commercially available in Flanders).
  - Vegetables: rotation, tolerant cultivars against thrips (leek), spraying technique (timing).

- Goal and short description of the demonstration:
  Demonstrate IPM on a Belgian farm and the gaps to implement IPM. Also mention the advantages to work with hubs and be in the network.

Location & time: Wervik, 31/05/2024

- Topic of the demonstration: Use of biological control agents against aphids
- Number of visitors: 7
- Crops: Strawberries
- Pests: Aphids, spider mites, thrips.
- IPM strategy and tools: The grower uses biological control agents against thrips and spider mites and now for the first time against aphids. He uses predatory wasps, gal midges and hoverflies to control the aphid pressure in two tunnels of soil-grown strawberries.
- Goal and short description of the demonstration:
  Demonstration of the use of biological control agents (predatory wasps, gal midges, hoverflies) in an on-farm experimentation. Also, the use of a flower border to increase biodiversity on a farm. Sharing knowledge on increasing biodiversity on the farm.

Location & time: Rumbeke-Beitem, 06/09/2024

- Topic of the demonstration: Use of different varieties and banker plants to support beneficials against aphids.
- Number of visitors: 49
- Crops: Strawberries
- Pests: Aphids, root rot pathogens, powdery mildew
- IPM strategy and tools: Demonstration of different varieties and the use of banker plants to support beneficials against aphids
- Goal and short description of the demonstration:
  Demonstrate several new varieties in strawberries (ever bearers and June bearers) with a focus on the disease resistance and yield potential. Also demonstrate the use of the banker plant *Lobularia maritima* in a 'mini-air'-system.

Spain, COEXPHAL

No demo events were organized in 2024/2025, since COEXPHAL had already reached the minimum of ten demo events in previous seasons.

Orchards

Italy, SSSA

Location & time: Buti (Pisa), 24/05/2024

- Topic of the demonstration: Olive tree pruning: chopping and use of crop residues
- Number of visitors: 10
- Crops: Olives
- Pests: Olive fly
- IPM strategy and tools: Actions to maintain biodiversity and ecosystem services and to increase soil and plant health
- Goal and short description of the demonstration:
  Burning pruning residues directly in the field is a practice still used in our olive groves with negative repercussions on the environment, risk of fires, biodiversity and ecosystems. Pruning affect the circulation of air in the orchard, avoiding moisture that favor and attract olive fly. Bio-shredding of branches can produce farm resources and eventually contribute to woody biomass production and agricultural sustainability.

Location & time: Calci (Pisa), 12/06/2024

- Topic of the demonstration: Weeding the olive grove: management, benefits, opportunities
- Number of visitors: 8
- Crops: Olives
- Pests: Olive fly
- IPM strategy and tools: Monitoring and prevention for olive fly control. Actions to maintain biodiversity and ecosystem services and to increase soil and plant health
- Goal and short description of the demonstration:
  A grassed olive grove has many advantages: it protects the soil from erosion, increases the soil's capacity to retain moisture and also ensures greater fertility and biodiversity. In addition, grassing the ground during autumn and spring provides a favourable habitat for olive fly predatory insects such as carabids and *staphylinidae*.

Location & time: Calci (Pisa), 01/07/2024 (in the morning)

- Topic of the demonstration: Weather station and digital technologies to optimise actions and technical interventions
- Number of visitors: 8
- Crops: Olives
- Pests: Olive fly
- IPM strategy and tools: Monitoring and prevention for olive fly control
- Goal and short description of the demonstration:
  Modelling and DSS relate agro-meteorological data to predict the presence and development stages of the olive fly. This provides real-time information on the estimated risk of infestation.

Location & time: Calci (Pisa), 01/07/2024 (in the afternoon)

- Topic of the demonstration: Olive fly monitoring and sustainable solutions for its control
- Number of visitors: 10
- Crops: Olives
- Pests: Olive fly
- IPM strategy and tools: Monitoring and prevention for olive fly control
- Goal and short description of the demonstration:
  Fighting Olive Fly requires an integrated approach combining monitoring, prevention and targeted treatments. Aim of the Demo: combination of pheromone traps for mass trapping and interventions with rock dust creating a protective film on leaves and fruits, camouflaging the plant and making it unrecognizable and unattractive to the fly.

Location & time: Vicopisano (Pisa), 08/09/2024

- Topic of the demonstration: Farm diversification: chickens in the olive grove to contain the olive fly and other pests
- Number of visitors: 18
- Crops: Olives
- Pests: Olive fly
- IPM strategy and tools: Prevention and good practices for olive fly control and other diseases
- Goal and short description of the demonstration:
  Inspired by the principles of agroecology, this farmer investigates the possibility of exploiting synergies between animal and plant species to achieve more environmentally and economically sustainable production.

Outdoor vegetables

Netherlands, Delphy

Location & time: Online, 21/03/2024

- Topic of the demonstration: Webinar - Sustainable control of late blight
- Number of visitors: 85
- Crops: Potato
- Pests: Late blight (Phytophthora infestans)
- IPM strategy and tools: Sustainable control of late blight with decision support systems & IPM Decisions platform
- Goal and short description of the demonstration:
  We gave an update about the late blight situation (developments in growing season of 2023 and strategy for growing season 2024). The IPM Decision platform is demonstrated and shows an available decision support system – the BlightApp.

Location & time: Oude Tonge, 04/06/2024

- Topic of the demonstration: Field-demonstration of spot sprayer EcoRobotix ARA
- Number of visitors: 52
- Crops: Onions, sugar beets
- Pests: All weeds and potato-volunteers
- IPM strategy and tools: To reduce herbicides, a camera is used to recognize weeds, along with a specific spraying system to control them. With this technique a reduction of 85-95% pesticide is possible. A large advantage compared to most spraying robots is the high speed and capacity of this machine.
- Goal and short description of the demonstration:
  Demonstration and explanation of the Ecorobotix spot sprayer in onions and sugar beets. First, we had an extensive presentation by the sales- and advice organization 'Doorgrond', giving background information of the machine and answering questions of the farmers. Then we had a demonstration in an onion-field. During the demonstration the machine used clear water so the farmers could observe that the sprayed fluid was only applied on the weed and not on the onions.

Location & time: Zevenbergschen Hoek, 12/06/2024

- Topic of the demonstration: Weed control & bean fly
- Number of visitors: 18
- Crops: General weed control & bean fly in beans
- Pests: Bean fly
- IPM strategy and tools: Machinery & nematodes
- Goal and short description of the demonstration:
  This farmer prefers mechanical weed control over chemical weed control and showed it with the machinery he is using. He uses descaled water to improve spraying efficacy. Biological controls, like nematodes, are used against pests such as bean fly larvae, and fields are monitored for pest pressure by "de Groene Vlieg".

Location & time: IJzendijke, 13/06/2024

- Topic of the demonstration: Demo of FarmDroid
- Number of visitors: 18
- Crops: Sugar beet
- Pests: Weeds in general
- IPM strategy and tools: FarmDroid
- Goal and short description of the demonstration:
  FarmDroid is a machine used in arable farming for precision sowing and weeding. It uses advanced sensor technology and automation to detect and remove weeds mechanically between crop rows, minimizing the need for chemical herbicides. This approach improves crop health, reduces environmental impact, and increases efficiency in large-scale farming.

Location & time: Colijnsplaat, 03/07/2024

- Topic of the demonstration: Sustainable weed control in onions
- Number of visitors: 15
- Crops: Onions
- Pests: All weeds
- IPM strategy and tools: Sustainable weed control in onions - using row application, low dose systems, mechanical weeding and site-specific treatments.
- Goal and short description of the demonstration:
  By visiting this field, we hoped to inspire other farmers to implement alternative strategies in onions. The visitors were able to ask questions about the dose of used chemicals and the needed investments.

Belgium, Inagro

Location & time: Online, 29/02/2024

- Topic of the demonstration: Holistic IPM view is not easy
- Number of visitors: 81
- Crops: Zucchini
- Pests: Powdery mildew, Fusarium
- IPM strategy and tools: Cultivars, biostimulants, powdery mildew control, bio mulch use, strong plant growth, uv C, fruit setting strategies
- Goal and short description of the demonstration:
  The online webinar targetted a broad community around zucchini cropping. The Hub Coach highlighted the work in the project and presented IPM techniques and strategies of IPMWORKS farmers.

Location & time: Online, 05/03/2024

- Topic of the demonstration: Holistic IPM view is not easy
- Number of visitors: 52
- Crops: Zucchini
- Pests: Powdery mildew, Fusarium
- IPM strategy and tools: Cultivars, biostimulants, powdery mildew control, bio mulch use, strong plant growth, uv C, fruit setting strategies
- Goal and short description of the demonstration:
  Cultivars, biostimulants, powdery mildew control, bio mulch use, strong plant growth, uv C, fruit setting strategies.

Location & time: Rumbeke-Beitem, 15/05/2024

- Topic of the demonstration: Fruit setting and cultivars
- Number of visitors: 15
- Crops: Zucchini

- Pests: Powdery mildew
- IPM strategy and tools: Parthenocarpic fruit setting, cultivar comparison, irrigation strategy, powdery mildew control with less impactful chemicals
- Goal and short description of the demonstration:
  We aimed to show how parthenocarpic fruit setting can enhance fruit production without the need for pollination, leading to more consistent yields. By comparing different cultivars, we provided insights into which varieties perform best under specific conditions, helping farmers make informed decisions.

Location & time: Rumbeke-Beitem, 21/08/2024

- Topic of the demonstration: Cultivars, irrigation and powdery mildew control
- Number of visitors: 5
- Crops: Zucchini
- Pests: Powdery mildew
- IPM strategy and tools: Cultivar comparison, irrigation strategy, powdery mildew control with less impactful chemicals
- Goal and short description of the demonstration:
  By comparing different cultivars, we provided insights into which varieties perform best under specific conditions, helping farmers make informed decisions. Demonstrating efficient irrigation strategies was meant to help farmers optimize water usage to improve crop health and productivity. We focused on controlling powdery mildew with less impactful chemicals as a piece of the IPM puzzle.

Portugal, Consulai

Location & time: Sogepoc, 17/04/2024

- Topic of the demonstration: How precision agriculture can help farmers to implement and upgrade IPM practices
- Number of visitors: 13
- Crops: Tomato
- Pests: The discussion addressed various pests and diseases, but it was focused mostly on tomato mildew
- IPM strategy and tools: The use of NDVI images to detect irregularities on the crops, smart traps and DSS for tomato mildew
- Goal and short description of the demonstration:
  Farmers enjoyed the opportunity to hear testimonies about the use of precision farming tools and to see the ways in which these tools can be applied to their crops, particularly the positive influence they can have on decision-making.

Location & time: Instituto Superior de Agronomia, 16/01/2025

- Topic of the demonstration: Biological control & Observation/Identification of Beneficials insects using stereoscopic loupes
- Number of visitors: 10

- Crops: No specific crop
- Pests: No specific pests
- IPM strategy and tools: Biological control using beneficial insects Biodiversity management to attract and retain beneficial insects
- Goal and short description of the demonstration:
  The goal was to showcase sustainable IPM strategies that minimize chemical inputs by leveraging biological control and preventive practices. Participants learned practical methods to enhance pest management while maintaining ecological balance and improving crop resilience.

Finland, Pro Agria

Location & time: Hämeenlinna, 01/02/2024

- Topic of the demonstration: Soft fruit and berry farmers foundation annual meeting
- Number of visitors: 7
- Crops: Strawberry and raspberry
- Pests: Thrips
- IPM strategy and tools demonstrated: Minor use of plant protection chemical products on soft-fruit production
- Goal and short description of the demonstration:
  Thrips are still a specific problem in strawberry production. There is no chemical to protect crops from thrips. Because of this, marketable yield is lower than when there is possibility to use plant protection products.

Location & time: Online, 13/03/2024

- Topic of the demonstration: IPMWORKS national workshop Finland (NFP)
- Number of visitors: 18
- Crops: Strawberry, raspberry
- Pests: Various
- IPM strategy and tools demonstrated: diseases plant protection by PrestopMix. Mycelium and spores of the fungus Clonostachys rosea J1446 (former *Gliocladium catenulatum*) in powder form.
- Goal and short description of the demonstration:
  The aim of this session was to refine the strategies for expanding the adoption of IPM within IPM demonstration networks operating within the Agricultural Knowledge and Innovation System (AKIS). In Finland AKIS is called “AgriHubi”. IPMWORKS was presented, opening a discussion about what should be done after the end of the H2020 IPMWORKS project.

Location & time: Lohja area, 26/06/2024

- Topic of the demonstration: Summer excursion of the plant protection society's garden section
- Number of visitors: 25

- Crops: Apple, stone berries, sweet corn, watermelon, brassicas
- Pests: European Shot-Hole Borel, apples butterfly pests, weeds on outdoor vegetables.
- IPM strategy and tools demonstrated: Monitoring by traps, control threshold, soil covers used in weed protecting.
- Goal and short description of the demonstration:
  Participating farmers shared their observations. In Fruticetum Meeri Saario talked about the monitoring of the occurence of the European Shot-Hole Borel (Lustokuoriainen) using observation traps. Pest damage has increased with the warm growing seasons. On Alitalo Farm Marko Maula told about the plant protection in their orchard. This year the codling moth and other butterfly pests didn't need chemical plant protection because almost no pests came to the pheromone traps and the control threshold was not exceeded. On Lillbreds Bärgård Gustav Hilden said that with open field vegetables that require heat and a long growing time, strawberry plastic was used as ground cover to control weeds and bind heat. The vegetables were sown directly into the plastic holes without cultivation.

Location & time: Lepaa, 16/08/2024

- Topic of the demonstration: Integrated farming and wearable technology in primary production –seminar
- Number of visitors: 16
- Crops: Soft fruit and outdoor vegetables, strawberry
- Pests: all pests
- IPM strategy and tools demonstrated: Holistic IPM: Crop rotation, pollinator friendly cultivation and plant protection.
- Goal and short description of the demonstration:
  Pyry Sammalistonaho told about pollinator friendly cultivation, Marja Kallela told about topics on time (Cockspur grass, black night-shade, strawberry sawfly). Marja Rantanen and Nina Sevelius talked about plant fluid analysis in berry cultivation.

Location & time: Janakkala, 19/09/2024

- Topic of the demonstration: Stakeholder hub farm visit (NFP)
- Number of visitors: 14
- Crops: Soft fruits, strawberry and raspberry
- Pests: all pests
- IPM strategy and tools demonstrated: IPM crop cultivation on soft fruit farm, eight-year crop rotation, biodiversity.
- Goal and short description of the demonstration:
  Field tour with stops at different stages of crop rotation, drainage ditches, and water management, alternative crops, various crop rotation options (blackcurrant, blueberry, strawberry), discussion on biodiversity as well as berry pests and their control.

Location & time: Lepaa, 15-17/08/2024

- Topic of the demonstration: Lepaa 60th Horticultural Exhibition

- Number of visitors:60
- Crops: Iceberg lettuce, strawberry, black berry
- Pests: Tip-burn, Thrips on soft fruit production
- IPM strategy and tools demonstrated: Irrigation as prevention of drought and tip-burn
- Goal and short description of the demonstration:
  Presentation of the IPMWORKS project and of IPM-based plant protection strategies for horticulture plants to the exhibition visitors, farmers and stakeholders.

Location & time: Lepaa campus, 27/09/2024

- Topic of the demonstration: E-learning Training Event on IPM
- Number of visitors: 14
- Crops: Brassicas and strawberry
- Pests: IPM on agri-forestry farming, annual weeds
- IPM strategy and tools demonstrated: Agri-forestry on Finnish field landscape. IPMWORKS project and holistic IPM. E-learning materials. IPM on brassicas, strawberries. Hazelnuts on cereal fields as an example of agri-forestry.
- Goal and short description of the demonstration:
  Cockspur grass has spread to the fields among foreign vegetable seeds. How will it be managed on farms in the future?

Vineyards

Portugal, Consulai

Location & time: Online, 15/02/2024

- Topic of the demonstration: Soil fertility and microbiology in the vineyard
- Number of visitors: 9
- Crops: Grapes
- Pests: all pests and diseases
- IPM strategy and tools: The effect of different organic fertilizers (cattle manure, MSW compost, sewage sludge and biochar) on organic matter in the soil, the amount of nutrients and heavy metals made available to the soil, pH, soil exchange cations, wine production and quality. How a balanced fertilization of the vineyard can contribute to a higher resistance of the plants to pests and diseases and to the improvement of the soil health.
- Goal and short description of the demonstration:
  The participants were very interested in the topic, given the importance of fertilization to plant's health and lack of information available regarding the use and efficiency of organic fertilizers in vineyards. The hub members have actively participated in the discussion and shared their own experiences and practices.

Location & time: Online, 09/04/2024

- Topic of the demonstration: Reducing the use and risk of pesticides
- Number of visitors: 12
- Crops: Grapes
- Pests: The discussion wasn't focused on a single pest/disease of vineyards. Nevertheless, farmers expressed concern about the lack of solutions for controlling the green leafhopper, especially because its population has increased significantly in the past few years.
- IPM strategy and tools: Correct use of pesticides and the reduction of pesticides use by the adoption of alternative strategies, considering the current pesticide policies and the future perspectives.
- Goal and short description of the demonstration:
  The testimonies given by the hub members were an opportunity to convey to a policy maker, in a direct way, the sector's view of the ongoing ban on active substances in the European Union and the main problems in terms of pests and diseases that the vineyard sector is currently facing.

Location & time: Herdade de Grous, 28/05/2024

- Topic of the demonstration: The importance of biodiversity for the phytosanitary protection of vines
- Number of visitors: 10
- Crops: Vineyard
- Pests: The discussion was not focused on a single pest or weed
- IPM strategy and tools: Creating shelters and habitats within agricultural ecosystems to attract and sustain bird populations. This includes planting native trees and shrubs that provide nesting sites and food sources, thus integrating these vital allies into the farm's natural defense system. Maintaining and enhancing ecological structures within the farm ecosystem.
- Goal and short description of the demonstration:
  The testimonies were very concrete and clear, presenting specific IPM strategies, allowing for a very active and interesting discussion among the hub members.

Spain, FEUGA

Location & time: O Rosal, 22/11/2023

- Topic of the demonstration: Holistic IPM application
- Number of visitors: 32
- Crops: Grapes
- Pests: Grape moths
- IPM strategy and tools: E-Mowit robot, cover crops and floral margins
- Goal and short description of the demonstration:
  The event fostered knowledge exchange and connections among participants, showcasing holistic Integrated Pest Management (IPM). It highlighted sustainable

vineyard practices implemented by the farmers engaged in the IPMWORKS hub, including biodiversity promotion, pest control innovations, irrigation management, and waste handling, while emphasizing practical decision-making and results.

Location & time: O Rosal, 09/05/2024

- Topic of the demonstration: Planting seeds of change in integrated pest management for a more sustainable viticulture
- Number of visitors: 38
- Crops: Grapes
- Pests: Grape moths, aphids and various weed species
- IPM strategy and tools: E-Mowit robot, cover crops and floral margins
- Goal and short description of the demonstration:
  Share the results of recent experiments focusing on the use of cover crops to enhance biodiversity and support beneficial insects. The demonstration explored the impact of cover crops on pest control, the use of nitrogen stabilization technology for improved nutrient management, and the role of the E-Mowit robot in automating weed management and maintaining floral margins for a balanced ecosystem.

Location & time: Ourense, 24/07/2024

- Topic of the demonstration: Demoviña
- Number of visitors: 400
- Crops: Grapes
- Pests: Mildew and powdery mildew
- IPM strategy and tools: Disease resistant varieties - Introduction and cultivation of grape varieties resistant to mildew and powdery mildew. Biological control - Use of beneficial insects and microorganisms to control pests and diseases.
- Goal and short description of the demonstration:
  Showcase innovative approaches in integrated pest management (IPM) for vineyards, focusing on cultivating resistant grape varieties and using biological control methods to combat mildew and powdery mildew, promoting sustainable viticulture practices.

Location & time: Cambados/Barro, 30/07/2024

- Topic of the demonstration: Innovation in organic waste treatment: composting and vermicomposting
- Number of visitors: 30
- Crops: Grapes
- Pests: Nematodes, soil-borne fungi, and various vineyard weeds
- IPM strategy and tools: Vegetative cover management - Techniques for implementing and maintaining vegetative cover in vineyards to enhance soil health and biodiversity. Composting methods - Steps and conditions for effective organic waste composting, transforming waste into nutrient-rich compost. Vermicomposting techniques - Process of using earthworms to break down organic waste, including grape pomace, into high-quality vermicompost.

- Goal and short description of the demonstration:
  Demonstrate sustainable organic waste management practices in vineyards, focusing on composting and vermicomposting methods to improve soil fertility and biodiversity. The event highlighted practical techniques for transforming vineyard waste into valuable organic matter while supporting pest control and soil health.

Greece, AUA

Location & time: Nemea, 12/04/2024

- Topic of the demonstration: Conventional and organic farming
- Number of visitors: 11
- Crops: Vine, associated with different cover crops (oats, vetch, mixture)
- Pests: Wide variety of existing weeds
- IPM strategy and tools: Cover crops in conventional and organic farming
- Goal and short description of the demonstration:
  In this demo a conventional and organic pilot field was demonstrated. In particular, the field was divided in half, to represent conventional and organic farming. Each half was divided into management zones. Different conventional treatments have been carried out: control, different cover crops, different dosages of herbicides and mowing. The organic spraying was replaced with pelargonic acid.

Location & time: Agricultural University of Athens, 30/09/2024

- Topic of the demonstration: Integrated Fertilization Management
- Number of visitors: 15
- Crops: Orchards
- Pests: no specific pests were pointed out
- IPM strategy and tools: Integrated Fertilization Management
- Goal and short description of the demonstration:
  Two main topics were central: the importance of using drone images and decision-making based on sensor data. The participants discussed, in practical terms, how they applied Integrated Fertilization Management to their crops. The focus was on economic feasibility and implementation challenges. An advisor, several researchers, a regional policymaker, and an industry partner from the fertilizer sector also shared insights addressing farmers' practical needs.

Location & time: Spata, 31/10/2024

- Topic of the demonstration: smart spraying applications of PPTs
- Number of visitors: 50
- Pests: The discussion didn’t focus on a specific pest or weed
- IPM strategy and tools: Reduced spraying applications through innovative technologies
- Goal and short description of the demonstration:
  Attendees engaged in hands-on workshops and informative sessions on drone-based spraying applications. The event provided a comprehensive overview of the legislative

framework for drone spraying, shared insights into smart farming practices, and offered a live demonstration of drone preparation and operational functionalities. This interactive experience gave participants valuable knowledge and practical skills for advanced agricultural practices.

Location & time: Online, 28/11/2024

- Topic of the demonstration: "Does IPM work?"
- Number of visitors: 20
- Crops: Grapes
- Pests: The discussion didn't focus on a specific pest or weed
- IPM strategy and tools: Mechanical control of weeds, biological control, chemical control, monitoring and decision-making
- Goal and short description of the demonstration:
  Present the progress and outcomes of the IPMWORKS project to an audience of 20 researchers, advisors, and farmers. Share detailed insights into the integrated pest management (IPM) strategies implemented on IPMWORKS farms. Engage participants in discussions about the applicability and scalability of these methods in real-world farming conditions. Gather feedback to improve the implementation and expansion of the project.

Location & time: Online, 12/12/2024

- Topic of the demonstration: The role of organic matter in soil health for IPM
- Number of visitors: 20
- Crops: Grapes
- IPM strategy and tools: Soil biodiversity, soil structure improvement, enhanced nutrient cycle
- Goal and short description of the demonstration:
  Introduce the fundamental role of organic matter in soil health and its connection to effective Integrated Pest Management (IPM). Explain how soil structure, fertility, and microbial activity influenced by organic matter contribute to pest control. Provide practical insights into how organic matter can enhance pest management through improved soil resilience, moisture retention, and biodiversity. Encourage participants to incorporate organic matter management practices into their farming systems to support sustainable IPM strategies.

Slovenia, KGZ MB

No demo events were organized in 2024/2025, since KGZ MB had already reached the minimum of ten demo events in previous seasons.

4. Evaluation & conclusion

The 2024/2025 demonstration events of IPMWORKS marked another successful year in promoting Integrated Pest Management (IPM) strategies across Europe. A total of 79 demonstrations were organized, attracting 3877 visitors, demonstrating a strong interest in sustainable pest management among farmers and stakeholders. In total 79 reported demonstration events took place, distributed among sectors as following: 41 in arable field crops, 4 in greenhouse, 5 in orchards, 18 in the sector of outdoor vegetables and 11 in vineyards. In total, during 4 years of IPMWORKS project, 250 demonstrations were organized. Two dominant topics in 2024/2025 demonstrations were IPM and crop protection and organic, biodiversity and sustainable farming practices, while the remaining 50% of events were evenly spread out. A key observation from the 2024/2025 demonstrations is the continued engagement of farmers and advisors in IPM practices. By showcasing effective, farm-level IPM strategies, the events provided participants with practical solutions to reduce pesticide dependency while maintaining or even improving crop protection and profitability. The hands-on approach, combined with peer-to-peer learning facilitated by Hub Coaches, further strengthened knowledge transfer and farmer confidence in IPM techniques.

While few demo events could be organized in 2021 due to the COVID-19 pandemic (only 13 events), the project made a strong recovery, with 65 demonstrations in 2022, 93 in 2023, and 79 in 2024. This upward trend highlights the increasing capacity and commitment of the IPMWORKS network to promote sustainable pest management practices. This trend is also related to the progresses made by IPMWORKS farmers in IPM adoption, that gave them more confidence and willingness to share their experiences with a larger professional audience.

One of the key achievements of IPMWORKS is that all hubs met or exceeded the expected target of 10 demonstration events per hub. This success reflects the engagement of Hub Coaches in organizing impactful demonstrations, therefore ensuring that attending farmers receive relevant, practical insights on IPM strategies.

The 2024-2025 demonstration events, along with the cumulative results from 2021 to 2024-2025, highlight the significant progress made in promoting IPM adoption through an extensive farmer-led demonstration network. Despite initial challenges, IPMWORKS has successfully facilitated knowledge exchange, practical implementation, and wider acceptance of IPM principles among European farmers.

Moving forward, the continued dissemination of IPM success stories, training resources, and peer-to-peer learning initiatives will be essential for sustaining the momentum achieved by IPMWORKS. The strong engagement observed during the demonstration events indicates that farmers are increasingly open to adopting IPM strategies, paving the way for a broader shift towards sustainable and low-pesticide farming systems across Europe.