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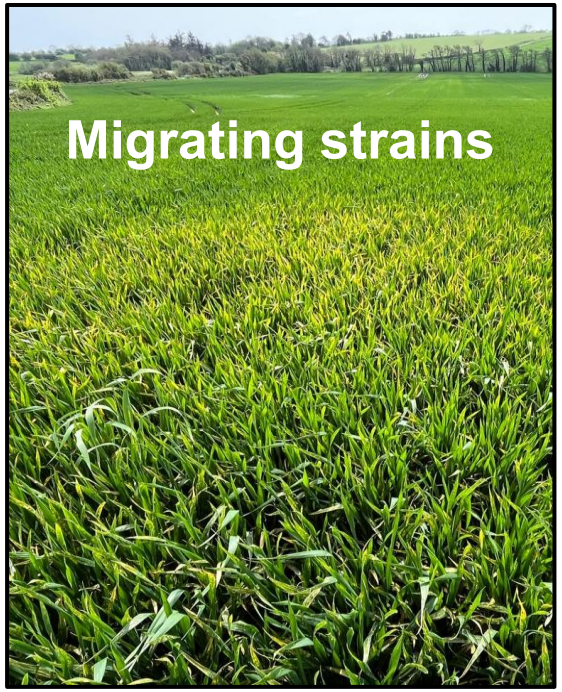
Promoting IPM – Rethinking the EU Policy Paradigm



Dr. Ewen Mullins
Teagasc, Oak Park, Carlow

What is the problem?







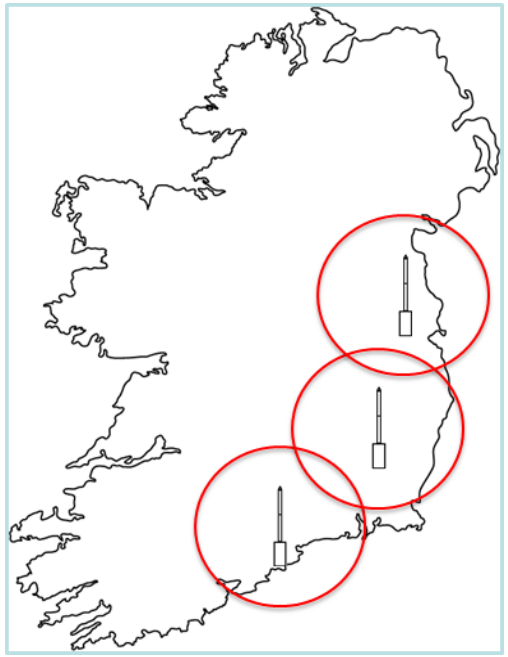






Solution? … Enhanced surveillance plus multi-disciplinary disease diagnostics











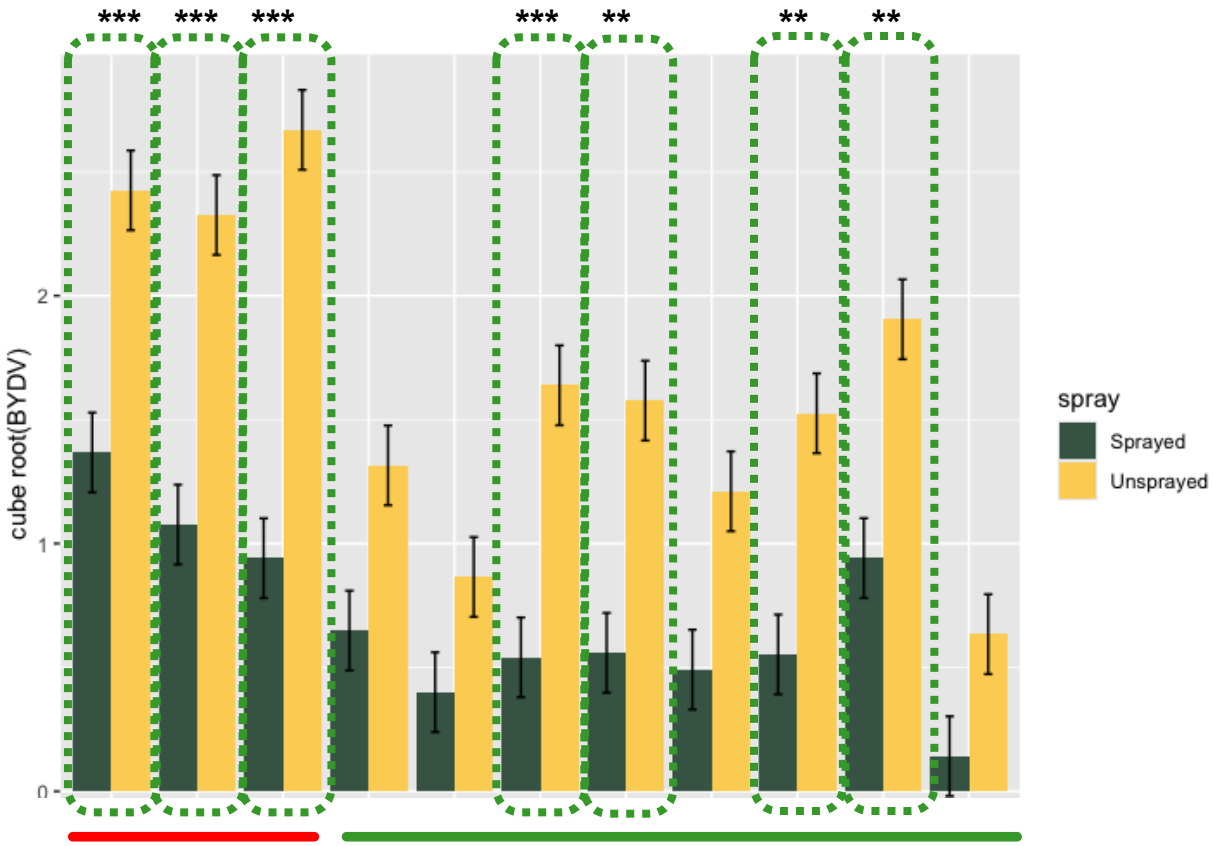
- Monitor aphid diversity
- Presence/absence Kdr resistance
- BYDV + / -
- Strain of BYDV
- App to support farmers in ‘decision to spray’
- Able to thoroughly evaluate durability of BYDV tolerant/resistant varieties

Louise McNamara
Stephen Byrne

eagasc
Agriculture and Food Development Authority

Performance of BYDV tolerant varieties v. Irish BYDV strains?

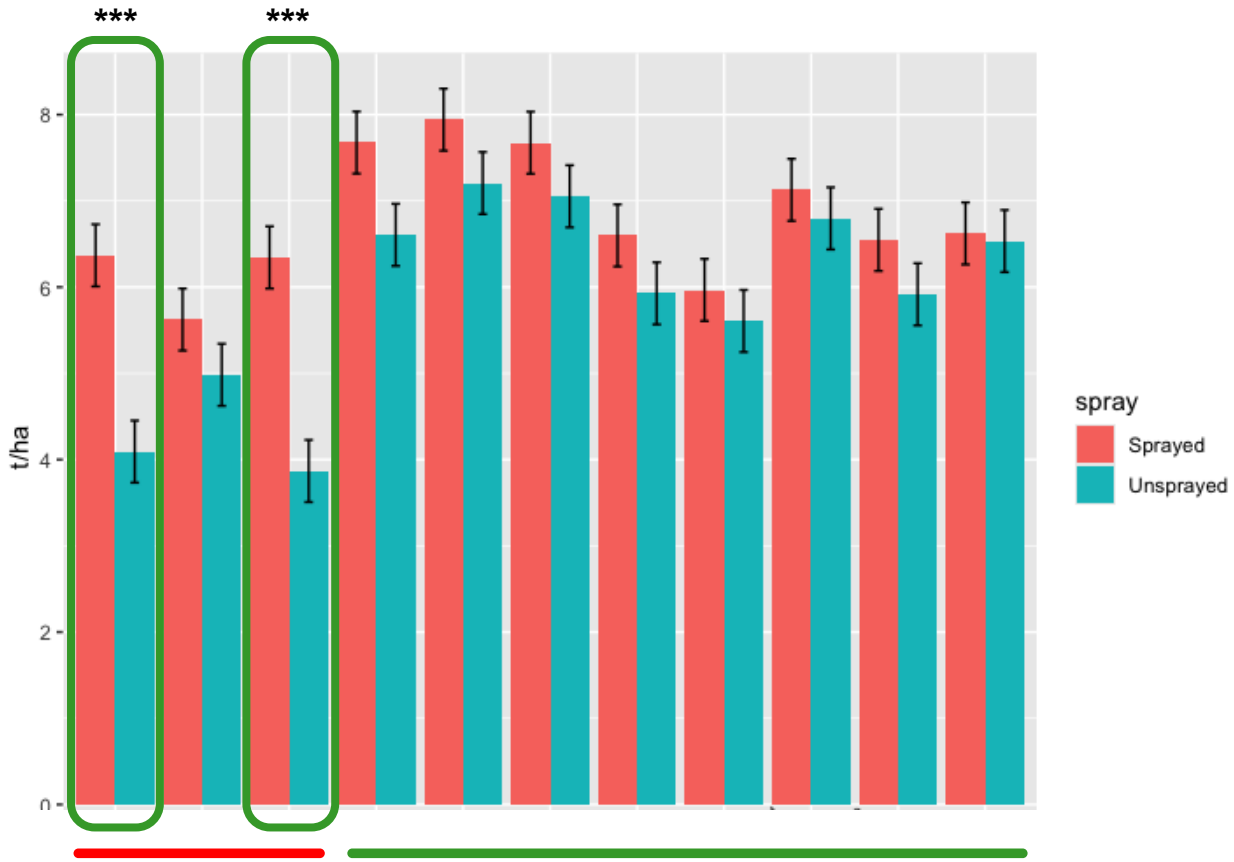
% tillers with BYDV



Susceptible varieties

Tolerant varieties

Yield t/ha



Susceptible varieties

Tolerant varieties

Jack Perry (WS) Planted: 14.09.2024 **Sprayed pyrethroids:** 21.10.2023 & 08.01.2024

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Desiree
11 x sprays

NGT Desiree

Desiree
0 spray

NGT Desiree

Desiree
11 x sprays

Desiree
0 spray

Resilient varieties cornerstone of IPM

Contents lists available at ScienceDirect

European Journal of Agronomy

journal homepage: www.elsevier.com/locate/eja

Development and validation of IPM strategies for the cultivation of cisgenically modified late blight resistant potato

Geert J.T. Kessel[a,*], Ewen Mullins[b], Albartus Evenhuis[a], Jeroen Stellingwerf[b,c], Vilma Ortiz Cortes[b], Sinead Phelan[b], Trudy van den Bosch[a], Marieke G. Förch[a], Paul Goedhart[a], Hilko van der Voet[a], Lambertus A.P. Lotz[a]

POTATO BLIGHT CONTROL

INTEGRATED PEST MANAGEMENT



DISEASE FORECASTING FOR TARGETED FUNGICIDES INTERVENTIONS





BLIGHT-RESISTANT VARIETIES





POPULATION MONITORING

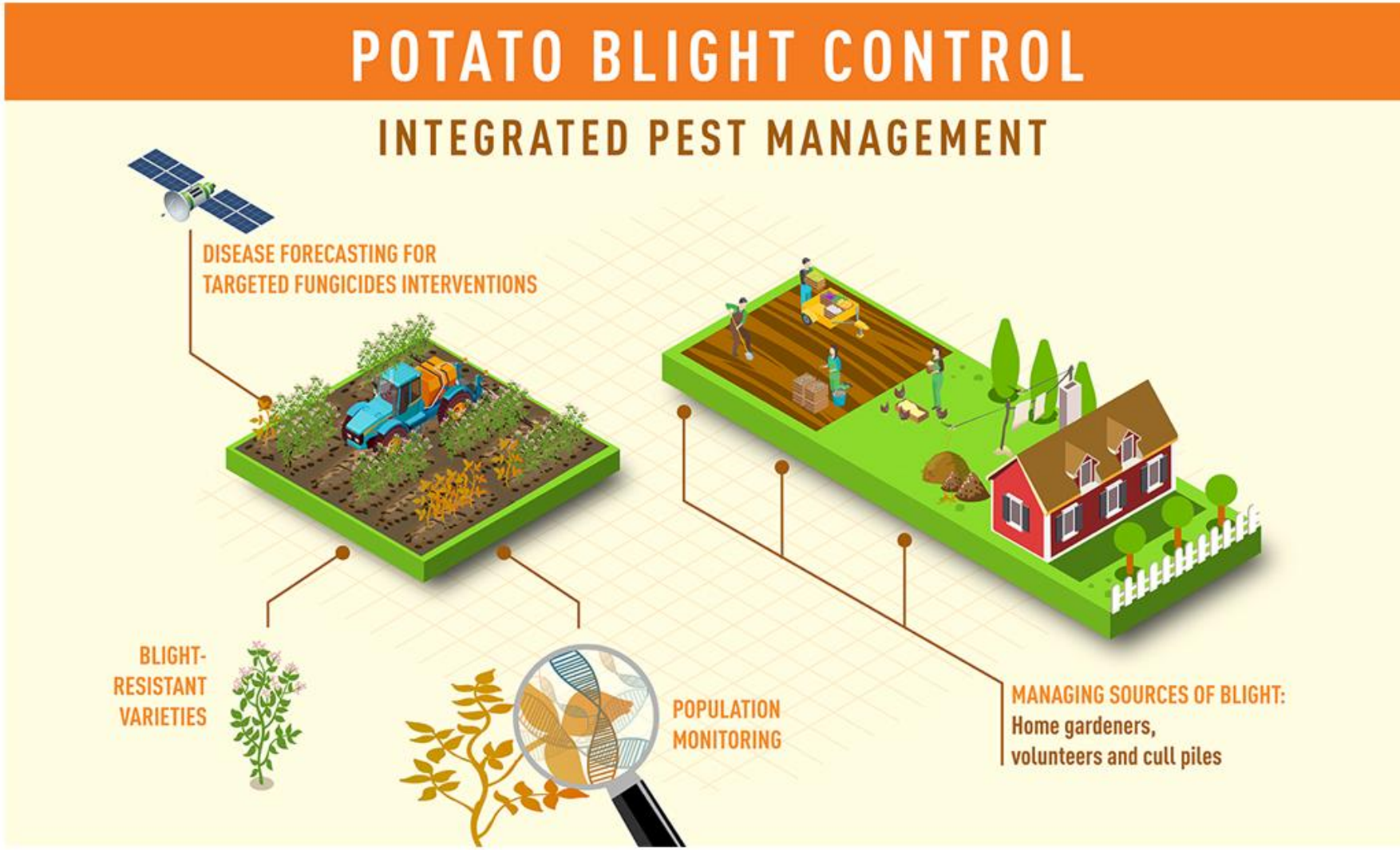
MANAGING SOURCES OF BLIGHT:
Home gardeners, volunteers and cull piles

IPMorama

Dan Milbourne

Stewardship – cross-protection by genes and the chemistry

- Develop & deploy multi R gene resistant varieties in an IPM Programme
- Fungicide protects genes, genes protect fungicide
- Teagasc and partners developing nex-gen IPM strategies
- Strategy? Monitor strains Europe-wide ability to overcome genes and chemistry
- Use this in DSS



Rapid profiling of fungicide sensitivity in chocolate spot



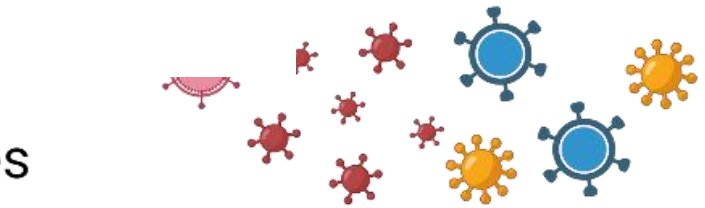
	QoIs*	SDHIs	Azoles
B. cinerea (Pub. data)	G143A	B-P225H/L/F B-N230I B-H272Y/R C-P80H/L	Y136F N230K M231T G476S
Irish *B. fabae* (n=46)	G143A	B-N230I B-H272R	I232V (unk impact)
Freq. mut (%)	**59%**	**86%**	**100%**

By Steven Kildea

Agriculture and Food Development Authority

How do we identify future/unknown threats with future climates?

- Option 1: Molecular test target suspected viruses (e.g. BYDV)
- Option 2: DNA sequencing in an untargeted way to capture unknowns



HTS of Viruses in Cultivated Crops

Viral Reservoirs





Marta Niedzicka
Teagasc Oak Park

The first report of soybean dwarf virus in Ireland

- Two types of SbDv in surveys of viral reservoirs in arable margins and pastures
- Impacts soybean (40 – 80%)
- Potential to impact other legumes
- Prevalent reservoir – white and red clover
- Important information for current and future legume crops with development of adapted varieties
- Forewarned is Forearmed !



Photo: M. Niedzicka

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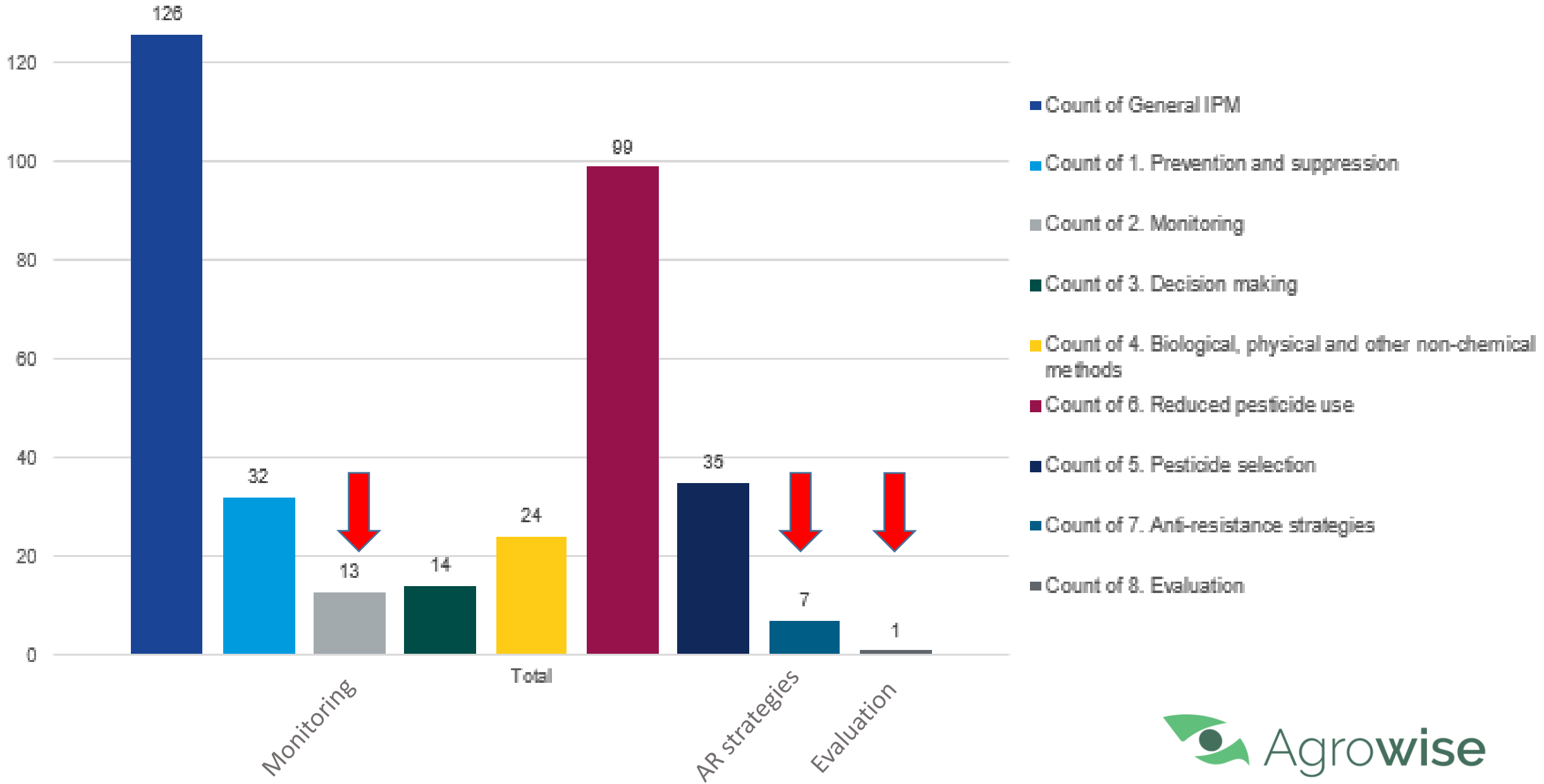
Additional viral reservoirs of BYDV identified



- BYDV strain MAV detected in:
  - Several sampling points in arable margins
  - All sampling points in grass/clover pastures
  - Some sampling points in multi species sward pasture

Key message? Over-reliance on ‘general IPM’ and PUR related policy instruments



Agrowise

Define criteria to support the delivery of a framework for Member States to develop crop-specific guidelines



Fiona Thorne



Steven Kildea



Ewen Mullins

Clemence Decherf
Fiona Dowson

How can we achieve this?

Characterise existing policy instruments in partner countries

Analyze Strengths and Weaknesses

Formulate framework to support policymakers, with evaluation of the potential economic impact of implementing IPM practises

Published database with inventory of IPM related policy instruments

- 1 tab containing the database – with one line per instrument collated
- 1 introduction tab with Agrowise presentation and definitions

Country	Geographic scope	Comment on scope	Linked to an EU policy?	Which EU policy?	Main policy instrument	Policy instrument name (english)
France	National		Yes		National action plan	DEPHY network of pilot farms
France	National		Yes		National action plan	Individual certificate for plant protectio
France	National		Yes		National action plan	Individual certificate for plant protectio
France	National		Yes		National action plan	Individual certificate for plant protectio
France	National		Yes		National action plan	Crop health bulletin
France	National	Article 14 of Direc	Yes		National action plan	Integrated pest management portal
France	National		Yes		National action plan	30 000 farms measure
France	National		No		National instrument	Diffuse pollution tax
France	National		No		National instrument	Phytopharmacovigilance tax
France	National		No		National instrument	Low PPP use certification
France	National		No		National instrument	Strategic advice
France	National		No		National instrument	Specific advice
France	National		Yes		National action plan	Research and innovation strategy
France	National		Yes	CAP eco-schem	National instrument	High environmental value (HEV) certification
France	National		No		National non-public sc	Zero Pesticide Residue label
France	National		No		National non-public sc	Zero-pesticide label
France	National		Yes	Regulation (EU) 2	National instrument	Avenir Bio Fund
France	National		Yes	Regulation (EU) 2	National instrument	Organic farming National plan
France	National		No		National instrument	Payments for environmental services
France	National		No		National instrument	PPP database
France	National		No		National instrument	Buffer zones
France	National		No		National instrument	Lower registration fees for low-risk and biocontrol PPP
France	National		Yes	CAP	CAP instrument - ecos	Eco-scheme
France	National		No		National instrument	Ban of aerial spray
						ENVCLIM - Conversion aid for organic

RICARDO Agrowise eagasc Agriculture and Food Development Authority life

Inventory of existing policy instruments related to IPM

AGROWISE

Guidelines for farm-specific or crop-specific rules for mitigating pesticides impacts while ensuring sustainable agriculture

Introduction to Agrowise:

The Agrowise project is a part of the EU "LIFE Program", and aims at developing guidelines for farm-specific rules or crop-specific for mitigating pesticide impacts while ensuring sustainable agriculture. Developed by a consortium of 10 research organisations from 8 EU countries, this project will contribute to achieve the Farm to Fork strategy objectives of a 50% reduction in chemical pesticide use by 2030.

This project contains two strategic pillars from enhanced Integrated Pest Management (IPM) implementation: information on plant protection practices and information on policy instruments and their efficiency.

"Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Acknowledgements:

This database contains a list of policy instruments related to IPM implemented in the 8 AGROWISE partners countries (DE, FR, HR, IE, IT, PL, RO, SE). This list is not exhaustive and will be updated if additional policy instruments appear relevant.

Status:

20/01/2025 - V3 - draft version
Next step: sense check with national stakeholder interviews

Definitions:

Category	Option	Definition
Geographic scope	National	Relating to a whole country
	Regional	Relating to or coming from a particular part of a country
	Other (specify)	Geographic scope other than national or regional
Linked to an EU policy?	Yes	Linked to an EU policy
	No	Not linked to an EU policy
Main policy instrument	National action plan	National Action Plan according to Directive 2009/128/CE.
	CAP instrument - enhanced conditions	CAP payments linked to a stronger set of mandatory requirements
	CAP instrument - ecoschemes	Annual CAP direct payments used for climate, environment and animal welfare purposes

Introduction | Database | Sheet1

How can we achieve this?

Characterise existing policy instruments in partner countries

Analyze Strengths and Weaknesses

Formulate framework to support policymakers, with evaluation of the potential economic impact of implementing IPM practises

Factors influencing effectiveness of IPM policy instruments?



Tailoring instruments to local context and conditions

- Farm and market contexts
- Level of knowledge on IPM and the level of awareness of available IPM policy instruments
- Behavioural factors

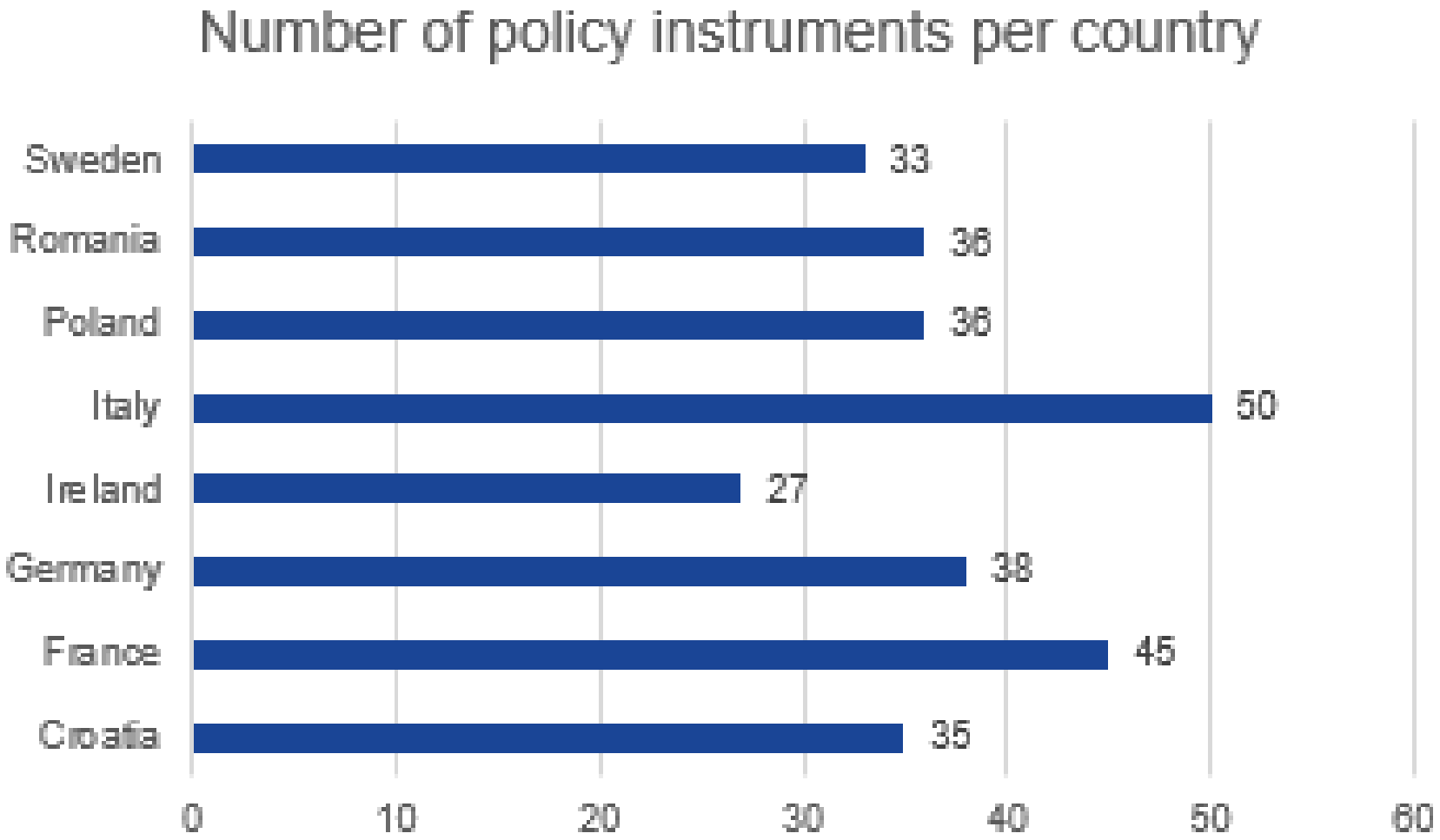
Engaging stakeholders in the policy making process

- Stakeholder participation increases the quality of environmental decisions, improves the legitimacy of the instruments and the likelihood of their adoption

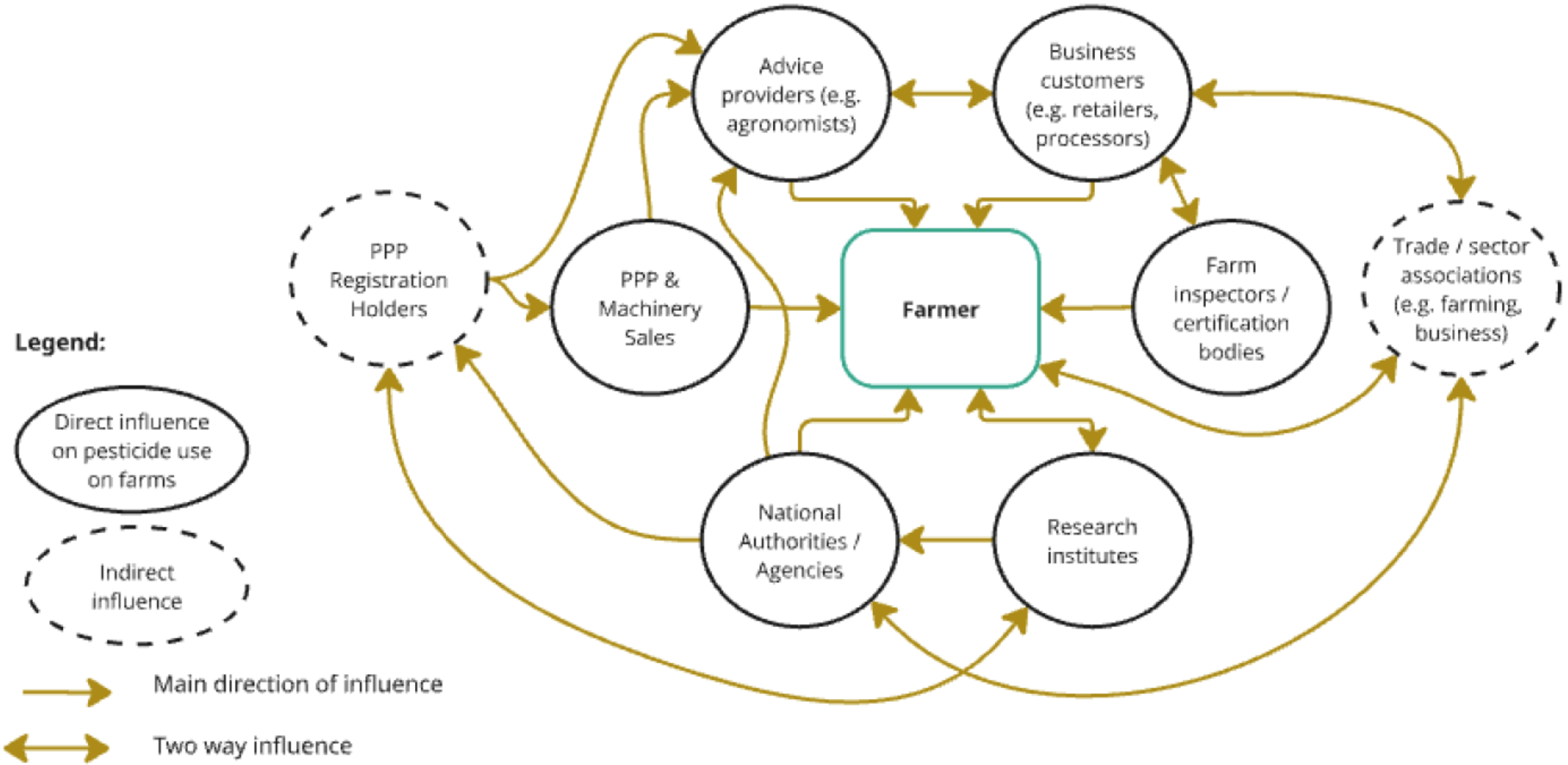
Disconnect between ‘Policy IPM’ & ‘Reality IPM’

>300 existing policy instruments have been identified in the 8 Agrowise partner countries

- 41% of the instruments are binding, and 59% are optional
- **79% are targeting farmers**
- 5% targeting advisors
- 4% retailers
- 3% PPP registration holders
- Most (87%) of the instruments’ implementation are led by national authorities



Influencers on a farmer's decision making process on pesticide usage



So what would the framework look like?

Characterise existing policy instruments in partner countries

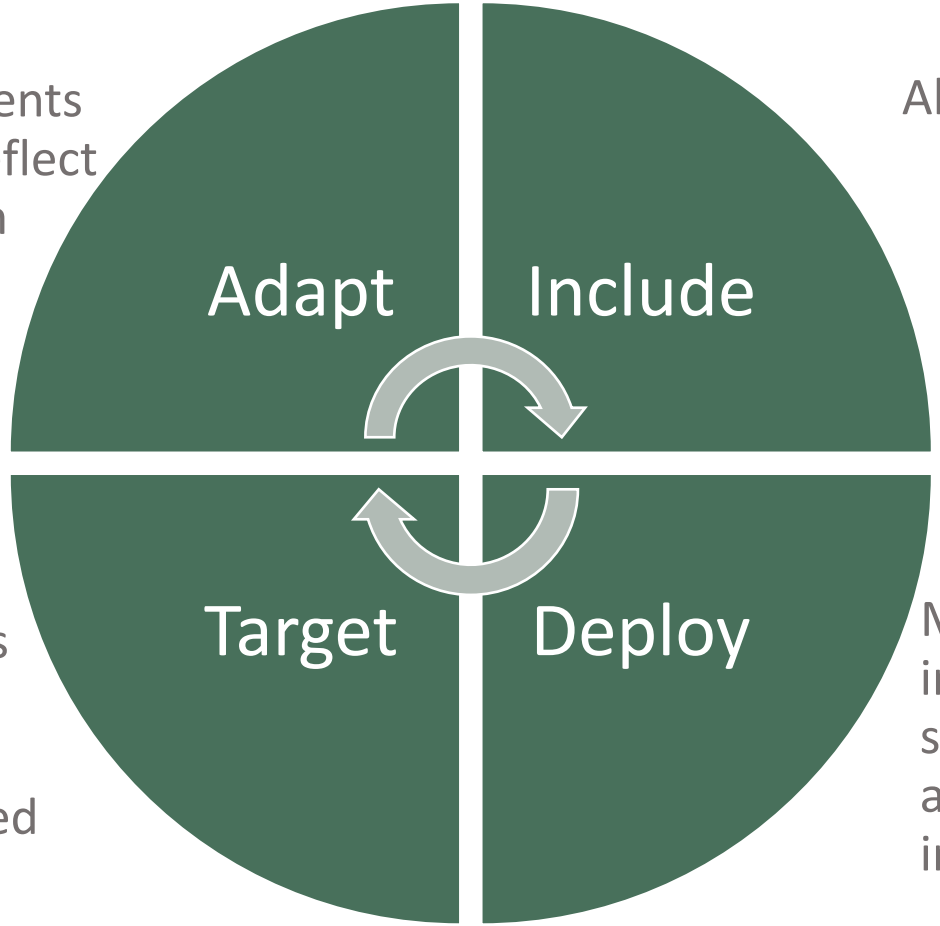
Analyze Strengths and Weaknesses

Formulate framework to support policymakers, with evaluation protocols for the economic impact of implementing IPM practises

4 Action Framework, 7 practical steps to support generation of Farm-Specific Guidelines for Targeted Stakeholders

IPM policy instruments to ensure they reflect the national farm context

All relevant stakeholders in the value / supply chain



All IPM principles relative to the agronomic challenges faced

Mix of policy instrument types to support stakeholder awareness and implementation

Adapt for challenge, Include all stakeholders …

ADAPT

IPM policy instruments to ensure they reflect the national farm context

- Several factors (external or internal) proven to contribute to effective policy outcomes:
  - Behavioural factors, farm and market contexts, the level of knowledge on IPM
  - Cropping systems, farm size, economic situation, the farmers' demographic, etc.
- Ensure IPM objectives clearly defined
  - Both at national level to drive the design of IPM policy instruments
  - More importantly at local level

INCLUDE

All the relevant stakeholders

While farmers implement IPM practices, they do not act in isolation.

- Decision on pesticide use influenced by multiple stakeholders (e.g. Tier, 1, 2, 3, 4)
- Policy makers should identify the full suite of stakeholders engaging with farmers and characterise the type of interaction and links of influence.

Framework to support policymakers

TIER 1:

Farmers

TIER 2:

Advisory networks

Farmers' advisors

- Advisors affiliated to the PPP industry; Advisors affiliated to the State authorities, Independent advisors, Group of farmers

TIER 3:

Stakeholders interacting with the agricultural production process

Farmers' suppliers

- Plant protection industry, Seed industry, Machinery industry, Precision farming industry, Retailers, Banking, credit and insurance service providers

Farmers' customers

- Supermarkets, Export companies, Downstream industry

TIER 4:

Other relevant stakeholders

Policy makers

- Local authorities, National authorities, EU institutions

Advocacy groups

- Corporate associations, NGOs, Consumers

Policy evaluation/implementation

- Water agencies, Certification bodies, Scientific evaluation agencies

Wider finance and insurance sector

Research organisations

- Public and Private funded institutes

Deploy mix of instruments, Target all IPM Principles …

DEPLOY

a mix of policy instrument types to support stakeholder awareness and implementation

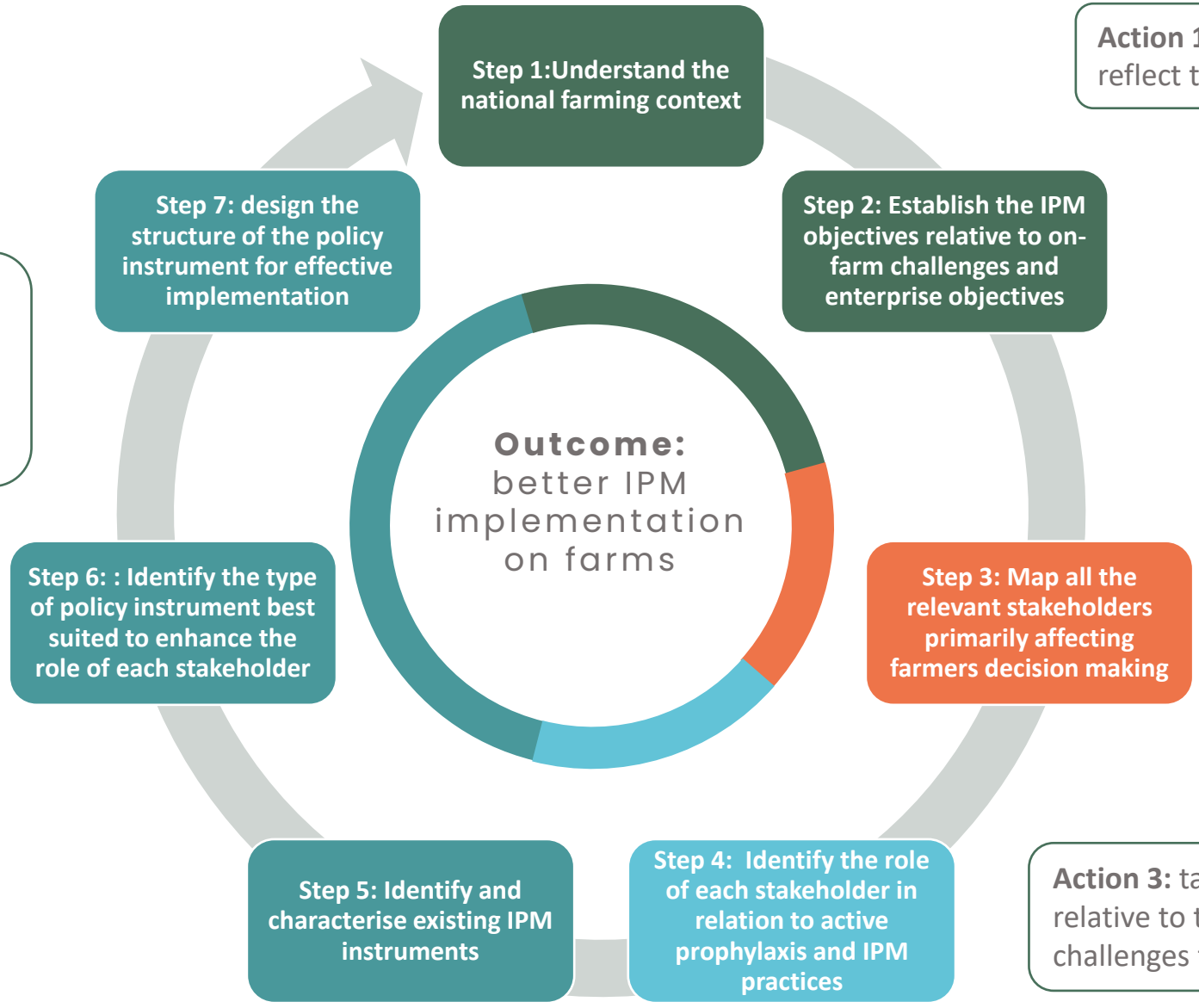
- Most IPM policy instruments are generic and fail to target IPM Principles specifically.
- Designing policy instruments to target specific IPM practices will improve the implementation of such practices, especially practices most relevant to Active Prophylaxis.
- Possibility to use the harmonised IPM taxonomy (WP2) as a supporting tool.

TARGET

all IPM Principles relative to the agronomic challenges faced

- Using instruments of different nature (economic, informative, regulatory, etc.) provides adequate flexibility to afford policies the opportunity to address the different drivers that farmers and other stakeholders will answer to.
- Mixing instruments from different categories offers flexibility and addresses the agricultural landscape specific to each country.

Practical 7 Step process plus case study developed to support policy makers writing these recommendations



Action 1: Adapt IPM policies to ensure they reflect the national farm context.

Action 2: Include all relevant stakeholders, including upstream and downstream stakeholders in the agriculture supply chain and competent authorities.

Action 3: target all IPM Principles relative to the agronomic challenges faced.

Action 4: deploy a mix of policy instrument types to support stakeholder awareness and implementation.

Stakeholder Events: Crops Open Day, June 30th 2027

