

Policy recommendations
for scaling IPM adoption



Holistic IPM





CONTEXT

Pesticide use and its negative effects on the environment and human health remain high in Europe. Integrated Pest Management (IPM) has been shown to effectively contribute to reducing pesticide use. However, decades after it was introduced and 15 years after the Sustainable Use Directive (2009/128/EC) came into force, IPM adoption still remains limited. Reasons can be found in the **challenges farmers still encounter to move from IPM in theory to IPM in practice**, including:

- Farmers tend to cherry-pick IPM practices to solve acute problems, without embracing IPM as an integrated systems approach to crop health
- Preventive options at the cropping and landscape level are often undervalued.
- IPM implementation is context-specific. The integrated system of principles and practices differs by region, crop, and individual farm features. Farmers thus cannot simply follow a standard, but need to find farm specific approaches.
- IPM is often perceived to be complex.
- Advisory support, opportunities for farmers to network and exchange experiences, and related learning, are underdeveloped in many regions.

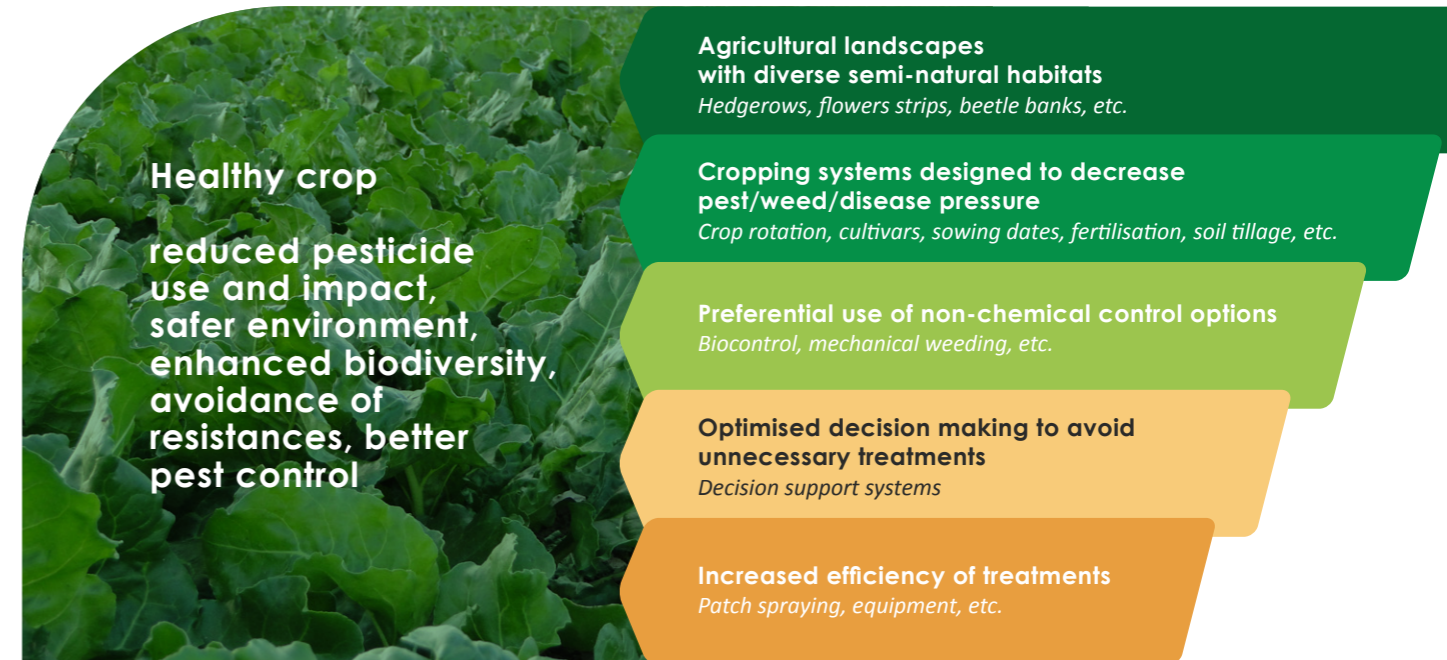
The **IPMWORKS** project addressed these challenges by (1) promoting a holistic approach to IPM, and (2) setting up an EU-wide network of farmer demo hubs, in which farmers both take their own steps in IPM practice and demonstrate to others that **holistic IPM indeed WORKS**. This brief presents policy recommendations concerning holistic IPM.



HOLISTIC IPM

The **IPMWORKS vision for the future** is one in which agricultural landscapes and cropping systems in Europe are effectively designed to manage pests, diseases and weeds; where decision making on all farms is optimised to ensure effective pest management and avoid unnecessary treatments; where non-chemical pest control options are preferred by all, where efficiency of pesticide treatments is optimised, and where crop production (still) is economically profitable.

Holistic IPM includes redesigning cropping systems within the broader landscape, through the adoption of diversified management strategies, including a broad range of preventive and curative practices.





HOLISTIC IPM

The IPMWORKS consortium agreed on a shared vision of **holistic IPM**, connecting with practical on-farm implementation, and helping to effectively reduce reliance on pesticides. At the **farm level** it focusses on:

- **Healthy crops produced with limited chemical pesticide use**, providing a safer environment with enhanced biodiversity and avoiding resistance build-up in pest populations, while maintaining the farm's economic profitability;
- Strategies **tailored** to the specific needs and context of the region, crop and farm;
- Implementation at the field level considering each of the **five pillars of holistic IPM**, whenever relevant. As defined by IPMWORKS, these are:
 1. Arrangement and management of agricultural landscapes, with diverse semi-natural habitats, hedgerows, isolated trees, flowers strips, beetle banks, etc. to attract beneficial organisms that have the potential to regulate crop pests and decrease pest pressure.
 2. Designing cropping systems by combining preventive measures to decrease local pest, weed and pathogen pressure, through crop rotations including functional diversity, resistant cultivars, adapted sowing dates and densities, adapted fertilization and soil tillage, adapted pruning, etc.
 3. Preferential use of non-chemical control options, when available and applicable, such as biocontrol solutions, mechanical weeding or robotics, protective nets, etc.
 4. Optimising decision making to avoid unnecessary treatments, by making use of Decision Support Systems (DSS) and precise monitoring of local pest pressure.
 5. Maximizing treatment efficiency, when they are deemed necessary, through precision agriculture, such as patch spraying, or adapting dosage to crop and pest specificities, without compromising treatment efficiency in order to avoid resistance.



RECOMMENDATIONS

Although IPM theory and practice are well documented, new research and innovations are continuously called for. Farmers continuously need to adapt to a decreasing availability of chemical pesticides and an increasing influx of non-endogenous pests and diseases due to climate change and international trade.

Moreover, knowledge gaps exist regarding preventive measures at landscape and cropping system level, tools for monitoring and decision support, non-chemical control options, and machinery to raise the effectiveness of some unavoidable chemical treatments.

1. HOLISTIC IPM NEEDS CONTINUOUS INNOVATION

→ Continue to support research for and development of crop protection solutions, in particular for holistic IPM, on the following topics

- The preventive capacity of semi-natural habitats – that can provide food, feed and shelter for predators – for pests in diverse types of crops;
- The capacity of diverse cropping systems to decrease pest, weed or disease pressure;
- Tools for monitoring and decision support: on this topic, IPMWORKS is promoting the [IPM-Decisions platform](#), that provides easy access to a range of Decision Support Systems. IPMWORKS and [IPM Decisions](#) jointly call to support R&D of novel IPM DSS;
- Non-chemical control tools, both mechanical and biological tools, to combat the wide range of pests, diseases and weeds;
- Precision agriculture.

→ Support farmers' access to independent sources of this knowledge





RECOMMENDATIONS

HOLISTIC IPM NEEDS MITIGATING FARMERS' RISK AVERSION

.2 Farmers' margins from growing crops are small, due to strong international competition in the market for their produce and increased prices for inputs such as fuel or fertilizers. As a result, farmers fear yield loss, if they were to change their crop protection practices. Also as a result of the small margins, many farms have little room for investment.

Moreover, almost all farmers work very long days and fear spending more time on new methods. IPMWORKS research suggests these major barriers could be alleviated by following policies:

Support IPM adoption financially to reduce farmers' risk in implementation

- Consider an insurance mechanism against production loss for early adopters.
- Subsidize the implementation of IPM techniques (such as semi-natural habitats, non-chemical prevention/control, automated monitoring, digital DSS infrastructure, machinery reducing pesticide use, etc.), e.g. through environmental schemes under the CAP 2nd pillar.
- Engage consumers and agri-food chains, e.g. through labelling based on traceability.



Support real-life testing and demonstration of novel holistic IPM techniques and make sure farm-level economic evaluations are included

As shown a.o. by the IPMWORKS hubs, holistic IPM does not need to pose risks to crop yield or farm profits. This needs to be experienced by farmers and demonstrated peer-to-peer.

RECOMMENDATIONS

Holistic IPM is highly site-, sector-, crop- and context-specific. The integrated system of principles and practices, differs by region, crop, and individual farm features, necessitating farmers to tailor their endeavours in holistic IPM to their specific (different) contexts.

3. IPM NEEDS TAILORING TO LOCAL CONDITIONS AND TO CROPPING SYSTEMS

Recognize the need to tailor IPM to regional and farm-level conditions

Do not consider holistic IPM as a 'one-size-fits-all' recipe.

Holistic IPM first and foremost focusses on pest/disease/weed prevention. Crop diversification within arable cropping systems has proven to be important for prevention. Including, for example, working with diverse taxonomic families, diverse sowing/planting times (winter/spring/summer crops), diverse soil tillage strategies, or other agro-ecological practices, may reduce pest or weed pressure. All these options, however, need to be designed at the whole farm level, not at the single crop level.

Define IPM rules at the level of the whole farm cropping system

Do not only define rules at the single crop level.

HOLISTIC IPM NEEDS NETWORKING

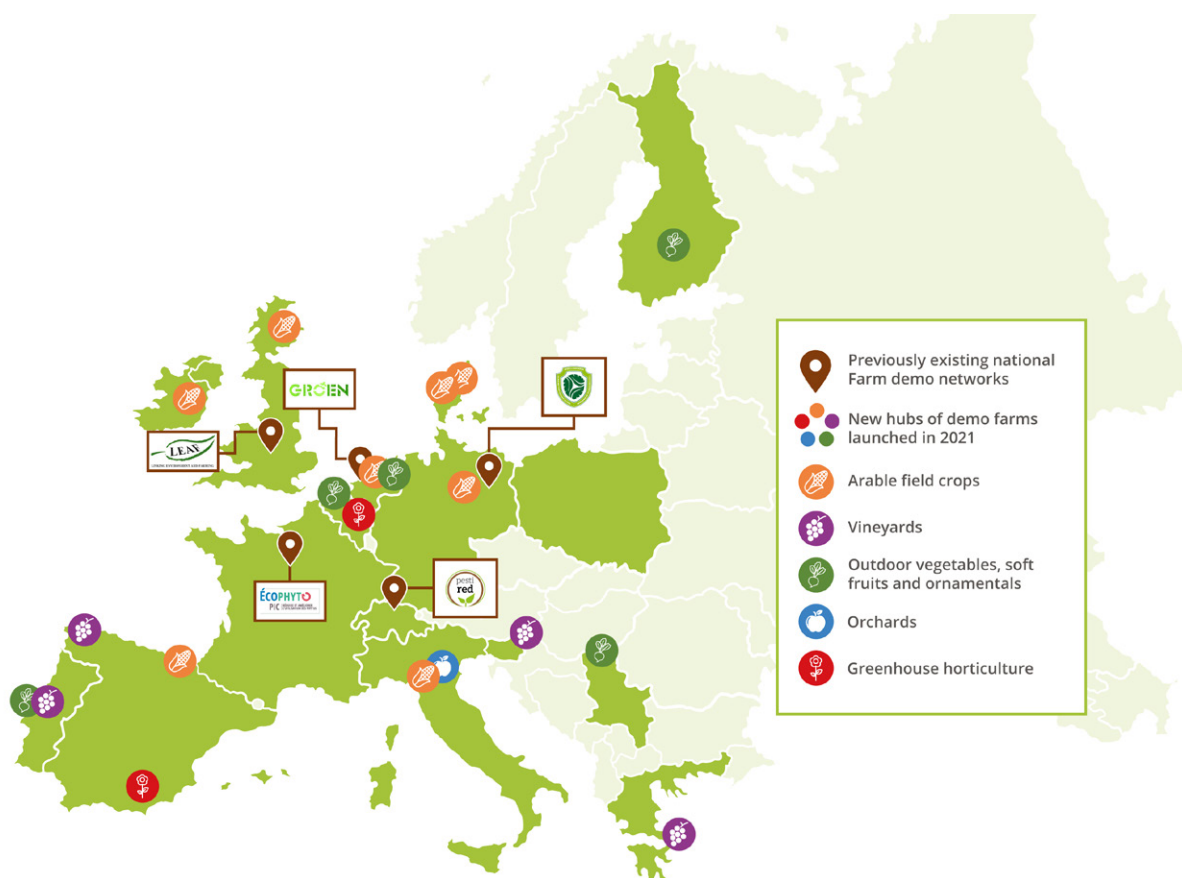
.4 IPMWORKS demonstrated how holistic IPM can develop and spread through networking and peer-to-peer demonstration and learning. Networking on IPM thus indeed WORKS, both for farmers and for advisors.

Support IPM demo networks

- Refer to the IPMWORKS policy brief on IPM demo networks for more details.



AN EU-WIDE FARM NETWORK DEMONSTRATING AND PROMOTING COST-EFFECTIVE IPM STRATEGIES



ADDITIONAL RESOURCES

ipmworks.net

[IPMWORKS resources toolbox](#)*

[IPMWORKS D3.7](#)**

platform.ipmdecisions.net

ipmdecisions.net

* **IPMWORKS resources toolbox** especially (1) booklets describing IPMWORKS farmers' individual strategies to implement holistic IPM; (2) booklets presenting survey results in IPMWORKS farms, providing evidences that IPM indeed reduces chemical pesticides and is cost-effective; (3) IPMWORKS e-learning modules presenting examples of holistic IPM strategies in five agricultural sectors.

** **IPMWORKS D3.7** Report on the implementation of in field comparisons of IPM strategies; and other [deliverables](#) from IPMWORKS.



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