



European Thematic Network for unlocking the full potential  
of Operational Groups on alternative weed control



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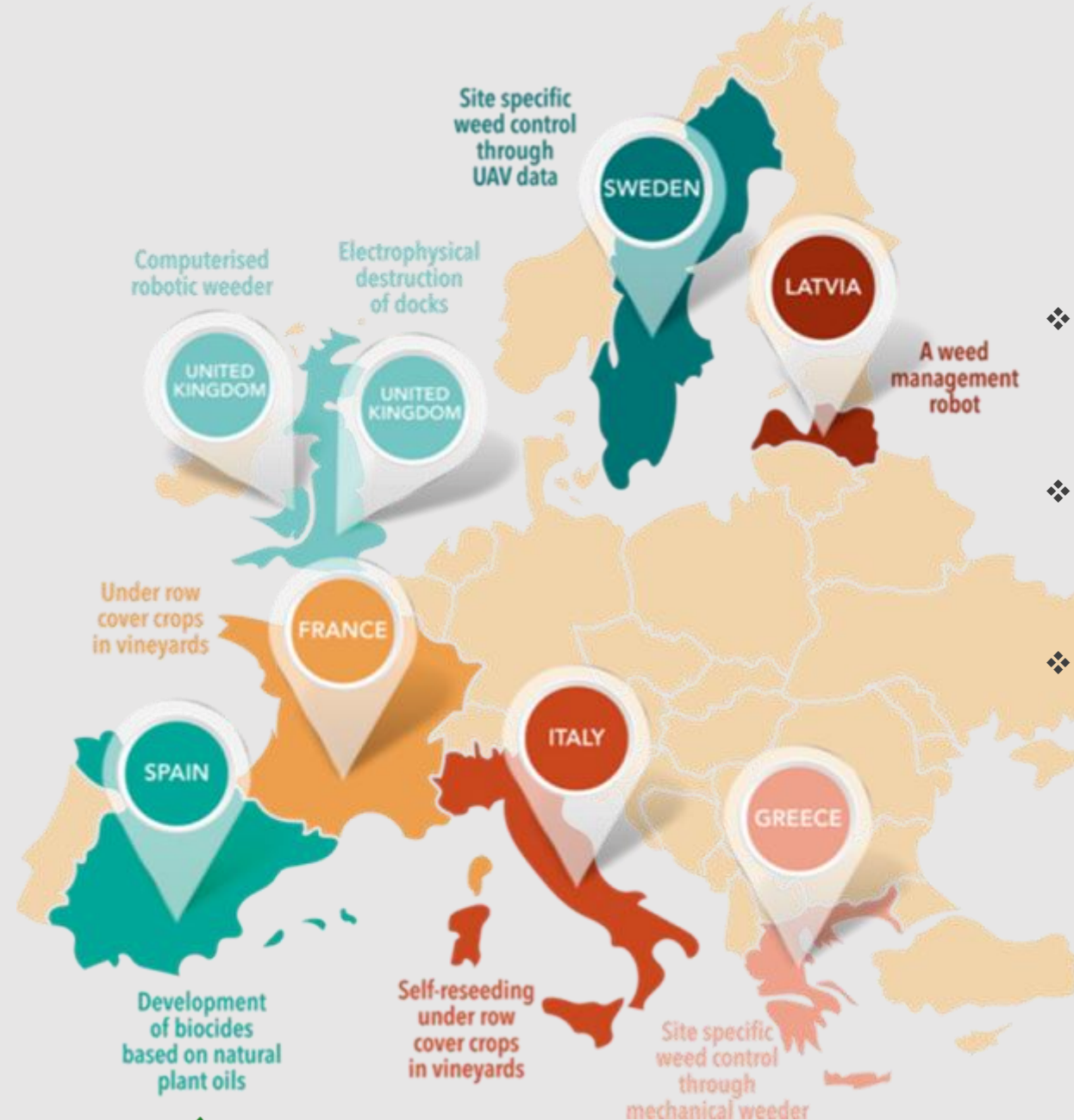
*BCPC Annual Weed Review 2024, 31 October*



This project has received funding from the European Union's Horizon 2020 Programme under Grant Agreement NO 101060591 and supported by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [project number 10048422]

# What is Oper8?

- ❖ EU Network to **support and promote solutions for alternative weed control**
- ❖ Building on the knowledge & outcomes of **eight (8) Operational Groups** (EIP projects)
- ❖ Stimulating **knowledge exchange** among all relevant stakeholders.



# ADAS (UK) Operational groups (Previous EIP projects)

Electrical control of perennial weeds  
(docks – *Rumex obtusifolius*) in grassland

Mechanical weeding in field vegetables



- Previous UK EIP projects were trials in Wales
- For Oper8 demonstration sites are across the UK
- Demonstrations across multiple crops (cereals, field veg & salad, top fruit, cane & bush fruit)



# Oper8 partners weed control focus areas



**France:** Living mulches/cover crops



**Spain:** Agroforestry



**Sweden:** Targeted herbicide applications



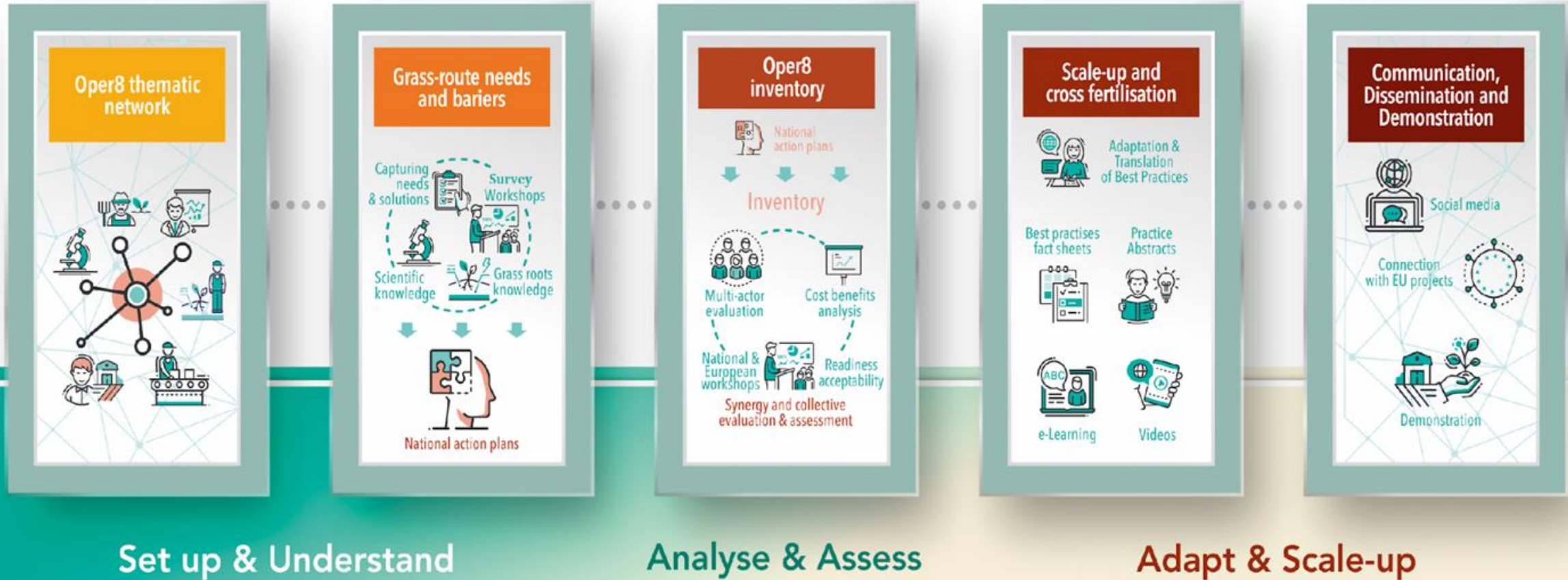
**Latvia:** Robotic weeding systems

**Italy:** cover crops/tillage in vineyards



**Greece:** Mechanical weeding/  
Innovative systems in field vegetables

# Oper8 structure, solutions and outcomes



Output: Practice Abstracts, **Videos**, and **E-learning** material, **Demo Farms**, **policy recommendations (24)**, training material

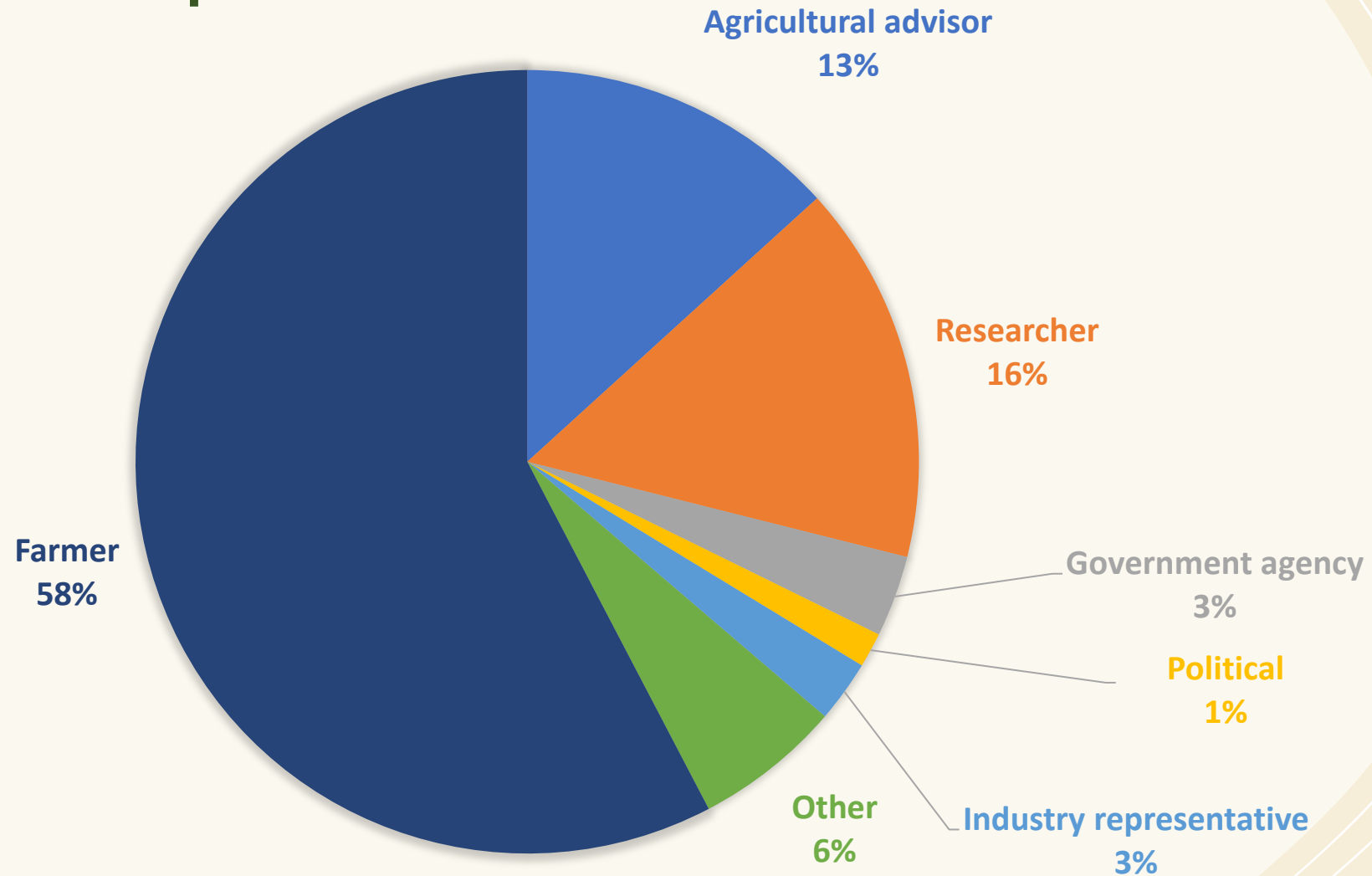


# Stakeholder Survey

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- ❖ **Aim: establish the needs, gaps and barriers for alternative weed control**
- ❖ Online survey questions created, translated and launched (2023)
- ❖ Different question styles (closed and open)
- ❖ Country **Focus group workshops** held to discuss results
- ❖ At least 5 barriers and 5 needs identified per country
- ❖ Barriers, needs and recommendations fed into National Action plans for weed control

# Survey participants

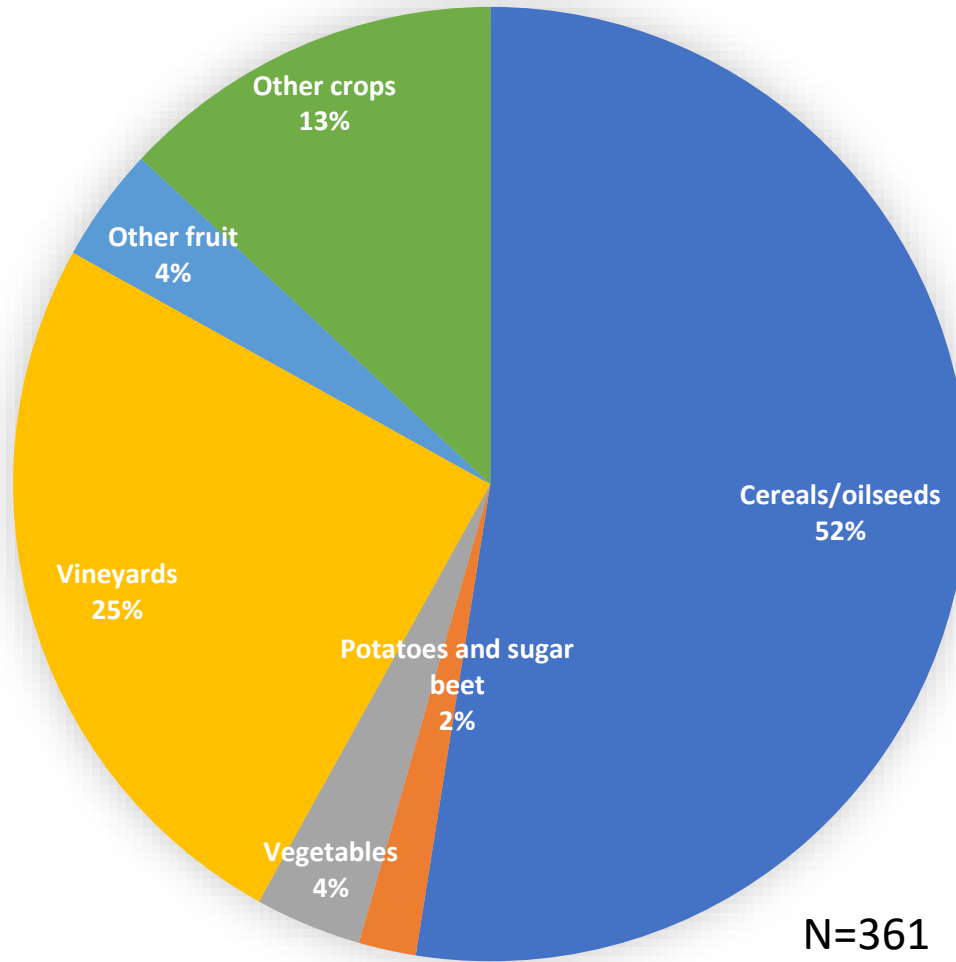


N=625



# Farm Characteristics

What is the predominant crop type on your farm?



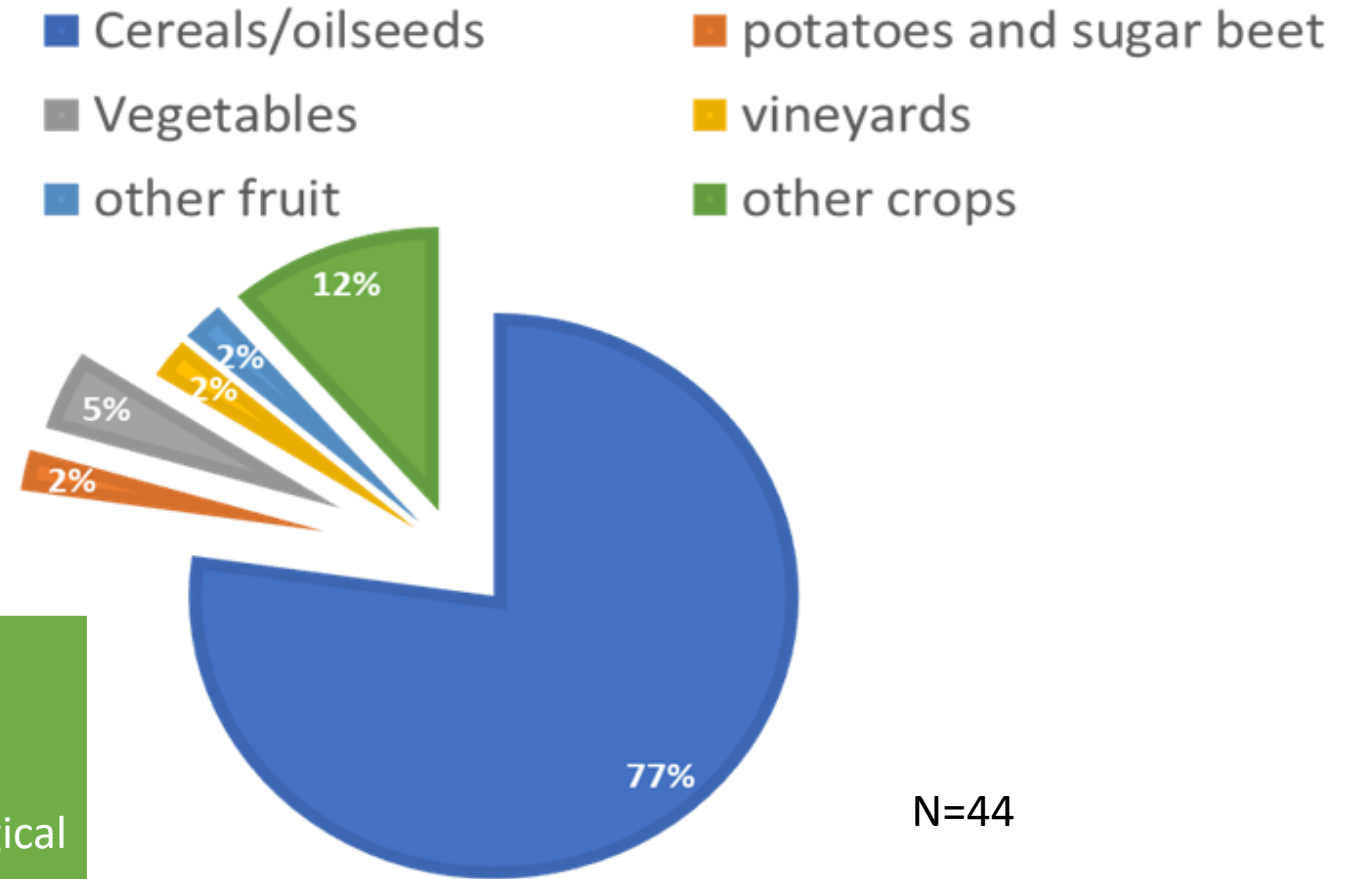
What is your management style?

- 50% Conventional
- 28% IPM
- 15% Organic
- 7% Conservation/ Regenerative/ Agroecological/Other



# UK survey results (111 responses)

- 40 % farmers
- 23% advisers
- 28% Researchers
- 9% Industry/government/other



## What is your management style?

- 43% IPM/IWM
- 39% Conventional
- 16% Regen/Conservation agriculture/Agroecological
- 2% Organic

# Weed control methods being used



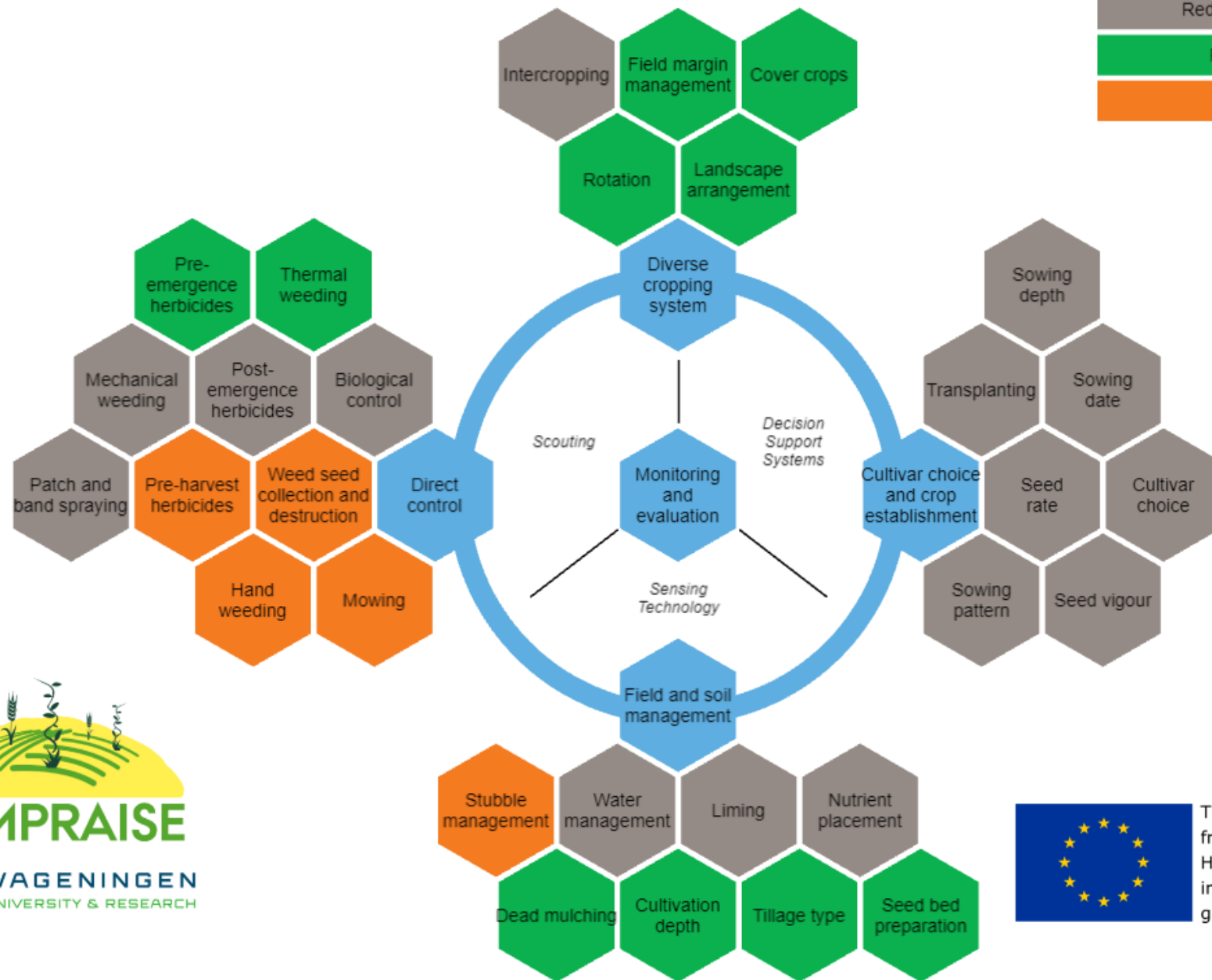
# Oper8 Survey results

- ❖ Heavy reliance on herbicides
- ❖ Farmers interested in alternative methods
- ❖ **Barriers** to uptake of alternatives
  - ❖ Cost (*kit and low efficacy of alternatives*)
  - ❖ Access (*kit and information*)
  - ❖ Information
  - ❖ Farmer-farmer discussion (*trust/practical evidence*)
- ❖ **Solutions** from Oper8 that are urgently required:
  - ❖ Demonstration events
  - ❖ Information sharing/accessibility
  - ❖ National Action Plans for weeds



# Literature review

- ❖ A dataset was built based on:
  - ❖ 764 entries from scientific literature review
  - ❖ 30 patents
  - ❖ 157 documents from 72 eligible EU research projects
  - ❖ 147 documents from 41 eligible national projects
- ❖ This constitutes the backbone of the **Digital Inventory** of alternative weed control solutions and the basis workshops and focus group discussions
- ❖ This exercise returned a clear picture of the status of the research in the EU on alternative weed control strategies



- Reduce impact weed on crop
- Prevent establishment
- Reduce seed return



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement Nr. 727321.

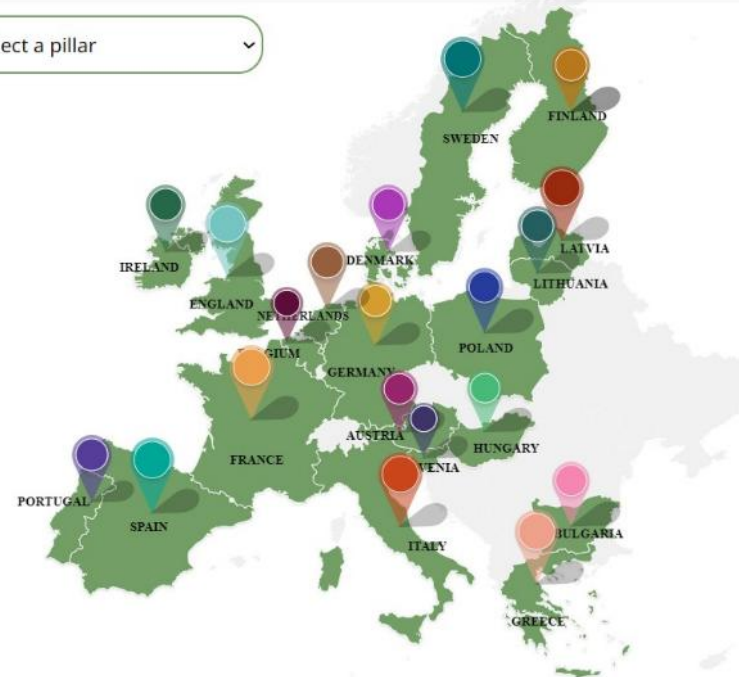


# Digital Inventory Interface

## Welcome to Oper8 Inventory

Exploring Alternative Weed Control Methods

Select a pillar



778  
PAPERS

178  
EU PROJECTS

337  
NA PROJECTS

30  
PATENTS





# National Action Plans (weeds)

- ❖ Data collated from surveys & literature review
- ❖ Fit needs & gaps to cropping systems creating local action plans
- ❖ Up to 3 crops selected per country
- ❖ 10-20 alternative solutions
- ❖ Solutions divided into 'Technical' and 'Political'
- ❖ Considered regional differences in workshop discussions
- ❖ Cost benefit analysis of selected solutions
- ❖ **Aim: create policy recommendations**



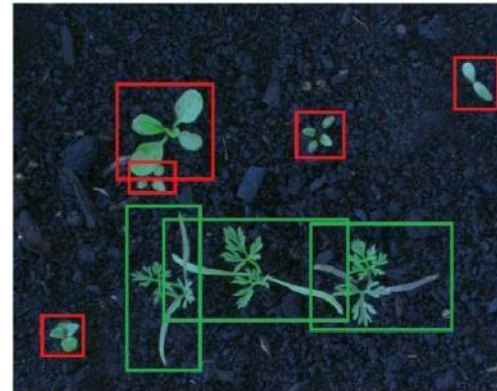
# NAP main solutions

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## Mechanical weeding



## Robotic weeding



## Targeted spot spraying



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# Laser weeding: Latvia



**WEEDBOT: machine available**



**Autonomous system: prototype**



# Demonstration events UK



ADAS/VCS demo day- **Ecorobotix ARA**  
precision smart spraying technology



**Groundswell 2024**  
Grassweed management  
discussion session



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# Demonstration events UK



**System Cameleon** precision drill/weeder

**Electrical weeding:** Rootwave orchard/vineyard machine



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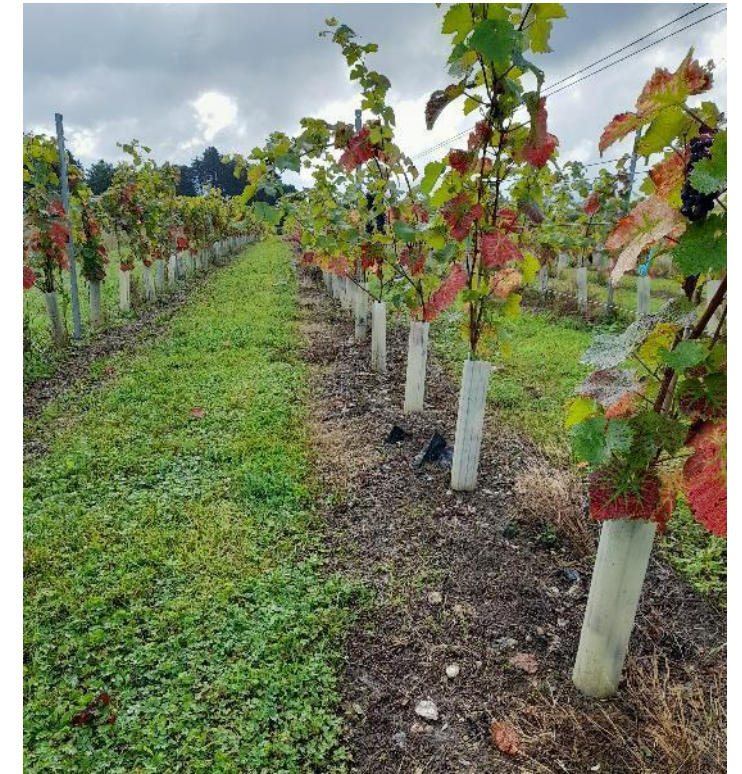
# Electrical weeding vineyard UK: ongoing research



**Untreated at treatment timing**

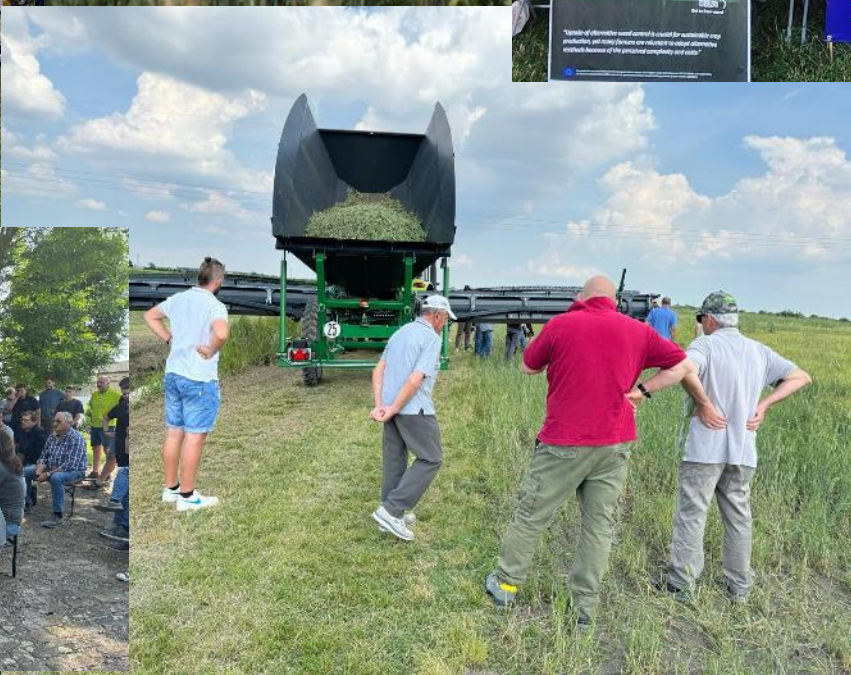


**One-week post-treatment**

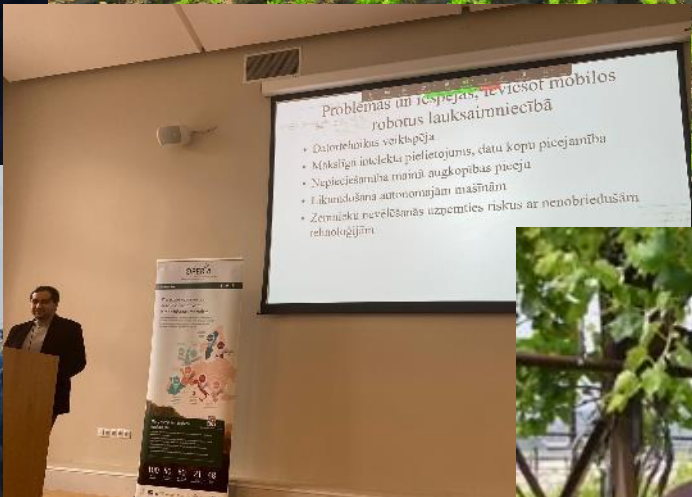


**Four-weeks post-treatment (x2)**











OPER 8

About

## Oper8 at Potato and horticultural in Sweden

On 30<sup>th</sup> July ADAS hosted an event on the latest technological development on precision application of herbicide for late-stage weeding. The event took place at Matthews Fruit on Aberbrân Fawr Farm, a pick-your-own soft fruit and pumpkin farm in the Bannau Brycheiniog National Park.

The day kicked off with an introduction to the innovative 'Weedwiper' technology, developed by Micron. This system features a non-drip brush applicator that directly applies herbicide to weeds, offering a cost-effective and safer method for weed control, which can reduce overall herbicide usage.

The Weedwiper's adjustable boom length makes it versatile, allowing for use in various farming operations, including vineyards, horticultural crops, arable fields, and grasslands. Additionally, the boom height can be tailored to accommodate different terrains and weed heights, making it particularly suitable for late-stage weeding.



## Innovations in Weed Management Highlighted at Organic Agriculture



Demonstration event in Greek vineyards showcasing spraying drones

March 20, 2024 | Event/Demo

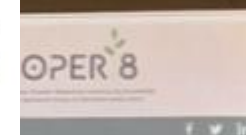
Italian Agritech Event showcases Innovative Weed Control Technology and the Oper8 Project

March 16, 2024 | Event/Demo

## Engaged audience at the farming festival in UK

News from Italy: On May 27th, Lorenzo Gagliardi of the Oper8 UNIFI team attended the demo farm event titled "Zürn Top Cut Collect, rethink the control of weeds", held in Lendinara, near Rovigo," organized as part of the Center's activities National Agricultural Technologies – @Agritech Center- Spoke 4: Multifunctional and Resilient Agriculture and Forestry Systems for the Mitigation of Climate Change Risks.

Throughout the day, the AGRITECH project was described and provided an in-depth look at the Top Cut Collect weed harvester, demonstrating its capabilities in action. Top Cut Collect is an advanced tool designed for the efficient collection of weed seeds present in wheat fields, aimed at depleting



Empowering farmers with sustainable weed control solutions

Partnership for unlocking the potential of alternative weed control and agronomic solutions for sustainable agriculture






# What would help you most?

- ❖ What is the most useful format of information?
  - ❖ **Fact sheets** (2 pages)
  - ❖ **Practice abstracts** (1/2 page)
  - ❖ **Short videos** (2-3 minutes promoting options)
- ❖ Demo events – What are we missing for the UK?
- ❖ **Policy recommendations: must be relevant to UK**
  - ❖ Are subsidies the most appealing?
    - ❖ Cost of kit?
    - ❖ Subsidies for evidence of using techniques?



# Oper8 project: links

- Linked to EU-FarmBook <https://welcome.eufarmbook.eu/>
- Linked to AdvisoryNetPEST <https://advisorynetpest.eu/> 



# Oper8 project: Please get involved!

- Demonstrations events & videos – planning for 2025
- Digital Inventory- tool to be used by all (huge resource!)
- Webinar events twice yearly ('Drone Technology' 7<sup>th</sup> Nov 2024)
- Success of project requires wide networking/dissemination
- Newsletter sent quarterly – **please sign up!**

Get involved:  @OPER8\_EU    LinkedIn: <https://www.linkedin.com/company/oper-8/>

<https://www.oper-8.eu/>



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 <https://www.oper-8.eu/>

# Thank you for listening



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