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IPM works

ARABLE FIELDS



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

INTEGRATED PEST MANAGEMENT

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. Rare 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.

IPMWORKS

IPMWORKS - An EU-wide farm network demonstrating and promoting cost-effective IPM strategies - is a four-year project (2020-2024) financed by the Horizon 2020 Research and Innovation programme of the EU. IPMWORKS is made up of a consortium of 31 partners from 16 European countries assembled with various types of organizations covering the following roles: Farmers organizations; Applied research, advisory and extension services; Academic research on social sciences; Academic research on agronomy (sensu lato) and environmental science and Training organizations. The project is coordinated by the French National Research Institute for Agriculture, Food and the Environment (INRAE).

DATASET



NUMBER OF FARMS
84



PARTICIPANT COUNTRIES
DENMARK SPAIN
GERMANY THE NETHERLANDS
ITALY UNITED KINGDOM
SLOVENIA



TOTAL ORGANIC FARMS
5



AVERAGE ARABLE FIELD SIZE
367ha



MAIN CROPS
WHEAT
POTATO



AVERAGE EXPERIENCE OF FARMERS
26 YEARS

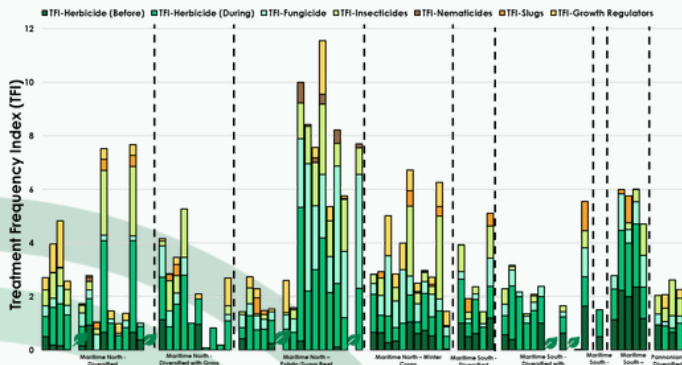
FARMERS' AWARENESS OF IPM AND MOTIVATIONS

Farmers' motivations and level of IPM adoption have been investigated through a survey, just after the farmers joined the network.

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

"Maintaining agricultural traditions" are considered the least important factor, indicating that farmers are open to change and adopting new practices that will benefit them now and in the future.

PESTICIDE USE



Treatment Frequency Index (TFI)

TFI is used as a metric of frequency and intensity of pesticide use. The TFI was determined based on:

- the number of treatments
- average dose (% recommended dose for target pest)
- average % of treated area

TFI metric shows a large range of pesticide use across farms, that can be attributed to:

- Nature of crops (e.g., potatoes and rapeseed are crops requiring high levels of pest/disease control)
- Level of IPM adoption



DECISION SUPPORT SYSTEM

Farmers cited Decision Support Systems (DSS) for the implementation of herbicides, fungicides, insecticides, nematicides, slug control, and growth regulators.

DSS does not appear to be a major component of IPM strategies in IPMWORKS arable farms. progress could probably be done in this area.



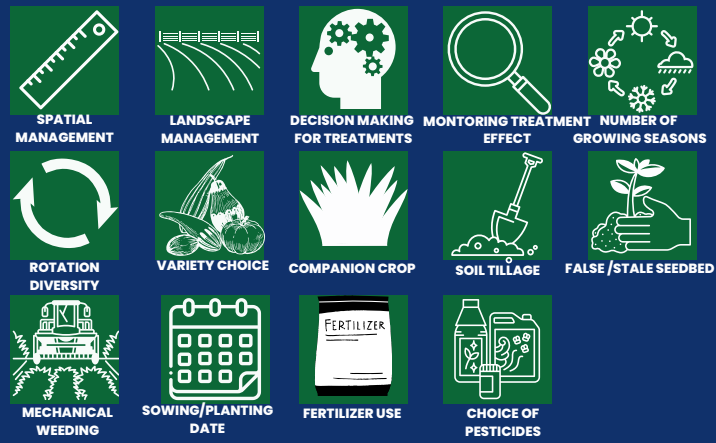
VARIETY CHOICE

choosing wheat cultivars resistant to disease is a major option, particularly in Denmark, Italy, Slovenia... A few IPMWORKS farmers grow mixtures of wheat cultivars to enhance the crop robustness. Potato cultivars resistant to diseases are rather poorly used, because of technological constraints from the industry.

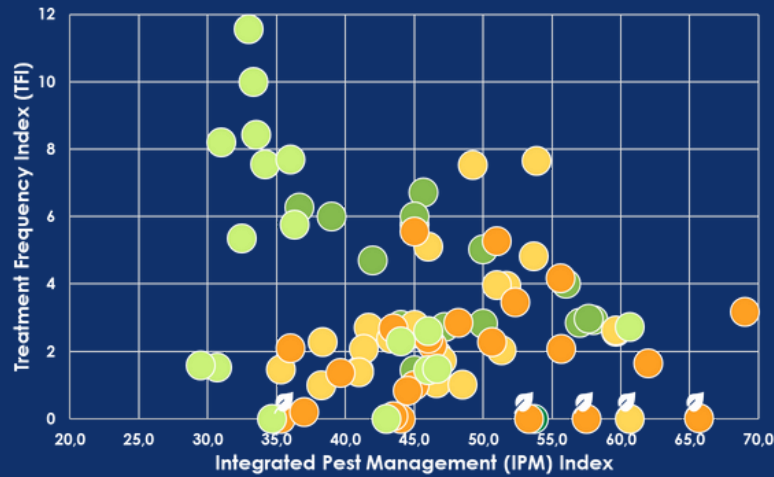
The survey informs about how far the various components of IPM are already implemented by IPMWORKS farmers in arable fields.

IPM INDEX

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



● Winter crops ● Summer crops ● Diversified ● Diversified with grass ● Potato/Sugar beet-based



Based on information collected from IPMWORKS farms about the level of adoption of the various components of IPM, we tested a new IPM Index (sum of scores summarising crop rotation, cultivars, soil tillage, biocontrol, mechanical weeding, DSSs...). The IPM Index ranges [0 - 84].

The range of IPM adoption varies across farms, and this explains part of the pesticide use. Farms with grasslands in the United Kingdom and Germany tend to display a low TFI.

SELF-EVALUATION



WEED CONTROL

Farmers consider weed, disease, and pest control similar to better compared to neighbor farmers whatever the level of IPM adoption. IPM is efficient for weed, disease, and pest control.



DISEASE CONTROL



PEST CONTROL



WORKLOAD

No clear impact of IPM adoption on workload/ha.



EQUIPMENT COST

No clear impact of IPM adoption on equipment costs.



GROSS MARGIN

Most IPMWORKS farmers think they have similar or higher gross margins as compared to neighbors. **IPM is cost-effective.**

CONCLUSION

The IPMWORKS network of farmers in Arable Fields displays a large range of practices, with various levels of IPM adoption. The more IPM is adopted, the less pesticides are needed, without any impact on economic outcomes. Further progress in IPM adoption can be done with the help of IPMWORKS hub coaches.



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