



Report on demonstrations in 2022

Deliverable D3.4



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An EU-wide farm network demonstrating and promoting cost-effective IPM strategies
Coordination and Support Action (CSA)
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Report on Conducted Demonstrations in 2022

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A**bstract**

This Deliverable describes the IPM demonstration events conducted in 2022 in each participating country and existing hub in the second year of execution of IPMWORKS. The document includes a summary of the IPMWORKS project, an introduction on the contents of this report, as well as summarized overview of demo events in 2022 and specifics of each executed event. At last, a short conclusion summarizes the main features and outcomes of the conducted demonstration events in 2022.

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1. IPMWORKS: Summary

IPMWORKS: 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 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. Advisors coordinating hubs will have a major role in facilitating knowledge sharing, coaching farmers to find their own IPM solutions, and organizing local demonstration activities. IPMWORKS will stimulate access to the ‘IPM Decisions’ platform and provide information on the IPM methods. It will collect data for comparing IPM strategies, and share results and dissemination material through channels widely used by farmers, broadcasting IPM success stories. It will organize training, and produce 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 will be based on data describing the details of cropping systems and pest management in farms involved in the network. IPMWORKS will also produce 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 |
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2. Introduction

Introduction

IPMWORKS organizes a number of demonstration events each year in every hub for every participating country. This document summarizes and describes all the conducted demonstration events in the project in 2022. For each event, the following details are provided:

- Event title, hub member, country, date, location and number of visitors
- General subject and goal of the demonstration
- Description of IPM strategies shown in the demonstration
- Promotion activities and communication and dissemination material used for the demonstration

This information is described in the next section.

3. Demonstration events in 2022

Demonstration events overview

The table on the next page gives an overview of the demonstration events organized for IPMWORKS in 2022. For every event, the title is included, as well as the organizing hub, country, date, location and number of visitors of the demonstration event.



| Sector | Event title | Hub | Country | Date | Numb |
|--|--|-------------|-------------|------------|------|
| Arable Crops | Mechanical weeding in maize | JKI | Germany | 2-6-2022 | 26 |
| | Variety of effects in oilseedrape and winter wheat | JKI | Germany | 3-6-2022 | 25 |
| | Soil fertility and cover crops | JKI | Germany | 4-11-2022 | 52 |
| | Single seed sowing | JKI | Germany | 2-12-2022 | 12 |
| | Automated and selective weed control in grassland | GLZ | Germany | 8-8-2022 | 24 |
| | Focus on italian reygrass | DL | Denmark | 3-5-2022 | 11 |
| | Farm visit; a farm with focus on IPM | DL | Denmark | 17-5-2022 | 95 |
| | Using fertilizers as a preventive asset toward pests | DL | Denmark | 31-5-2022 | 125 |
| | Italian day | DL | Denmark | 6-1-2022 | 11 |
| | IPM fielddemonstration and debate about CA | VELAS | Denmark | 24-5-2022 | 25 |
| | Ploughing in rotation | VELAS | Denmark | 1-4-2022 | 12 |
| | Visit tot famer's plot | INTIA | Spain | 9-5-2022 | 15 |
| | Rust watch; workshop about yellow rust | INTIA | Spain | 24-3-2022 | 29 |
| | Visit trials in farmers plots | INTIA | Spain | 23-5-2022 | 16 |
| | Wintercrops walk and IPM techniques | TEAGASC | Ireland | 17-2-2022 | 75 |
| | Use of organic manurefor soil health and crop rotation | TEAGASC | Ireland | 22-3-2022 | 20 |
| | Scottish cross visit | TEAGASC | Ireland | 15-6-2022 | 5 |
| | Cultivation systems and their effect on weed control | TEAGASC | Ireland | 28-6-2022 | 25 |
| | Role of faba beans and crop rotation on a cereal farm | TEAGASC | Ireland | 29-6-2022 | 150 |
| | Aphid monitoring to control BYDV | TEAGASC | Ireland | 30-6-2022 | 20 |
| | Informing policy makers about the role of IPM | TEAGASC | Ireland | 13-7-2022 | 20 |
| | Field day OVLAC MINI | SSSA | Italy | 22-4-2022 | 15 |
| | Field day IPM techniques on wheat in Tuscany | SSSA | Italy | 13-6-2022 | 25 |
| | Field day LIFE AGRESTIC | SSSA | Italy | 8-7-2022 | 15 |
| | Field day fibre hemp cultivation and harvesting | SSSA | Italy | 25-8-2022 | 35 |
| | Mechanical weeding options | WUR | Netherland | 17-4-2022 | 13 |
| | Using apps on the Farmmaps platform | WUR | Netherland | 29-3-2022 | 8 |
| | Using apps on the Farmmaps platform | WUR | Netherland | 5-4-2022 | 11 |
| | Weeding in onions with a robot | WUR | Netherland | 12-5-2022 | 15 |
| | Biofortification to reduce fungicide use in WW | JHI | Scotland UI | 19-7-2022 | 175 |
| Cover and Companion cropping workshop | JHI | Scotland UI | 1-12-2022 | 18 | |
| New technology for weed control in sugar beets | KPODR | Poland | 28-6-2022 | 20 | |
| Actual pest and disease pressure in different varieties in cereals | KPODR | Poland | 2-6-2023 | 60 | |
| IPM approach for different crops | KPODR | Poland | 2-7-2023 | 100 | |
| Probiotic soil micro organisms in wheat | KPODR | Poland | 7-7-2020 | 20 | |
| Greenhouse | IPM strategy in strawberry | INAGRO | Belgium | 4-5-2022 | 14 |
| | IPM strategy in raspberries | INAGRO | Belgium | 10-8-2022 | 7 |
| | Varieties in IPM for strawberries | INAGRO | Belgium | 25-8-2022 | 39 |
| | Beneficials for biological control of aphids | INAGRO | Belgium | 28-10-2022 | 10 |
| | Holistic IPM for policy makers | INAGRO | Belgium | 10-5-2022 | 32 |
| | Biological control in zucchini crops | COEXPHAL | Spain | 10-3-2022 | 23 |
| | IPM of nematodes in greenhouse crops | COEXPHAL | Spain | 21-4-2022 | 16 |
| | Biological control of aphids in watermelon crops | COEXPHAL | Spain | 6-5-2022 | 16 |
| Orchard | Olive fly management strategies | SSA | Italy | 25-5-2022 | 10 |
| | Olive fly management strategies (Partecipatory GIS) | SSA | Italy | 21-6-2022 | 12 |
| Vegetables | Watermanagement on the field | INAGRO | Belgium | 18-2-2022 | 26 |
| | Biocontrol of aphids pollination, substrate cultivation | INAGRO | Belgium | 19-4-2022 | 17 |
| | Cultivar selection, pollination and powdery mildew control | INAGRO | Belgium | 30-6-2022 | 22 |
| | Pellonpiennarpäivä marjattiloilla | ProAgria | Finland | 30-8-2022 | 10 |
| Integrating organic practices in integrated production | CONSULAI | Portugal | 4-10-2022 | 21 | |
| Vineyard | How to predict fungal diseases in the vineyard | FUEGA | Spain | 1-4-2022 | 55 |
| | Pheromons and bats to combat grapevine moth | FUEGA | Spain | 22-5-2022 | 60 |
| | Innovation of Galician viticulture | FUEGA | Spain | 27-7-2022 | 80 |
| | Ozon for plant protection | CONSULAI | Portugal | 18-5-2022 | 18 |

Specifics of demonstration events

In the next section, more specific information is provided per demonstration event, such as the description of IPM strategies, what promotion activities and dissemination and communication materials are used and how the evaluation of the demo event has been done.

Arable Crops

- *Mechanical weeding control – JKI Germany*

The goal of the demonstration was to show an alternative to herbicide use in maize. The demo was for other farmers to see that mechanical weeding in maize is practical and effective. In the demo event machinery and two different methods of mechanical weeding were presented: harrowing and hoeing. The demonstration was facilitated by a field walk.

The customer base and website of JKI has been used to promote the demonstration and photos of the demonstration were shared on social media platforms and website of JKI after the demonstration. The demo event has been evaluated by means of exit polls.

- *Variety effects in oilseed rape and diseases in cereals; Comparison of varieties – JKI Germany*

The goals of the demonstration was to show the benefits of Decision Support Systems (DSS) in different varieties of winter wheat and oilseed rape. The IPM strategies discussed were identification and treatment of diseases in cereals, and the comparison of different varieties of wheat and oilseedsrape. The demonstration was facilitated by a workshop and fieldwalk.

The customer base and website of JKI has been used to promote the demonstration and photos of the demonstration were shared on social media platforms and website of JKI after the demonstration. The demo event has been evaluated by means of exit polls.

- *Cover crops and soil fertility – JKI Germany*

The goal of the demonstration was to show the effects of different cover-crops on soil structure. In the demo event, the IPMWORKS project was presented, whereafter the farmers were able to see different crop mixtures of cover crops in fields trials on comparative evaluation of impacts on soil fertility.

In a workshop farmer discussed their experiences on the IPM strategies, with the removal of the cover crops and the effects of not only the cover crops on soil fertility, but also the importance of the entire cropping system, including soil tillage.

The customer base and website of JKI has been used to promote the demonstration and photos of the demonstration were shared on social media platforms and website of JKI after the demonstration. The demo event has been evaluated by means of exit polls.

- *Single seed sowing and DSS for herbicides – JKI Germany*

The goal of the demonstration was to show the benefits of single seed sowing as adaptation to low rainfall. Also farmers were able to see the benefits of “InnoHerb”, a decision support system (DSS), to reduce the use of herbicides.

The IPM strategies demonstration with machinery for single seed sowing, was canceled because of snow cover. Instead photos were presented, complemented with the explanation of the DSS “InnoHerb”. Farmers discussed the costs of the machinery for smaller farms and the requirements of knowledge, experience and risk tolerance. Other hub members were surprised by the efficiency of the presented DSS, and have become interested in testing the DSS to reduce the use herbicides.

The customer base and website of JKI has been used to promote the demonstration and photos of the demonstration, the presentation and results of the JKI field trials were shared on social media platforms and website of JKI after the demonstration.

- *Automated and selective weed control in grassland – GLZ Germany*

The goal of this demonstration was to improve the accuracy of plant protection. The IPM strategy discussed was the reduction of herbicide use by single plant treatment in grassland.

After the demonstration of the machinery a question and answering session, followed by mind mapping and decision trees has been held with the participants, facilitated by the hub coach.

The customer base and website of GLZ has been used to promote the demonstration and photos and factsheets of the demonstration, were shared on social media platforms and website of GLZ after the demonstration. The demo event has been evaluated by means of exit polls.

- *Focus on Italian Ryegrass – DL Denmark*

The goal of the demonstration is to optimize the pesticide usage by choosing an optimized strategy and at the same time having focus on a different crop rotation system, to reduce the pesticide usage and avoid resistance Italian ryegrass in the future.

In the demo event, the presence of an expert and presentation including answering and question session during the event, was successful. The IPM strategies demonstrated and discussed were crop rotation and different pesticides optimization. The demo event was held in a field where the farmers have difficulties with Italian ryegrass.

The customer base of DL has been used to promote the demonstration. Factsheets of the experiment, the farmers crop rotation system and photos of the field before change of strategy are published. The demo event has been evaluated by means of statistically evaluations.

- *Farm visit; A Farm with focus on IPM – DL Denmark*

The goal of the demonstration is to show what to do when you have a moderate Italian ryegrass problem.

During the event a presentation of the IPM strategies were shown and a field walk in the farmers field with questions on-the-way. IPM strategies demonstrated low practical method on different pesticide strategies, crop rotation systems and the use of thresholds in oil rape seed against



pests. It showed that it is important to not overuse the pesticides available, because it will increase the resistant levels of weeds, pests and diseases.

A press release, website of DL and social media were used to promote the demonstration. An orientation overview of the sprayed area, a folder of the IPM strategies in an overview and a text for each principle are published after the demo event. The demo has been evaluated by means of observation and monitoring.

- *Fit for fight; using fertilizers as a preventive asset towards pests – DL Denmark*

The goal of the demonstration was to show how to ensure the best physiology to withstand pests by fertilization.

The IPM strategies highlighted in this demo event were fertilization optimization, sowing techniques and machines, different crop systems and pests thresholds. After a presentation of the host-farmer, a debate about management practices was facilitated and questions on-the-way during the field walk. It appeared to be difficult to include optimization levels of fertilization focused on the health of plants, when already optimizing based on economic perspectives.

A press release, website of DL and social media were used to promote the demonstration. A folder with the IPM principles explained in an overview, and text for each principle are published after the demo event. The demo has been evaluated by means of observation and monitoring.

- *Italian day – DL Denmark*

The goal of the demonstration was to demonstrate a farmers practice against Italian Ryegrass in different soil types.

After a presentation of the host-farmer, a debate about management practices was facilitated and questions on-the-way during the field walk. The IPM strategies demonstrated were fertilization optimization, sowing techniques and machinery, different crop systems and pests thresholds.

The visitors of the demo event were invited personally by e-mail. Using the client base of DL. Produced material about the field trials and sowing machine will be distributed, complementing material of previously organized experiments.

The demo event will be evaluated by follow-up discussions in coming meetings.

- *IPM field demonstration and debate about CA – VELAS Denmark*

The goal of the demonstration was to inspire farmers outside the hub, to make more use of the IPM principles in grass weed control. The focus was on farmers who also have grass weeds as their main issue in their crops. In the demonstration different types of tillage, and their effect on grass weed control were showed.

The IPM strategies demonstrated in field were direct sowing (Multiva Forte 2), outlay of alfalfa and presentation of IPM strategies in general.

Promotional activities were done by press release in the weekly newsletter and by personal invitations using the client base of VELAS.



- *Ploughing in rotation – VELAS Denmark*

The goal of the demonstration was to show ploughing and non-ploughing in rotation. This demo will continue for the next 3 years. Yield will be measured by FieldView, which is a program connected to the combiner.

The impact of ploughing in year 1 in a field was demonstrated, which have been in a non-ploughing system for years. Afterwards the value of the IPM strategy was discussed.

Promotional activities were done by press release in the weekly newsletter and by personal invitations using the client base of VELAS. Evaluation of the demo event was feedback of the visitor on the location of the demo. This demo will continue for 3 years.

- *Visit to farmers' plot – INTIA Spain*

The goal of the demonstration was to create interaction between the farmers of the cooperation. Different techniques were shown in the field. IPM strategies demonstrated were on resistant varieties and alternative crops for rotation.

Promotional activities were done directly with the hub members and cooperative farmers. Evaluation of the demo was by means of a survey.

- *Rust watch; workshop about yellow rust – INTIA Spain*

The goal of the demonstration was to create a debate on the different strategies to deal with yellow rust. By means of a workshop IPM strategies as resistant varieties, pesticides' reduction techniques, dose, mixture and forecasting models were presented and discussed by the participants. A report of the outcomes will be distributed.

Promotional activities were done by personal invitations. The demo event was evaluated by means of a survey.

- *Trials in the area – INTIA Spain*

The goal of the demonstration was to inform the farmers on different IPM experiments organized by INTIA in the area. The presentation was facilitated by the hub coach. Experiments on IPM strategies in the area were among others, alternative crops for the area (lentils, chickpea, etc.), and work on how to deal with Lolium.

Hub members and cooperative farmers were invited by personal invitation. The demo was evaluated by means of a survey.

- *Winter crops walk and IPM techniques – TEAGASC Ireland*

The goal of the demonstration was to demonstrate IPM techniques in growing cereal and bean crops. The techniques demonstrated included spring drilling to prevent BYDV and different IPM tool for winter crop management such as BYDV control strategy on winter cereals and grass weed control through crop rotation. The IPM strategies were presented by live demonstrations and crop comparisons.

Promotional activities were done by TEAGASC media, social media and through national media outlets. A handout of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.



- *Use of organic manure to improve soil health – TEAGASC Ireland*

The goal of the event was to demonstrate IPM Techniques in growing cereal and bean crops. The techniques demonstrated were the use of organic manures as a replacement for chemical fertilizers. And the use of crop rotation to reduce herbicide requirements. The IPM strategies were presented by live demonstration and a farm walk.

Promotional activities were by TEAGASC media, social media and through national media outlets. A handout of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.

- *Scottish cross visit – TEAGASC Ireland*

The goal of the demonstration was to demonstrate IPM techniques in growing cereal and bean crops. By the means of live demonstration and farm walk visitors were able to look at the approach of the farmer to IPM, crop rotation, delayed autumn drilling to reduce the pressure of BYDV and aphid monitoring.

Promotional activities were done by TEAGASC media, social media and through national media outlets. A handout of the IPM strategies demonstrated was given after the demonstration.

- *Cultivation systems and their effect on weed control – TEAGASC Ireland*

The goal of the demonstration was to demonstrate IPM techniques in growing cereal and bean crop and to demonstrate the use of precision technology to improve application accuracy. By means of a farm walk and demonstration of the technologies used on the farm, visitors were included in the use of GPS technology to protect watercourses and to improve input use efficiency.

Promotional activities were done by personal invitation only. A handout of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.

- *Role of faba beans and crop rotation systems on a cereal farm – TEAGASC Ireland*

The goal of the demonstration was to demonstrate IPM strategies in growing cereals, wild oat control and cultivations. By means of live demonstrations in crop, visitors were able look at the approach of the farmer to IPM. Different approaches to controlling wild oats in spring barley were demonstrated. Next to cultivation to establish spring barley and the subsequent weed control.

Promotional activities were done by TEAGASC media, social media and through national media outlets. A handout of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.

- *Aphid monitoring to control BYDV – TEAGASC Ireland*

The goal of the demonstration was to demonstrate IPM techniques in growing cereal crops. By means of a live demonstration and farm walk. IPM strategies presented at the demo event included alternative approaches to plant protection by using nutrition, crop rotation, cover crops, companion crops, and drilling system.



The demo event was specific to hub members from Scotland. A factsheet of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.

- *Informing policy makers about the role of IPM – TEAGASC Ireland*

The goal of the demonstration was to look at the role of precision tools in IPM. The techniques were demonstrated in a live demonstration in growing cereal crops.

The demo event was specific to hub members from Scotland. A handout of the IPM strategies demonstrated was given after the demonstration. The demo event has been evaluated by means of a feedback sheet.

- *Field day OVLAC MINI - Rete degli agricoltori Italy*

The goal of the demonstration was to demonstrate a mini-plough for mechanical weeding and seedbed preparation. This IPM technique could be of interest for both conventional and organic farmers. The IPM strategy showed to be effective in weed reduction by tillage, but without the trade-offs of deep ploughing. A presentation on the IPM strategy was given by the hub coach. The machine retailer was present to explain the machine and made a direct test on a strip of field close to the event location.

A brief description of the demo event and demonstrated IPM strategies was on an easy to read and short leaflet sent to the communication channels to the client base of Rete degli agricoltori, and posted on the social media channels. A one page leaflet was sent after the demo to the hub members and hub interested people, as well as giving official communication to the Agronomists and Foresters Association of the Pisa province, and to the three Farmers Unions. The demo event was evaluated by means of a survey given to the participants.

- *Field day IPM techniques on wheat in Tuscany - Rete degli agricoltori Italy*

The goal of the demonstration was to test different machinery for post-harvest seeds preparation and to show farmers how the seed preparation can be done. Following the field trial harvest on lentils and wheat harvesting the objective was to separate the wheat from the lentils. The IPM techniques were demonstrated by 2 farmers, the hub member which was hosting the field trial and an organic farmer.

A brief description of the demo event and demonstrated IPM strategies was on an easy to read and short leaflet sent to the communication channels to the client base of Rete degli agricoltori, and posted on the social media channels. A one page leaflet was sent after the demo to the hub members and hub interested people, as well as giving official communication to the Agronomists and Foresters Association of the Pisa province, and to the three Farmers Unions. The demo event was evaluated by means of a survey given to the participants.

- *Field day LIFE AGRESTIC - Rete degli agricoltori Italy*

The goal of the demonstration was to have an interactive event in collaboration with the researcher working on the experimental site. The IPM strategies demonstrated were on varietal selection, disease knowledge on wheat and wheat-lentil intercropping. A field visit and explanation was given on site, where visitors were able to interactively take part by giving marks



to the different varieties. A trial of the Rustwatch web app was given, and a visit to the nearby durum wheat-lentil intercropping field trial was included.

A brief description of the demo event and demonstrated IPM strategies was on an easy to read and short leaflet send to the communication channels to the client base of Rete degli agricoltori, and posted on the social media channels. A one page leaflet was sent after the demo to the hub members and hub interested people, as well as giving official communication to the Agronomists and Foresters Association of the Pisa province, and to the three Farmers Unions. The demo event was evaluated by means of a survey given to the participants.

- *Field day fibre hemp cultivation and harvesting - Rete degli agricoltori Italy*

The goal of the demonstration was to explain the cultivation of fibre hemp and its benefits and show the harvesting process. The crop is still new to the farmers and there are still some trade-offs to overcome to convince the farmers to grow hemp. A presentation of the IPM strategy was given by the hub coach and an agronomist was present to explain the hemp cultivation. Live demonstration of the harvesting was facilitated on site. After the demonstration there was an opportunity to ask questions.

A brief description of the demo event and demonstrated IPM strategies was on an easy to read and short leaflet send to the communication channels to the client base of Rete degli agricoltori, and posted on the social media channels. A one page leaflet was sent after the demo to the hub members and hub interested people, as well as giving official communication to the Agronomists and Foresters Association of the Pisa province, and to the three Farmers Unions. The demo event was evaluated by means of a survey given to the participants.

- *Mechanical weeding options – WUR The Netherlands*

The goal of this demonstration was to show the possibilities of mechanical weed control in several crops. Mechanical weed control gets more and more attention in The Netherlands, as in many crops there are just a limited number of herbicides. Several machines were demonstrated and the opportunities in different crops discussed.

- *Using apps on the Farmmaps platform – WUR The Netherlands (two groups)*

Several apps for IPM are developed in The Netherlands, by WUR and other companies. Relevant apps for IPMWORKS were demonstrated and discussed. Farmers think digital tools are nice, but quickly they are too complicated to use although developers think they are simple to use. To optimize the use of apps, crucial input data is needed, and that doesn't always happens. This is good input for the developers, to adapt apps to the needs of the farmers.

- *Weeding in onions with a robot – WUR The Netherlands*

Robots for weed control in arable crops are developing quickly. In this demonstration the farmers got the opportunity to watch the effect of an autonomous weeding robot in onions. After the demonstration in the field there was a vivid discussion about the pro's and con's of the robot. As chemical weed control in onions is getting more and more difficult because of little availability of herbicides there is an interest in robots. But so far robots are still very expensive and have too little capacity to make it applicable on the short term. But for sure robots are promising, as we see that development goes fast.



- *New technology in weed suppression in sugar beets – KPODR Poland*

The goal of demonstration was to show the importance of a good and extended crop rotation, the use of a few specific techniques for weed suppression in sugar beet, and in improving soil quality with probiotics in oilseed rape and wheat. The farmer presented his strategy for the whole farm and how he uses microdoses of pesticides, crop rotation, variety selection, mechanical weeding, cover crops in his strategy.

- *Actual pest and disease pressure in different varieties in cereals – KPODR Poland*

In Chrzastowo, on a farm with a variety testing site, workers of SDOO Chrzastowo, together with dr.hab.inż Grzegorz Lemanczyk and dr.hab.inż Robert Lamparski, presented the current status of the oilseed rape crop and the growing plant pest and disease pressure in the next period due to weather change from dry to wet. Common conclusion was that very dry March and relatively cold spring in some periods significantly mitigated pest pressure for both diseases and pests. Reduction in populations of some common pests was noted in the last years as well increasing populations of some untypical ones. Variety selection was heavily discussed in conjunction with soil type and disease resistance & tolerance. About 30 visitors then visited the collection of recommended cereals for Kujawsko-pomorski region and discussed disease pressure in the current growing season.

- *IPM approach in different crops, KPODR, Poland*

Demonstrations on an agricultural fair and AGRO-TECH event in Minilowo. A series of short, 1 hour tours by experts on several topics regarding plant protection, precision agriculture, pest recognition, disease recognition and organic agriculture. Including a question and answer session with the participants.

- *Probiotic soil micro-organisms in wheat, KPODR, Poland*

A farmer with several years of experience in using soil probiotics presented his results, being convinced that improving the soil microbiome has positive effects on wheat production, health of the plants. Part of the demonstration was a field visit and a multimedia presentation.

- *Biofortification to reduce fungicide use in WW – JHI Scotland UK*

The goal of the demonstration was to evaluate regenerative techniques and understanding opportunities for diverse cropping. In a field demo of winter wheat a comparison of disease effect between bio fortification and conventional fungicides was explained. IPM strategies demonstrated were elicitors, bio stimulants, foliar nutrition and threshold levels.

Promotional activities for the demo event were through event promotion and hub communication. Handouts and Centre for Sustainable Cropping technical notes were provided at the demo event. The demo event was evaluated by means evaluation sheets and exit polls.

- *Cover and Companion cropping workshop – JHI Scotland UK*

The goal of the demonstration was to compare cover crop success in Scotland. IPM strategies that were presented were cover cropping, companion cropping, trap cropping, No-till techniques and regenerative agriculture. With a small group of farmers a discussion was facilitated on what were the best types for the region, companion cropping and potential



fertilizer savings. During the demo event direct drilling, No-till techniques, multiple seeding units, mulching and biofumigation were demonstrated.

Promotional activities for the demo event were done through JHI communication channels and hub communication. Video footage of machinery working through the year will be provided at the demo event. The demo event was evaluated by means evaluation sheets and exit polls.

Greenhouse

- *IPM strategy in strawberry – INAGRO Belgium*

The goal of the event was to show the overall IPM strategy in a strawberry tunnel with the cultivar Clery and to discuss the IPM strategies and the monitoring data. During a round-table workshop the participants were able to present themselves and their purpose of attending this demo event. Knowledge was exchanged of the followed up strategies. A presentation about “Flying doctors” was given during the event. Participants were able to visit the tunnels with strawberry cultivar Clery where the use of “Flying doctors” was demonstrated.

IPM strategies demonstrated and discussed were rotation (1-2) chemical soil disinfection, cultivar, biocontrol, and chemical pesticides.

Promotional activities of the demo event was done by personal contact. The footage and photos taken during the event will be used for distribution via a blog and social media. The demo event was evaluated by means of an exit poll.

- *IPM strategy in raspberries – INAGRO Belgium*

The goal of the demonstration was to demonstrate farm IPM strategy in raspberries in tunnels, with special focus on *Drosophila suzukii*. IPM strategies demonstrated were the use of predatory mites against spider mites, the use of traps against *D. suzukii*, preventative strategies such as picking hygiene and the management of damaged fruits. In the demo event the IPM strategies were presented. During a round-table workshop the participants were able to present themselves and their purpose of attending this demo event. The participants were asked to bring their *D. suzukii* trap and to share their experiences and knowledge.

Promotional activities of the demo event was by personal contact. A recipient with *D. suzukii* males and females was made and distributed on the event. The footage and photos taken during the event will be used for distribution via a blog and social media. The demo event was evaluated by means of an exit poll.

- *Varieties in IPM of strawberries – INAGRO Belgium*

The goal of the demonstration was to show different techniques to handle a holistic IPM strategy in strawberries. IPM strategies demonstrated were the use of different varieties of strawberries in the glasshouse. The use of commercial beneficials (gal midges and lacewings) and the use of banker plants in the glasshouse to control aphids. The use of flower strips to control aphids in strawberry fields under plastic. And the use of a prediction model to control powdery mildew. The IPM strategy was presented and a farm walk was facilitated.



The invitation of the demo event was spread by the newsletter and the website of Inagro. A specific mail was sent to the members of Inagro who are interested in strawberries. Furthermore, the event was spread by personal contacts and in meetings with strawberry growers. A blog was written after the demo event. The demo event was evaluated by means of an exit poll.

- *Beneficials for biological control of aphids – INAGRO Belgium*

The goal of the demonstration was to show the use of commercial beneficials against aphids. The IPM strategies for aphids from the hub member was monitored in an autumn cultivation. The occurrence of aphids and their natural enemies were monitored. Their IPM schedule was surveyed and linked to the monitoring data. In one compartment the farmer will use his standard IPM schedule. In the other compartment he will use only commercial beneficials to control aphids. IPM strategies demonstrated were the use of predatory wasps, galmidges and lacewings and Teppeki. The IPM strategy was presented and a farm walk was facilitated.

The promotional activity of this demo event was done by personal invitation. Factsheets of the IPM strategy and monitoring data were made available after the demo event. The demo event was evaluated by means of an exit poll.

- *Holistic IPM for policy makers – INAGRO Belgium*

The goal of this demonstration was to inform relevant policy makers about the projects' network, the methods, the tools and to discuss the longer term sustainability and possible extension of the farm demo networks (and tools). The demo event was held in the field and at the farm. During the farmwalk the demo fields were shown to the visitors and hands-on experience was shared.

The promotional activity of this demo event was done by personal invitation. Footage and a leaflet of the IPM strategy were used as communication and dissemination material. The demo event was not evaluated.

- *Biological control in zucchini crops – COEXPHAL Spain*

The goal of the demonstration was to show how biological control can be efficiently applied in zucchini crops. The IPM strategy was presented and followed by a group discussion. The IPM strategies demonstrated were biocontrol of whiteflies with phytoseid mites; the use of auxiliary flora.

Promotional activities for the demo event were done through Coexphal communication channels and advertisement in NEFERTITI. Footage, interviews and factsheets will be used as communication and dissemination material, as well as social media posts and an article in a technical magazine. The demo event was evaluated by means of an informal discussion and exit polls.

- *IPM of nematodes in greenhouse crops – COEXPHAL Spain*

The goal of the demonstration was to show how IPM can be used to control nematodes in greenhouse crops. The IPM strategy was presented and during the field walk a discussion on hands-on experiences was facilitated. The IPM strategies demonstrated were nematodes in greenhous pests using; biological products, BCAs and trapping plants.



Promotional activities for the demo event were done through Coexphal communication channels and advertisement in NEFERTITI. Factsheets will be used as communication and dissemination material, as well as social media posts. The demo event was evaluated by means of an informal discussion and exit polls.

- *Biological control of aphids in watermelon crops – COEXPHAL Spain*

The goal of the demonstration was to show how biological control can be used to control aphids and other pests in melon crops. The IPM strategy was presented and during the field walk a discussion on hands-on experiences was facilitated. The IPM strategies demonstrated were biological control of aphids; use of auxiliary flora.

Promotional activities for the demo event were done through Coexphal communication channels and advertisement in NEFERTITI. Factsheets and an article in a technical magazine will be used as communication and dissemination material, as well as social media posts. The demo event was evaluated by means of an informal discussion and exit polls.

Orchard

- *Olive fly management strategies (preparatory training on mineral repellents) – SSA Italy*

The goal of the demonstration was to provide farmers with information on the products under discussion, an analysis of the costs of adopting this IPM strategy, comparison with experts and sharing their respective experiences with these products. IPM strategies demonstrated were the use of different types of rock dust, creating a tree canopy a protecting film with many positive actions on the olive tree and an effect on olive fly interfering with the egg-laying on the fruits. A presentation on the IPM strategies was given during the demo event.

Promotional activities for the demo event were done through SSA communication channels and social media and the social network of Sportello di Agroecologia. The demo event was evaluated by means of a survey.

- *Olive fly management strategies (participatory GIS) – SSA Italy*

The goal of the demonstration was co-design of the differentiated strategy of push & pull techniques, based on farm localization, abandonment situation in the area, preferences in order to repellents to use, type of kill technique, protein baits and traps. The demo event was organized in cooperation with experts of GIS technologies working in SSA. IPM strategies like shared planning of an integrated management plan for olive fly working on land maps was presented and a discussion on the choice and adoption of different practices (repellents and camouflage, protein baits and traps) was facilitated.

Promotional activities for the demo event were done through SSA communication channels and social media. The demo event was evaluated by means of a survey.



Outdoor Vegetables

- *Water management in the field – Belgium*

The overall goal of the demonstration was to demonstrate and make farmers aware of BAT for water and erosion management on their land in the specific case of zucchini.

Promotional activities for the demo event were done by individual mailing and contact via extension service. The demo event was evaluated by means of exit polls.

- *Biocontrol of aphids, pollination, substrate cultivation – Belgium*

The goal of the demonstration was to demonstrate biocontrol of aphids, bumblebee hives, beekeeping and substrate cultivation. Farmers were invited to take part in a knowledge carousel where farmers testimonies were presented and farmers were able to reflect on the demonstrated IPM strategies.

Promotional activities for the demo event were done by individual mailing and contact via extension service. The demo event was evaluated by means of exit polls.

- *Cultivar selection, pollination and powdery mildew control – Belgium*

The goal of the demonstration was to show cultivar selection as preventative measure, and to demonstrate how to tackle bad pollination and powdery mildew.

Promotional activities for the demo event were done by individual mailing and contact via extension service. During the event information on roll-up and visitor guides was provided. The demo event was evaluated by means of exit polls.

- *Field day - ProAgraria Finland*

The goal of the demonstration was peer-to-peer learning on soft fruit IPM. IPM strategies demonstrated were pest monitoring and different types of weed control in strawberry. A field tour was undertaken for promotional activities of the event and exchange of experience was facilitated during the event.

The event was evaluated by means of post-event discussions between participants.

- *Integrating organic practices in integrated production – Consulair Portugal*

The goal of the demonstration was to look into practices and topics related to biological control (monitoring, prevention) which can be adopted by all farmers. IPM strategies were demonstrated in the field and after the demonstration the participants and expert were able to have an interactive discussion on the topics. IPM strategies demonstrated were fostering of auxiliary fauna and release of auxiliaries for biological control; use of strips and hedges and creation of other shelters.

Promotional activities were done by direct invitation through e-mail and by phone. Footage and photos of the demonstration were shared on social media. The demo event was evaluated by means of a report of the demo event and exit polls.



Vineyard

- *How to predict fungal diseases in the vineyard – FEUGA Spain*

The goal of the demonstration was to demonstrate solutions to predict fungal diseases in vineyards. The IPM strategies demonstrated were innovative decision support tools, to optimize the chemical phytosanitary treatment in viticulture, which will result in a reduction of production costs, an increase in the wine quality and an improved protection of the environment. A presentation in the field of the IPM strategies were followed by a farm walk and Q&A.

Promotional activities for the demo event included articles in newspapers, leaflets and posters, posts on social media channels of FEUGA and using the customer base of the organization. Footage and photos of demonstration were used for communication and dissemination material. The demo event was evaluated by means of exit polls.

- *Pheromones and bats to combat grapevine moth – FEUGA Spain*

The goal of the demonstration was to install bat nest boxes in vineyard, favoring the presence of bats around the vineyard, a natural predator of the grape moth. Which in turn will reduce pesticide use. Other IPM strategies demonstrated were biocontrol natural agents and pheromone traps. The IPM strategies were explained during a field walk.

Promotional activities for the demo event included articles in newspapers, leaflets and posters, posts on social media channels of FEUGA and using the customer base of the organization. Footage and photos of demonstration were used for communication and dissemination material. The demo event was evaluated by means of exit polls.

- *Innovation at the service of Galician viticulture/VinioT demofarm visit at Galicia – FEUGA Spain*

The goal of the demonstration was to test a new technological vineyard monitoring service. The IPM strategies included real-time monitoring, remotely and at various precision levels (grapes, plant and vineyard). The participants were divided into small groups to ease the interaction while visiting the demonstration plots.

Promotional activities for the demo event included articles in newspapers, leaflets and posters, posts on social media channels of FEUGA and using the customer base of the organization. Footage and photos of demonstration were used for communication and dissemination material. The demo event was evaluated by means of exit polls.



4. Evaluation & conclusion

All the partners of the IPMWORKS project were asked to share details on their demonstration events executed in 2022 via the hub journals and in this report all the demonstration events were briefly summarized and elaborated upon. Demonstration events have been conducted in different crops & sectors, for different goals, such as weed management or pest management and in various countries.

For the continuation of the project, each hub can be inspired by the past experiences of 2022 and use the content and experiences to start working on their own topics. At last, procedures for proper administration of all the events may be improved to raise the quality and completeness of the work in the project.

The demonstrations are evaluated, through exit polls. The results of the evaluation are reported in the milestone report. This milestone from the third work package of IPMWORKS outlines the monitoring and evaluation of IPM demonstration activities at demonstration events. These demonstration activities aim to (i) facilitate farmers in learning the technical and economic effectiveness of strategies; and (ii) encourage farmers to apply these strategies to their own farms.

The results of the evaluation indicate that demonstrations have a moderate impact on attendees, with many attendees understanding specific practices demonstrated with the intention of applying them on their own farms (35.45%). However, a significant percentage of attendees indicated that they already apply specific techniques demonstrated at events (34.68%). The results also suggest that Holistic IPM is communicated well at demonstration events and throughout the project. However, future events should focus on delivering better-targeted demonstrations and facilitating interactive discussions with farmers. The evaluation results provide a basis for measuring the extent to which the project has reached the objectives and provides insight to further improve future demonstration activities.

Evaluation of experiences from the hub coaches in using the hub journal for reporting resulted in adaptation of the hub journal for optimizing its use and usefulness.

