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Report on the analysis of Strengths and Weaknesses of policy instruments

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1. INTRODUCTION

1.1 AGROWISE PROJECT

The Agrowise project is a part of the EU "LIFE Program“ and aims at developing recommendations for IPM guidelines 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 EU Farm to Fork strategy objectives of a 50% reduction in the use and risk of chemical pesticide use by 2030.

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

This Work Package (WP4) aims to design criteria to support the delivery of tangible recommendations for the Member States to define IPM guidelines. This will be achieved by first compiling and characterising the policy instruments related to pest management and pesticide reduction from the 8 EU partners countries (Task 4.1 and MS3), then analysing the strengths and weaknesses associated with each type of instrument (Task 2, D4.1) to identify specific types of guidelines and formalise them (Task 3, D4.2).

1.2 AIM OF THIS REPORT

Task 2 of WP4 consists of the analysis of Integrated Pest Management (IPM) public policy instruments strengths and weaknesses, based on a series of interviews, literature review and the compilation and categorisation of policy instruments related to pest management and pesticide reduction in 8 countries of the EU (Croatia, France, Germany, Ireland, Italy, Poland, Romania, Sweden) performed during Task 1 of this project. This report details the method used and the main results.

2. METHODOLOGY

This task aims to gather insights into the advantages and disadvantages of the instruments which were catalogued in Task 1, drawing on both expert stakeholder interviews and supplementary literature reviews. In order to do this assessment, we used the following methodology. For method limitations see Section 3.5.

2.1 STAKEHOLDER INTERVIEWS

We undertook semi-structured interviews between December 2024 and March 2025 with 16 stakeholders, mostly working for national authorities’ agencies in the 8 partners countries (Croatia, France, Germany, Ireland, Italy, Poland, Romania, Sweden). We also interviewed a member of DG AGRI and a Common Agricultural Policy (CAP) specialist researcher from INRAE (see table 1). The stakeholders were contacted to request interviews based on recommendations of each national Agrowise partner. We shared the list of instruments for the relevant countries and an interview guide with standardised questions prior to each interview.

The objectives of these interviews were:

- To validate the findings from Task 1 and ensure that the list of policy instruments for each country was accurate.
- To identify which currently implemented instruments are the most successful (success being measured by the positive impact on pesticide use and/or risk reduction, level of engagement of stakeholders, etc.) and which factors contribute to this success (e.g. the type of instrument, the stakeholders involved, the granularity of the instrument, the binding or optional aspect, etc).
- To identify which currently implemented instruments faced challenges, and which factors contribute to the lack of success.

Table 1: stakeholder interviews details

Country	Number of people interviewed	Organisations	Form of the interview
Croatia	1	Ministry of Agriculture	Online 1-to-1 interview
Croatia	1	Croatian Agency for Agriculture and Food	Online 1-to-1 interview
France	2	Ministry of Agriculture and Food Sovereignty – DGAL	Online 1-to-1 interview
France	1	Ministry of Agriculture and Food Sovereignty – DGER	Online 1-to-1 interview
France, CAP expert	1	INRAE	Online 1-to-1 interview
Germany	1	State Ministry for Agriculture, Environment and Climate Protection in Brandenburg	Online 1-to-1 interview
Ireland	2	Department of Agriculture, Food and the Marine	Online 1-to-1 interview
Italy	1	Plant protection service - Emilia-Romagna Region	Online 1-to-1 interview
Poland	1	Warsaw University of Life Sciences	Written answer
Romania	1	Romanian Green Agency	Written answer
Sweden	2	The Swedish Board of Agriculture	Online 1-to-1 interview
Sweden	1	Lantmannen	Online 1-to-1 interview
European Commission	1	DG AGRI	Online 1-to-1 interview

2.2 ADDITIONAL DESK-BASED RESEARCH

In addition to the insights gathered during the stakeholder interviews, we analysed the following data sources to identify information related to the uptake, the success, the challenges or the impact of policy instruments listed in our database:

- The most recent National Action Plans (NAP) implementation reports for Croatia[1], France[2], Germany[3], Ireland[4], Italy[5], Poland[6], Sweden[7].
- The European Commission overview report on the implementation of Member States' measures to achieve sustainable use of pesticides under Directive 2009/128/CE (2017)[8]
- The European Economic and Social Committee Information Report on the Evaluation of the Sustainable use of Pesticide Directive (2020)[9]
- The European Court of Auditors report on the Sustainable use of Plant Protection Products (2020)[10]
- The Farmers' Toolbox for Integrated Pest Management report[11]
- A selection of scientific articles identified as relevant during the Rapid Evidence Assessment (REA) performed during Task 1.

3. OUTPUTS

3.1 STRENGTHS AND WEAKNESSES ANALYSIS OF THE MAIN POLICY INSTRUMENT CATEGORIES

3.1.1 Instrument categorisation for analysis

During Task 1 of this project, the policy instruments collated were categorised according to:

- The geographic scope and country of applicability

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- The category of instrument they belong to (National Action Plan, CAP instrument, national instrument, regional instrument, national non-public scheme)
- The actors involved (targeted and leading actors for each policy instruments)
- The crop targeted
- The IPM general principle(s)[25] mainly targeted by the policy instruments
- The binding or optional nature of the instruments
- The on-farm direct or indirect action/influence of the instruments
- Information on the timeframe for the implementation of the instrument
- The nature of the instrument, split into four categories: regulatory, economic, informative and research (see Table 2). For the strengths and weaknesses analysis we focused on the analysis of instruments by these categories. This allows us to draw out some common themes and issues.

Table 2: Categories of policy instruments used in the database

Main category	Definition	Type	Details
Regulatory	Legal instrument restricting, allowing or making something mandatory	Financial penalty	Financial charge resulting from failure to comply with the law, rule, or initiative
		Prescription	Requirement to implement a specific practice, method or action
		Bans	Constraining use
		Zoning	Constraining or promoting use on a specific area
Economic	Instrument impacting the cost-benefit ratio of an option	Subsidies	Financial incentive or compensation
		Taxes	Financial charge, levy
		Other economic instrument	Other type of financial incentive or disincentive
Informative	Instrument aiming at informing, communicating	Certification	Process to gain a certificate of compliance with requirements of a specification or standard
		Direct advisory services	Direct information and advice on practices, usually aimed at farmers
		Information campaign	Wider communication of information
		Guidelines	Best management practices
		Knowledge transfer	Sharing of knowledge and practices, including from scientific research into practical application.
		Other	Other type of information sharing
Research	Instrument aiming at promoting research or data collection	Funding	Funds provided for a research purpose
		Monitoring	Activity of regular surveillance

An example of a regulatory instrument is the mandatory training of plant protection users, allowing them to use these products (it is included in the national action plans of Croatia, France, Germany, Ireland, Italy, Poland, Romania, Sweden). This instrument is binding and required by the SUD directive.

An example of an economic instrument is the tax applied on pesticide sales in France, Italy and Sweden. These are national policy instruments and are binding.

An example of an informative instrument is the crop-specific IPM guidelines available to farmers and advisors in Croatia, France, Germany, Ireland, Italy, Poland, Romania, Sweden. This national instrument is optional (non-binding). It is required of the Member States to develop such Guidelines according to the SUD directive.

One example of a research instrument is the recent PARSADA programme in France, funding research projects aimed at developing or deploying alternatives for specific crops or uses, to anticipate the potential

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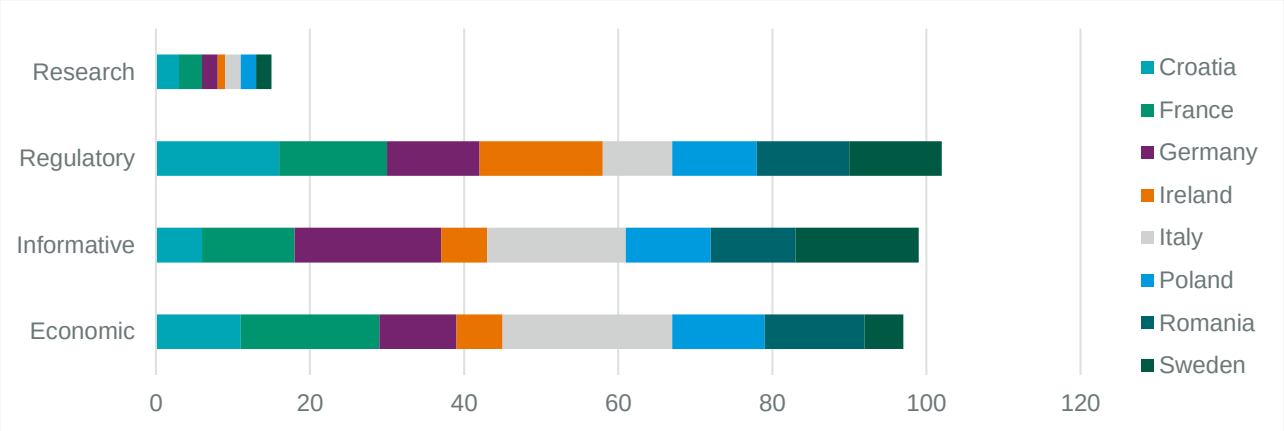
withdrawal of certain plant protection active substances used in one or more agricultural sectors. Figure 1 illustrates the number of instruments compiled per category and per country.

Figure 1: Number of instruments collated per category and per country (Source: Agrowise policy instrument database). Note some instruments have been implemented across all 8 countries, such as those required by Directive 128/2009/CE for example.



3.1.2 Strengths and weaknesses analysis

Table 3 gathers the strengths and weaknesses identified for the different categories of instruments gathered during the interviews and completed by additional literature research. In this table, strengths and weaknesses of different categories of instruments are illustrated by examples of successful and challenged policy instruments cited during the project stakeholder interviews performed with the representants of national authorities for the 8 partners countries.

Text written in italic in the blue cells refers to general strengths and weaknesses per type of instrument. The information included in the white cells aims at illustrating strengths and weaknesses through specific examples of instruments, mostly cited during the interviews and supported by literature research.

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Table 3: Strengths and weaknesses analysis per main instrument type.

Category of instrument	Strengths	Weaknesses
Regulatory	• *Enforceability of the measures.* • *Stakeholder consultation and wide acceptance is a key success factor.*	• *Administrative burden to enforce legislations and check compliance.* *Regulatory instruments can be associated with acceptance issues and lack of compliance.* • *Risk of abandonment of specific crops due to rapid withdrawal of pesticides.* • *Potential high cost for farmers.*
	Regulation EC 1107/2009[12]: Several interviewees mentioned that pesticide reduction is inevitably driven by the reduction and availability of plant protection products. Bans or regulatory withdrawal of active substances and associated plant protection products can incite farmers to increase IPM practices uptake. **Mandatory training of pesticides users, advisors and sellers**: Mandatory training farmers have to attend in order to be allowed to buy and use pesticides is an instrument included in all the National Action Plans (as a result of being a requirement of Sustainable Use Directive (SUD)[13]). Courses have a focus on IPM. It has been cited as a very successful instrument by several country representatives interviewed (Ireland, Sweden, Romania, Poland, Croatia). The binding nature has been cited as a success factor as it ensures high adoption rates, as well as the large acceptance of this instrument by all the stakeholders.	**Regulation EC 1107/2009:** An interviewee mentioned the difficulty to register new alternative products under the current legislation. The rate of active substances and products being withdrawn is much faster than the new products getting registered. This can lead to challenges with resistance control and lack of alternatives available to farmers. According to the EU Court of Auditors report[10], "the elimination of active substances from the market is not keeping pace with the development of alternative solutions, which puts farmers at a competitive disadvantage in the production of their agricultural products". **Legislative split of advice and pesticide sales activities in France**: The legal split of sales and advice activities in France related to pesticides had the indirect effects of i) reducing the access and recourse to professional advice by farmers and ii) increasing the number of non-compliant situations where sales representatives still provide oral advice to farmers on pesticide use, with limited control possible by the administration[14]. **Zoning** (restriction of pesticide use near water bodies or residential areas for example) has been cited by an interviewee as a type of instrument that encountered some resistance from farmers, leading to a revision of the instrument. However, we can note that some other zoning initiatives, especially in catchment management areas, have proven to be successful.[15]
Economic	• *Can encourage farmers to take some risks and rely less on pesticides. Risk-averse farmers are generally less inclined to adopt sustainable crop protection practices than their risk-neutral counterparts. Their preference for minimizing financial risk leads*	• *Complexity of some economic instruments, lacking clarity on eligibility.* • *Taxation schemes can be associated with acceptance issues and financial pressure for farmers.*

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	them to select less-risky alternatives that offer lower, yet more predictable, returns[24]. • *Economic incentives can cover the cost of the alternative IPM practice if it is higher than the pesticide use and/or compensate for possible loss of yield and therefore revenue.* • *Taxation schemes can also be efficient tools that are easy to administer compared to other type of levers.*	
	CAP related instruments were cited by two interviewees as the most effective policy instruments related to IPM. One of them highlighted that farmers are usually more reluctant to adopt practices that are more difficult to implement and often more expensive than chemical pesticides. They are more likely to adopt IPM practices if they receive a financial compensation. The ACEM "ENVCLIM 70.01. - Reducing the use of safeguard funds in multiannual crops" was cited as successful with a good uptake in Croatia. It enables farmers to receive a financial compensation for use of pheromones, visual and feeding traps, pest confusion methods and mechanical weeding within rows of perennial plantings. One interviewee also highlighted that farmers will be more likely to engage with tangible financial support. To improve the uptake instruments must be well-targeted, have clear eligibility criteria and practical benefits for farmers. The instruments that have worked relatively well tend to be those that are simple, financially accessible, and adapted to the realities of small and medium-sized farms, which make up most of the Romanian agricultural sector. Another interviewee highlighted that economic instruments could be particularly beneficial for small farms, which often face challenges in adopting advanced IPM techniques or precision agriculture due to financial and technical constraints. **Taxation schemes** were not mentioned during the stakeholder interviews as a successful instrument. However, according to the scientific literature they can play a role in promoting the uptake of Integrated Pest Management (IPM) by steering pesticide use towards safer and more sustainable practices. Differentiated pesticide taxes—based on the potential health and environmental risks of each product—create economic incentives for farmers to substitute some pesticides with less lower risk alternatives.	One interviewee mentioned during the interview that smaller farms often face difficulties in accessing complex schemes due to limited administrative capacity or lack of know-how. Therefore, instruments that are too technical or bureaucratic tend to exclude a significant part of the farming population. Regarding **taxation schemes,** literature shows that pesticide taxes tend to have limited short-term effects due to low demand elasticity and their implementation remains complex[11]. The tax rates for the most hazardous pesticides must be high to lead to a relevant decrease in their demand[15], and therefore question the acceptability of this type of measure for farmers. Only Sweden, France and Italy have implemented this type of instrument, of the 8 member states included in Agrowise.

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	A reimbursement of tax revenues to the agricultural sector helps prevent income effects[16].	
Informative	• *The lack of knowledge is cited in the literature as a main barrier to implement IPM practices.* • *Individual or collected advice through demo-farms provide legitimacy to farmers to implement alternative practices.*	• *Inadequate accessibility or quality of advisory services in some countries or at local level.*
	Provision of advice and advisory centres. The instruments most often cited during the interviews are the one related to the provision of advice or the development of advisory centres (Ireland, Italy, France, Germany, Sweden). In Ireland, the knowledge transfer related to IPM through Teagasc programmes or others is mentioned as crucial. The latter delivers 70-80% of continuous education to professionals and farmers and indicates that 95% of farmers have received some degree of farm advice on how to use pesticides[9]. In Sweden, there are 5 Plant Protection Centres which have a coordinating role in the advisory service provided. They deliver regionally targeted and neutral information and guidance to farming advisors, on a weekly basis. They manage forecasting and warning activities, producing control strategies and advisory material, participate in trial and development activities[17]. Another organisational setting cited as successful is the Pflanzenschutzdienst (regional advice agency) in Germany. These centres provide advice, knowledge transfer, funding, stakeholder engagement, training, demonstration farms, and gap analysis. They run training courses each winter, covering an analysis of the last year, refresher and regulations around pesticide use, any changes in regulation around pesticides, withdrawn active substances and updates on IPM strategies. There is a binding aspect as these are obligatory (minimum 1 out of 3 years). **Demo-farms** were cited by France and Germany during the interviews as successful instruments. In France, there is a network of 3000 "DEPHY" farms, a national initiative aimed at reducing the use of pesticides in agriculture through the promotion of sustainable and agroecological practices. Established in 2010 as part of the Ecophyto plan, these farms voluntarily adopt IPM practices that minimize pesticide use. They are organized into approximately 250 groups, each supported by an agronomist to facilitate knowledge exchange and collective problem-solving.	The lack of well-structured and accessible advisory system was mentioned as a weakness in Romania. Many farmers do not have access to technical support to help them adopt IPM practices properly. Where advisory services or farmer associations are active, implementation tends to be better. The lack of accessible advisory services makes it difficult to implement more complex or technical practices — such as monitoring pests, using treatment thresholds, or applying resistance management. There are very few on-farm demonstrations or peer-learning models adapted to small-scale farmers. Without seeing IPM in action, adoption remains very low. In France, **the difficulty to disseminate the learnings and knowledge** gained in the DEPHY network was highlighted. The policy instrument "Groupes 30 000" has been created to this effect, but experience challenges. The "Groupes 30 000" are collectives of farmers in France to address the national objective to increase the number of farms engaged in a sustainable transition from 3,000 (as in the DEPHY network) to 30,000. One possible reason mentioned to explain the relatively low uptake of this policy instrument could be the lack of legitimacy felt by farmers and facilitators, compared to the DEPHY groups. **The cost of advice** can also represent a constraint for farmers. In France, although binding, the recourse to strategic advice has not been implemented yet because of lack of uptake from farmers, who have to pay for a service that was previously tacitly included in the price of pesticides. According to Lefebvre, M, et al., 2016, access to free or subsidized pest management advisors has been proven to be important for IPM adoption[18].

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	Demonstration farms are considered very valuable measures for both knowledge exchange between research, advisors and farmers and for the efficient dissemination of IPM methods to other farmers. **Guidelines**: In Italy, the interviewee highlighted the success of IPM guidelines, with a high number of farmers following them. Farmers who follow the crop specific guidelines can benefit from EU Rural Development funding, which contributes to achieving good uptake. The AECM "Produzione integrata" (Integrated Production) provides for beneficiaries who undertake to adopt the technical provisions set out in the Integrated Production Specifications (IPR) established for the cultivation phase by joining the National Quality System for Integrated Production (SQNPI). In France, **the CEPP scheme** was mentioned as successful, as it relies on scientific validation of the IPM practices and involves all the stakeholders who have trust in the instrument. The CEPP scheme is further detailed in section 3.5.1.	
Research	**Anticipating the farmers' needs.** In France, the authorities developed a strategic action plan to anticipate the potential European withdrawal of active substances and develop alternative crop protection techniques (PARSADA). The aim of this plan is to support sectors in the development and implementation of specific action plans, from research to the deployment of alternative solutions, in anticipation of the potential withdrawal of certain plant protection active substances used in one or more agricultural sectors. The government financed 27 R&D projects in line with PARSADA's objective.	The **low level of involvement of private research stakeholders** in the national and European research was cited as a weakness. The necessity to have some mechanisms to scale up successful regional or research-based initiatives into national policy was also highlighted by an interviewee.

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3.2 FACTORS INFLUENCING THE EFFECTIVENESS OF IPM POLICY INSTRUMENTS

3.2.1 Tailoring instruments to local context and conditions

Besides policy instruments' inherent strengths or weaknesses, the literature shows that there are several other factors to consider in designing effective IPM policy instruments.

3.2.1.1 Farm and market contexts

The average size of the farm, the type of cultivated crops and the post-farm gate market all have an influence on pesticide use. Farmer tenure[22], age and work patterns[11] also influence IPM practices uptake. The absence of consideration of farm characteristics can contribute to ineffective policy outcomes[22].

3.2.1.2 Level of knowledge on IPM and the level of awareness of available IPM policy instruments

The level of knowledge of farmers regarding IPM practices and policy instruments is also an important factor to consider. According to the EU Court of Auditors, the lack of adequate knowledge remains the main obstacle to the optimal use of pesticides[10]. Some studies reported that informative instruments, especially training or advisory service are reported to achieve the largest proportion of effective outcomes[22].

Mandatory training of pesticide users included in the national action plans were cited by most stakeholders as an important and successful instrument. In their 2020 report on SUD Directive effectiveness, the European Economic and Social Committee (EESC) reported that nearly half of the stakeholders surveyed considered that lack of knowledge was the main problem related to the optimal use of pesticides. They mentioned that "In order to improve the knowledge of users of PPPs, all stakeholders highlighted professional training and advisory services as a crucial factor in the SUD's effectiveness. As many as 84% of stakeholder respondents consider that advisory services should play a greater role in promoting best plant protection practices".

The lack of awareness of available policy instruments, especially informative and economic is a factor influencing the success of these instruments. In a study[19] from 2016 on the use and motives of use of CAP Agri-Environmental in the Netherlands, Denmark, Austria, Italy and Greece, farmers most often reported a lack of knowledge about voluntary agri-environmental schemes as the reason they did not participate in them.

3.2.1.3 Behavioural factors

Behavioural factors (dispositional factors, social factors and cognitive factors) are reported to influence the IPM practices uptake[20]. Risk-tolerant predispositions are positively correlated with the adoption of organic farming practices.

According to F.J. Dessart et al., 2019[19], tailoring IPM policy instruments based on behavioural factors can enhance their effectiveness. For example, voluntary schemes could be more adapted to farmers who generally exhibit greater environmental concern and risk tolerance, whereas mandatory schemes may be better suited to Member States where farmers tend to display a higher resistance to change.

3.2.2 Engaging stakeholders in the policy making process

The importance of adopting a multi-stakeholder approach to design policy instruments is widely recognised. Stakeholder participation increases the quality of environmental decisions[21], improves the legitimacy of the instruments and the likelihood of their adoption.

Stakeholder engagement is important **during the policy making process related to IPM.** An analysis of several national action plans showed that stakeholder involvement presented large disparities, with some countries not mentioning stakeholders' consultation at all in their plan such as Poland, to others mentioning their importance but without necessarily a systematic approach such as Germany[22]. However, to promote agricultural actions or practises whose implementation requires an agreement with another stakeholder, it is logical to assume that it is necessary for these other stakeholders to be motivated to be involved in the process. Therefore, as other stakeholders beside farmers also play an important role in IPM adoption, it is safe to assume that developing policy instruments to target the right stakeholders can contribute to facilitate the wider implementation of IPM practices by farmers.

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3.3 FACTORS INFLUENCING THE EFFECTIVENESS OF NATIONAL APPROACHES

3.3.1 Adopting a mix of instruments

An important finding from this analysis is that the 8 countries evaluated present a mix of the four categories of instruments, with the number of economic, regulatory and informative instruments being well balanced.

The importance of offering a mix of different types of policy instruments has been underlined by several stakeholders during the interviews. The importance of applying a mix of instruments for effective results was highlighted by Lee, R., et al., 2021 in their meta-analysis of policy instruments for pesticide use reduction in Europe[23] with both high and low degrees of authoritative force in instrument application.

IPM implementation across the EU differs from one Member State to another, and even from one region to another within the same country[11]. Mixing instruments from different categories offers flexibility and addresses the agricultural landscape specific to each country.

3.3.2 Targeting all the relevant stakeholders

While farmers are the ones who implement the IPM practices, they do not act in isolation. To capture the connectivity of the system, Figure 1 represents a hypothetical illustration of the primary stakeholders revolving around farmers as the end-users of IPM practises and the typical links of influence that can be identified from farmer to stakeholder and vice-versa. Importantly, links between stakeholders related to IPM obviously differ from one country to another and hence Figure 1 would need to be adapted according to each national context. In addition, the type of interaction (buy-sell, advice, training, collaboration, regulatory constraints, etc.) could be added as well to detail the nature of the relationship between stakeholders and understand how the different type of policy instruments could better target them.

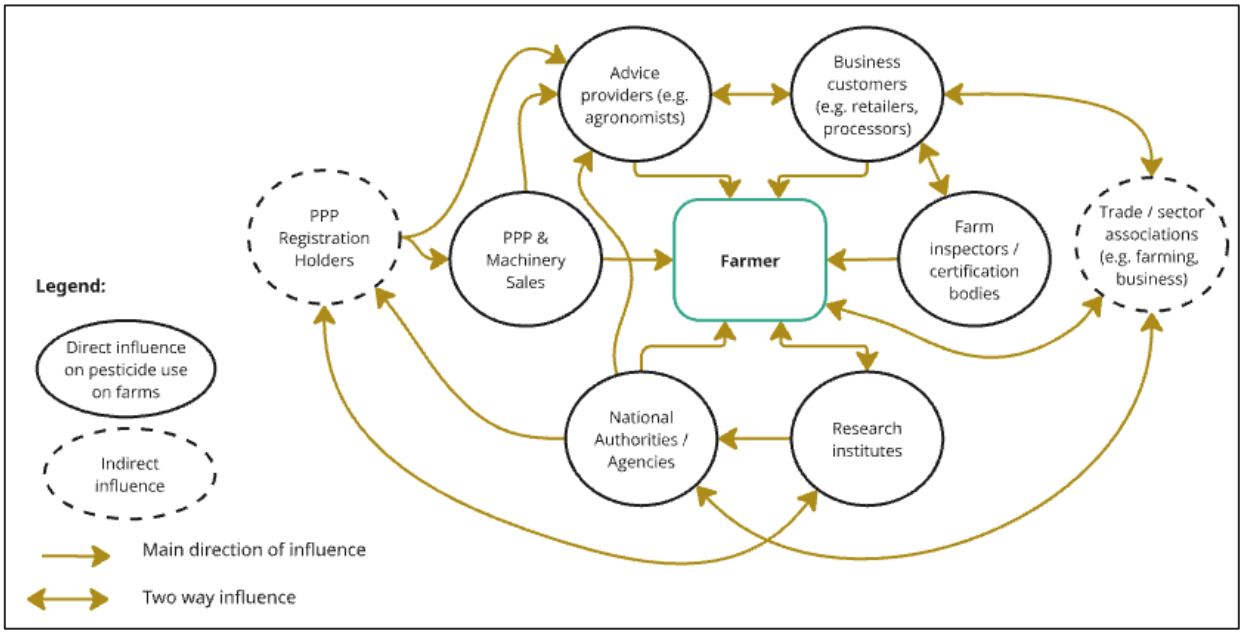

Figure 2: Hypothetical schematic illustrating the potential stakeholder-to-stakeholder connectivity and influence in relation to IPM implementation by the farmer

The importance of adopting a multi-stakeholder approach to designing and leading policy instruments is widely recognised. Stakeholder participation increases the quality of environmental decisions[24], improves the legitimacy of the instruments and the likelihood of their adoption.

Targeting stakeholders other than farmers with policy instruments can also be beneficial to increase the uptake of IPM practices. Many drivers of farmers' decisions are influenced by other actors including farm advisors and the value chain actors they have relationships with. Effective policy instruments should include all actors in the value chain, i.e. from upstream companies, farmers, downstream industries to consumers[25].

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The national authorities/agencies and the agricultural advisory services were cited as the most influential for the implementation of IPM policy instruments by most interviewees. The necessity to better target or involve stakeholders other than farmers was also highlighted several times. Downstream actors such as the agri-food businesses, and upstream actors such as pesticide registration holders and retailers were particularly cited.

Finally, we note from the analysis of the database developed during Task 1 that most policy instruments target farmers and are led by national authorities/agencies (see Section 3.5). This does not mean that other stakeholders are not involved but ultimately the responsibility lays with the farmer.

The Pesticide savings certificates (CEPP), a policy instrument implemented in France, will be further developed as a case study within task 3 of this Work Package and will illustrate an example of a policy instruments targeting additional stakeholders to farmers.

3.3.3 Focusing on IPM principles

Policy instruments collated during Task 1 were categorized according to the IPM general principles[26] they mainly target, as defined in the Directive 128/2009/EC. It could be one, several, or all of them (categorised as "General IPM").

We note that most European and national instruments don't specifically target an IPM principle. This is in line with the views gathered during the stakeholder engagement activity on the relevance of policy instruments in the targeting of IPM principles specifically. Most interviewees considered that with IPM being a holistic approach, policy instruments should address all 8 general principles collectively. However, some also mentioned that policy instruments targeted at supporting specific IPM practices could be efficient and improve the implementation of such practices. We note that more of these specific policy instruments such as decision support tools could be already deployed at local level but may not have been included in the database, which focuses more on national or federal level.

One finding is the low number of policy instruments specifically targeting principle 8 (Evaluation). The EU Court of Auditors highlighted in its report the absence of EU requirement for pesticide users to keep records of other IPM actions, and only a few Member States have introduced this requirement into national law[10].

This lack of detailed data on the implementation of IPM practices was highlighted as a barrier by several interviewees and constitutes a clear barrier to evaluate pesticide reduction efforts and IPM uptake effectively.

3.3.4 Evaluation of instrument effectiveness

In addition to the need to evaluate effectiveness of IPM practices, there is also a need to evaluate effectiveness and efficiency of instruments in delivering reductions in pesticide use and harms at a national level. During the interviews stakeholders highlighted limited availability of evaluation studies on instrument effectiveness and efficiency – this suggests a risk of continued investment in inefficient instruments due to lack of data collection on instrument efficacy. Looking ahead, each policy instrument should be part of a coherent set of policy actions designed to motivate stakeholders to increase the uptake of IPM practices. Any evaluation of a policy instrument's effectiveness should therefore consider the national approach plus the inter-dependencies between the instruments implemented.

3.4 LIMITATIONS

There are some limitations to this evaluation, listed below.

Limitations related to the database of policy instruments:

- This database is focused on the 8 Agrowise partners countries (Croatia, France, Germany, Ireland, Italy, Poland, Romania, Sweden), not all the EU Member States.
- The database compiling pest management and pesticide reduction policy instruments primarily focuses on public policy instruments as specified in the terms of reference for the project. Some national private and/or voluntary schemes are listed where they interact significantly with public policy instruments but are otherwise excluded from scope. Similarly, instruments developed at local level may not have been captured, the data collection had a focus on national and European instruments.
- The funding and research projects list is not exhaustive. Some funding of IPM projects, or monitoring programmes are listed in the database. We captured the existence of such funding in some countries

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or in EU at a high level but have not performed an extensive review of the national and European pest management and pesticide reduction research & monitoring landscape.

- The attribution of policy instruments to IPM principle(s) shows the intended target of the instrument. This sometimes involved indirect targeting. The attribution does not show whether the instrument is effective in achieving impact in relation to the targeted principle.

Limitations related to the stakeholder engagement:

- The interviews were mainly done with representatives of national authorities or national agencies, from all the 8 countries, mostly agriculture ministries. For a more complete analysis, it would be necessary to interview other ministries/agencies and representatives of upstream and downstream stakeholders from all the partners countries.
- The list of policy instruments cited as successful or challenging during the interviews is not exhaustive – interviewees often acknowledge they did not have access to full knowledge which would allow them to confidently share views on all instruments, often because there were not aware of specific studies on the effectiveness or uptake of the instruments. Instruments not cited could also present various degree of strengths or weaknesses.

Limitations related to literature review:

- A targeted literature review was performed, mainly relying on official national and European reports. This literature review should not be interpreted as a complete meta-analysis of the existing scientific literature related to IPM policy instruments' strengths and weaknesses.

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3.5 COUNTRY OVERVIEWS: PRESENTATION OF POLICY INSTRUMENTS ANALYSIS

3.5.1 Croatia Policy Instrument Overview

Figure 3: Policy instruments in Croatia by targeted IPM principle

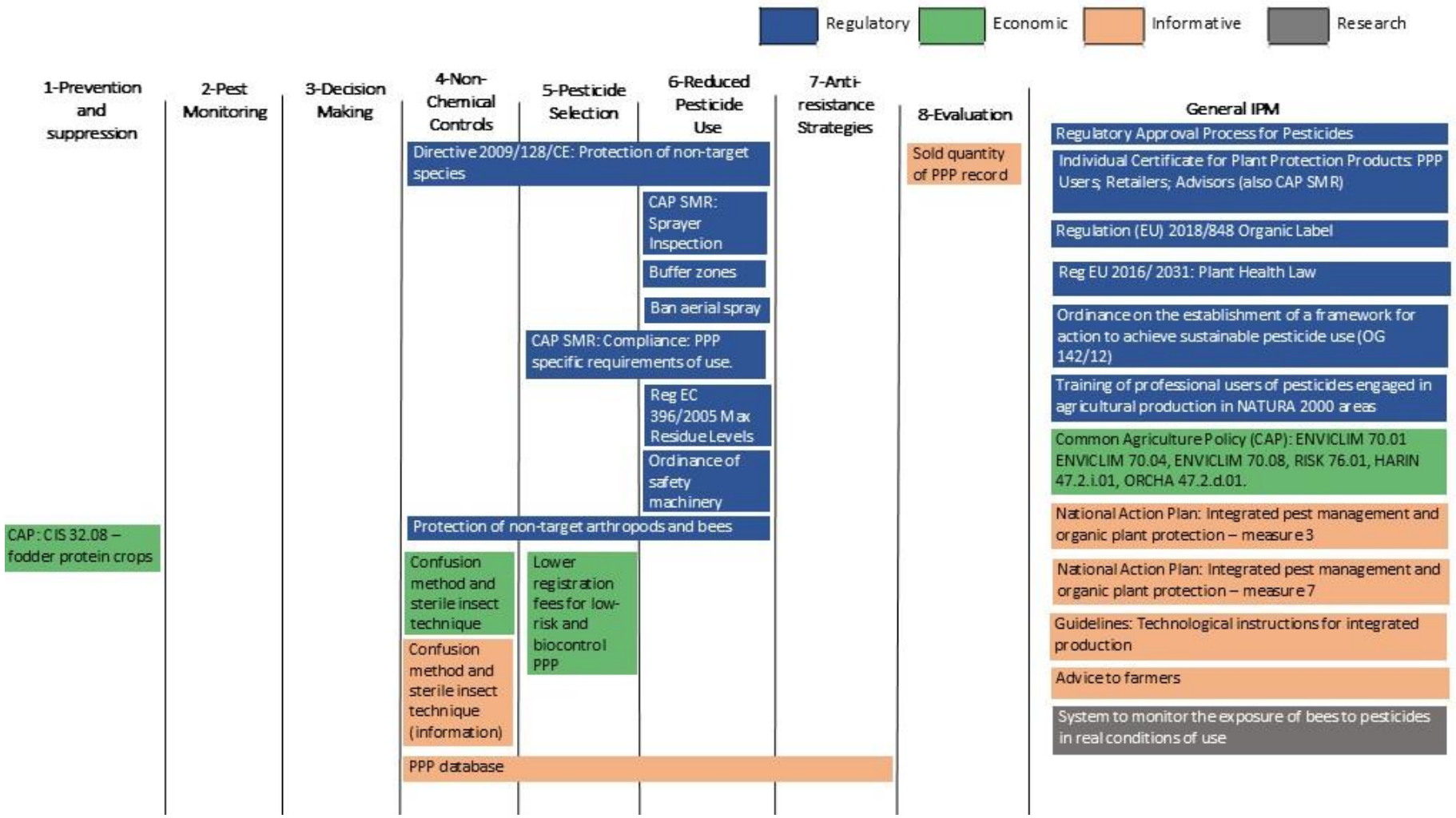

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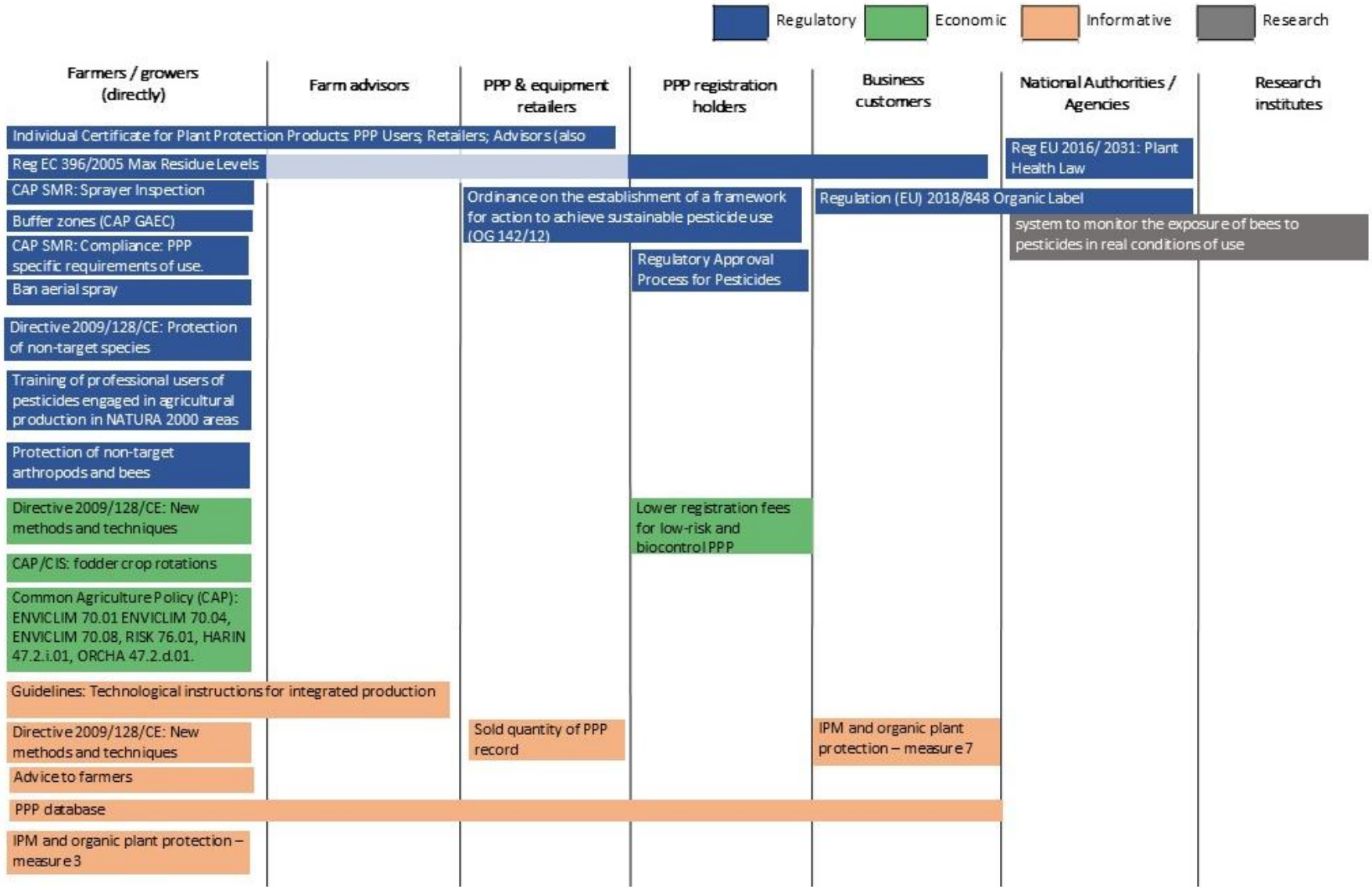
Figure 4: Policy instruments in Croatia by targeted actor



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3.5.2 France Policy Instrument Overview

Figure 5: Policy instruments in France by targeted IPM principle

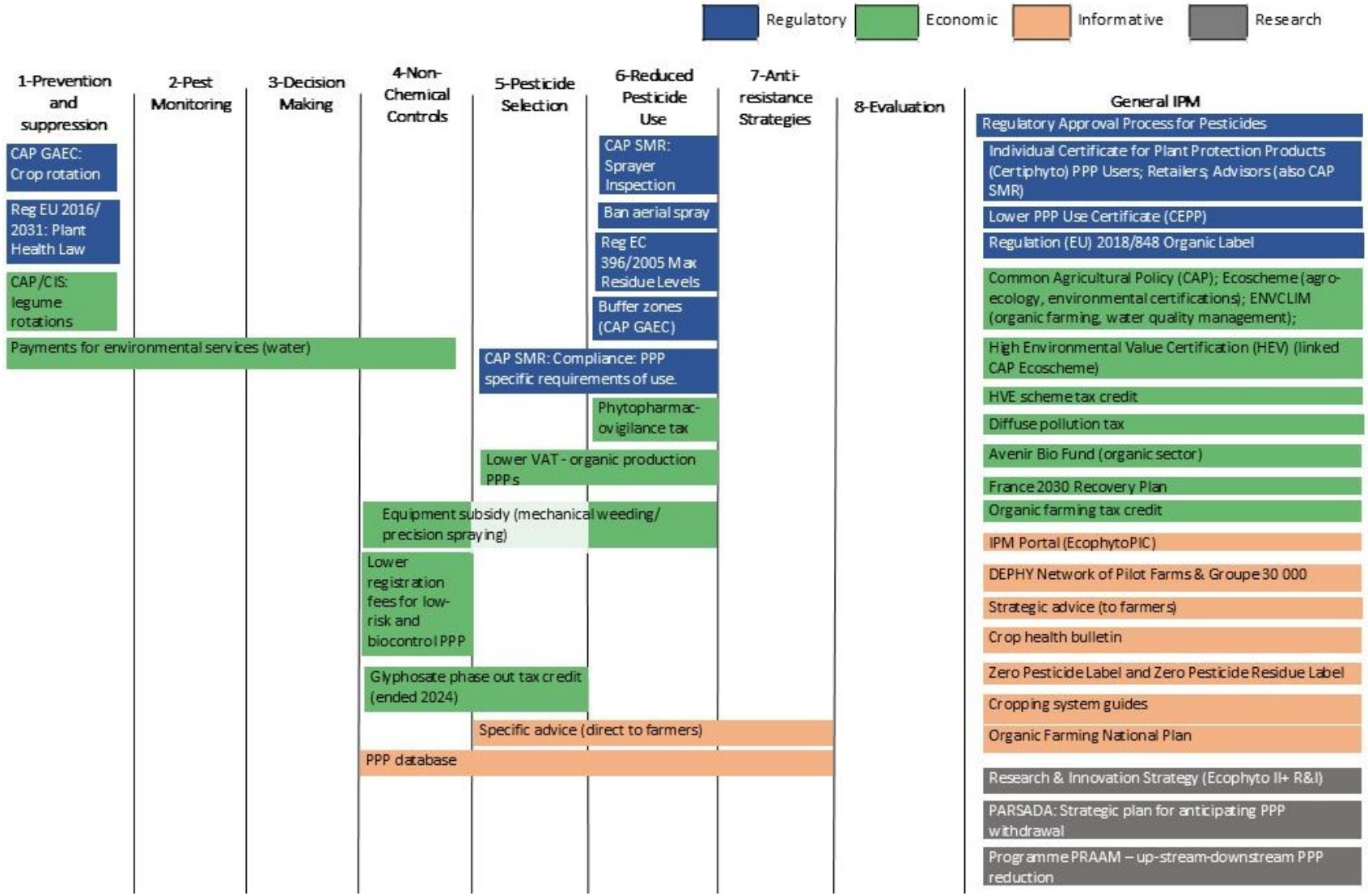

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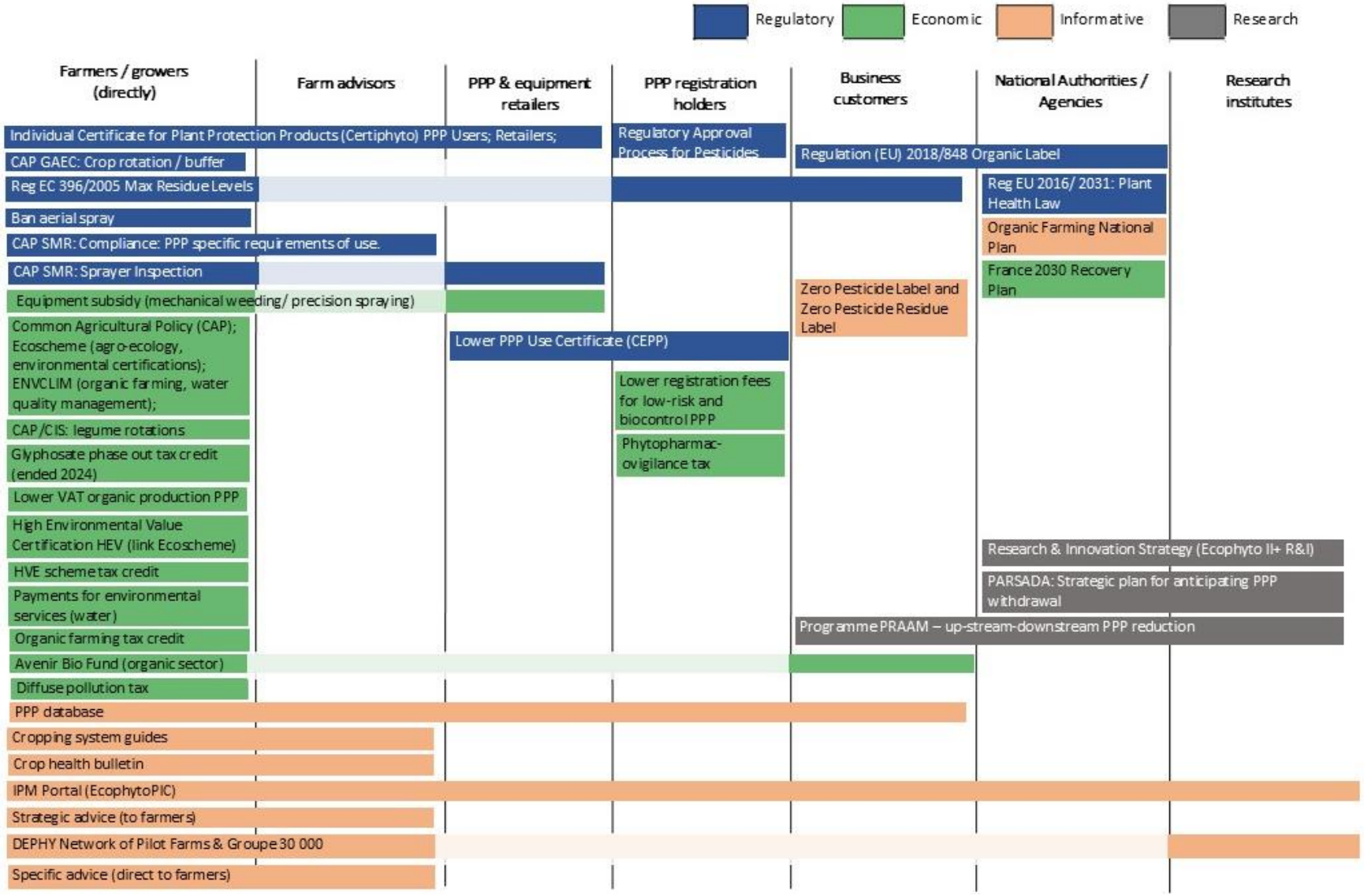
Figure 6: Policy instruments in France by targeted actor



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3.5.3 Germany Policy Instrument Overview

Figure 7: Policy instruments in Germany by targeted IPM principle

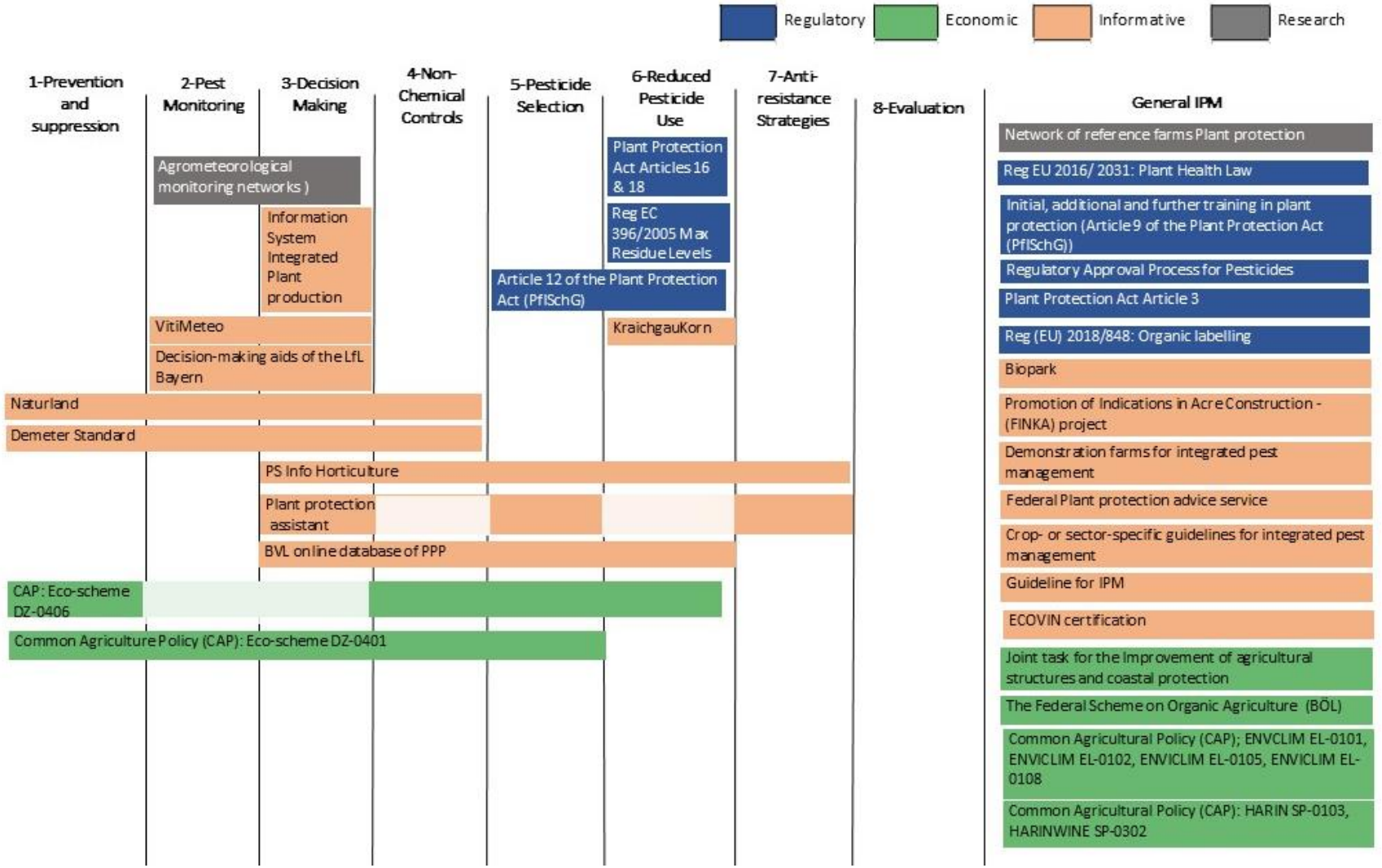

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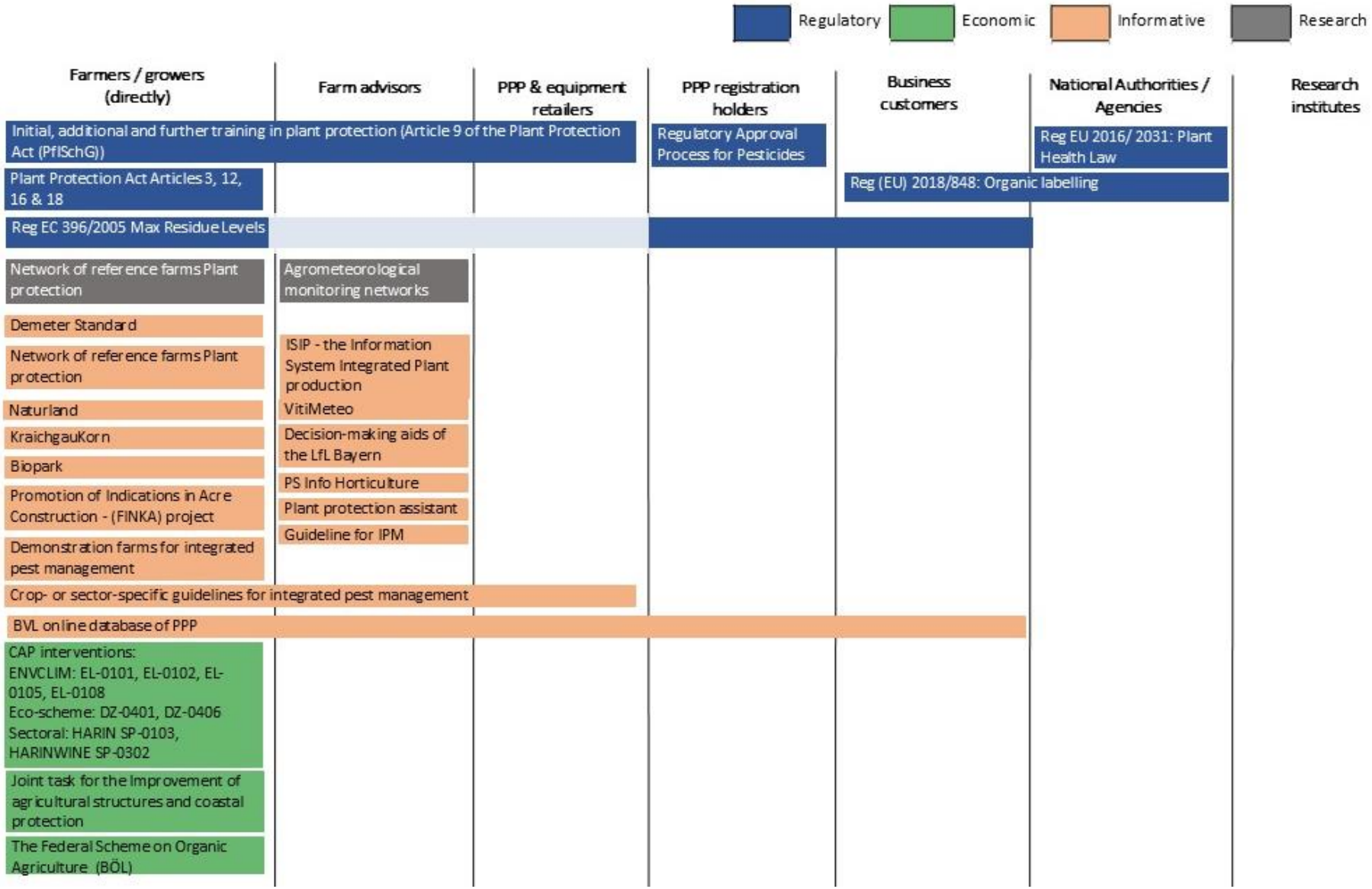
Figure 8: Policy instruments in Germany by targeted actor



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3.5.4 Ireland Policy Instrument Overview

Figure 9: Policy instruments in Ireland by targeted IPM principle

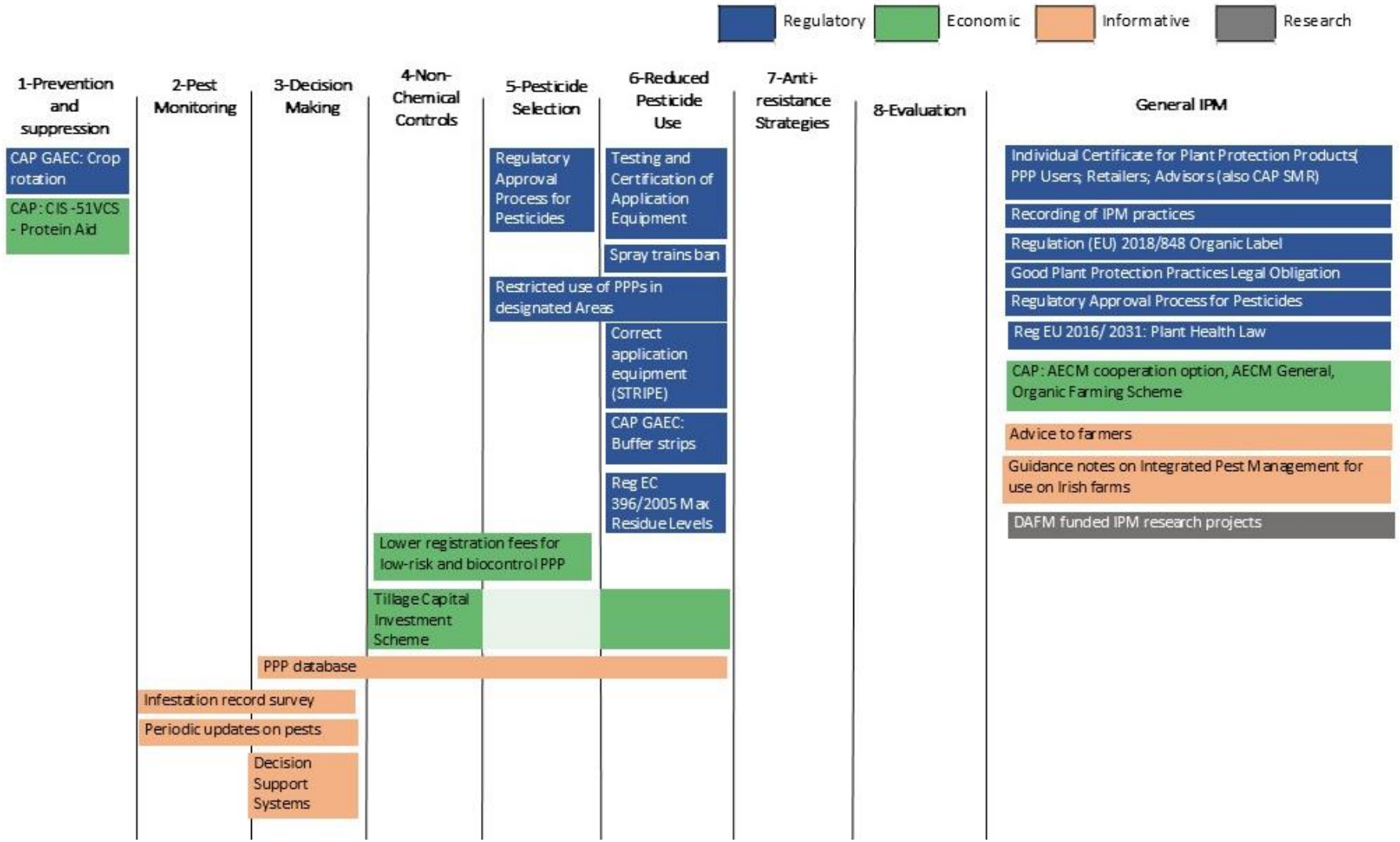

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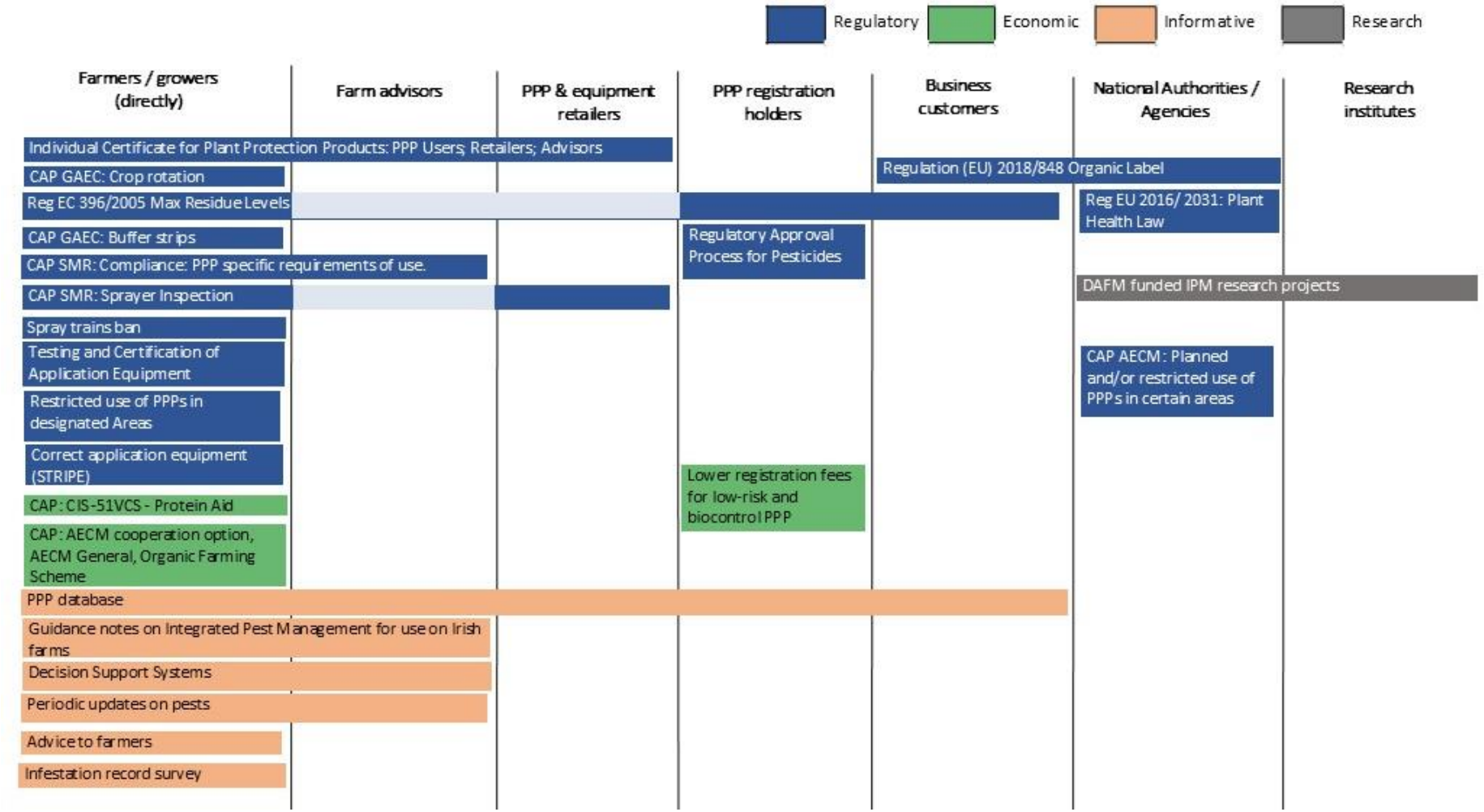
Figure 10: Policy instruments in Ireland by targeted actor



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3.5.5 Italy Policy Instrument Overview

Figure 11: Policy instruments in Italy by targeted IPM principle

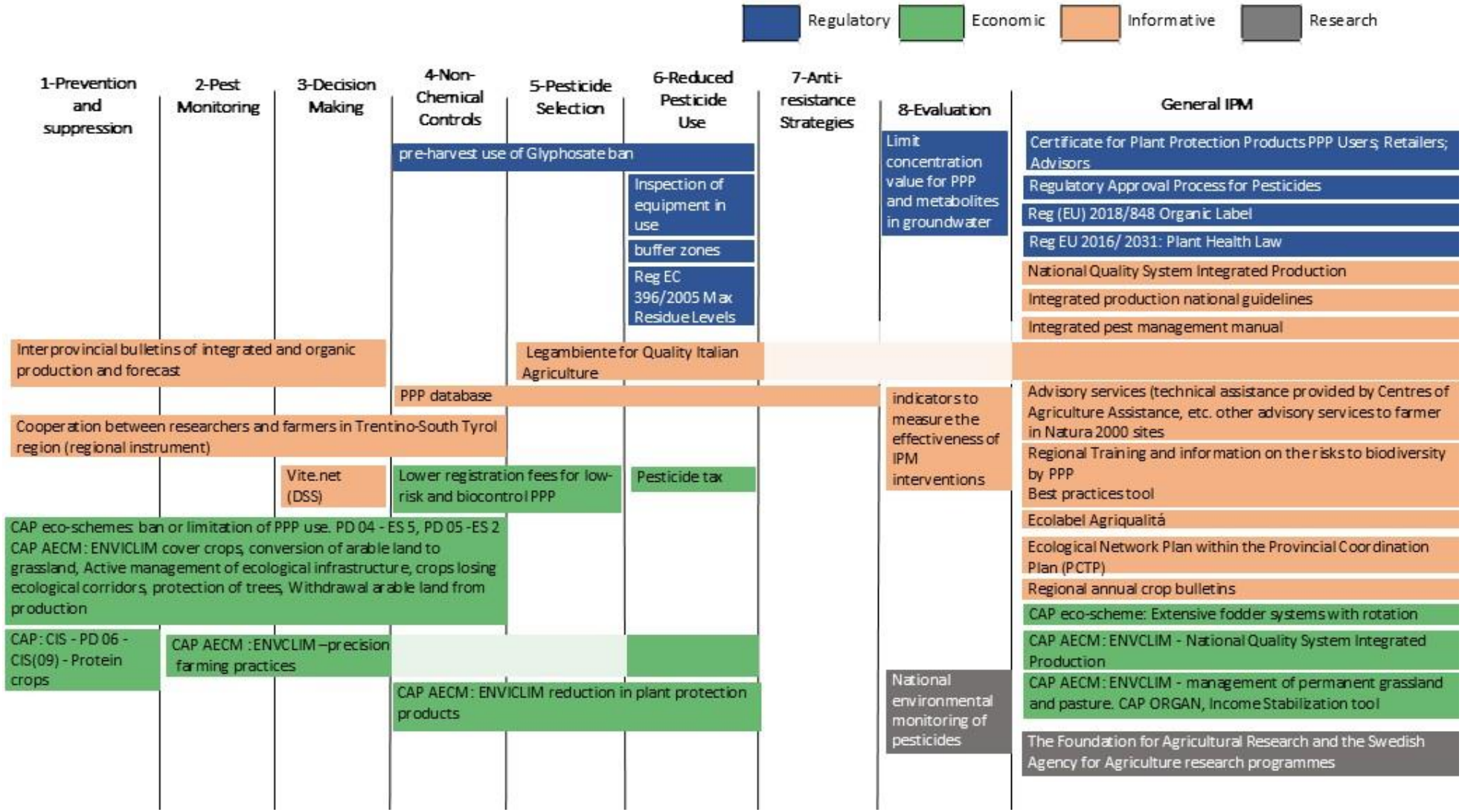

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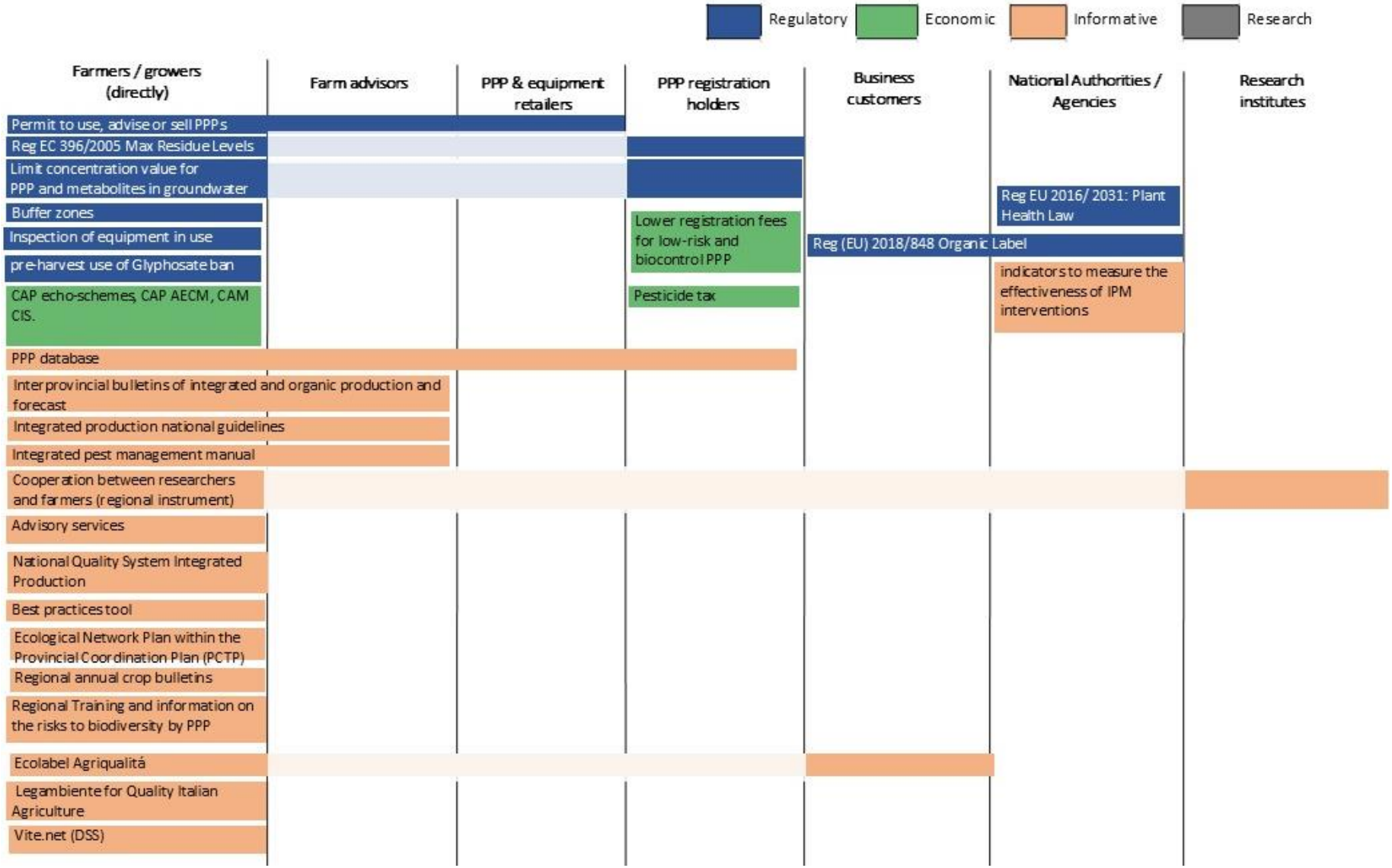
Figure 12: Policy instruments in Italy by targeted actor



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3.5.6 Poland Policy Instrument Overview

Figure 13: Policy instruments in Poland by targeted IPM principle

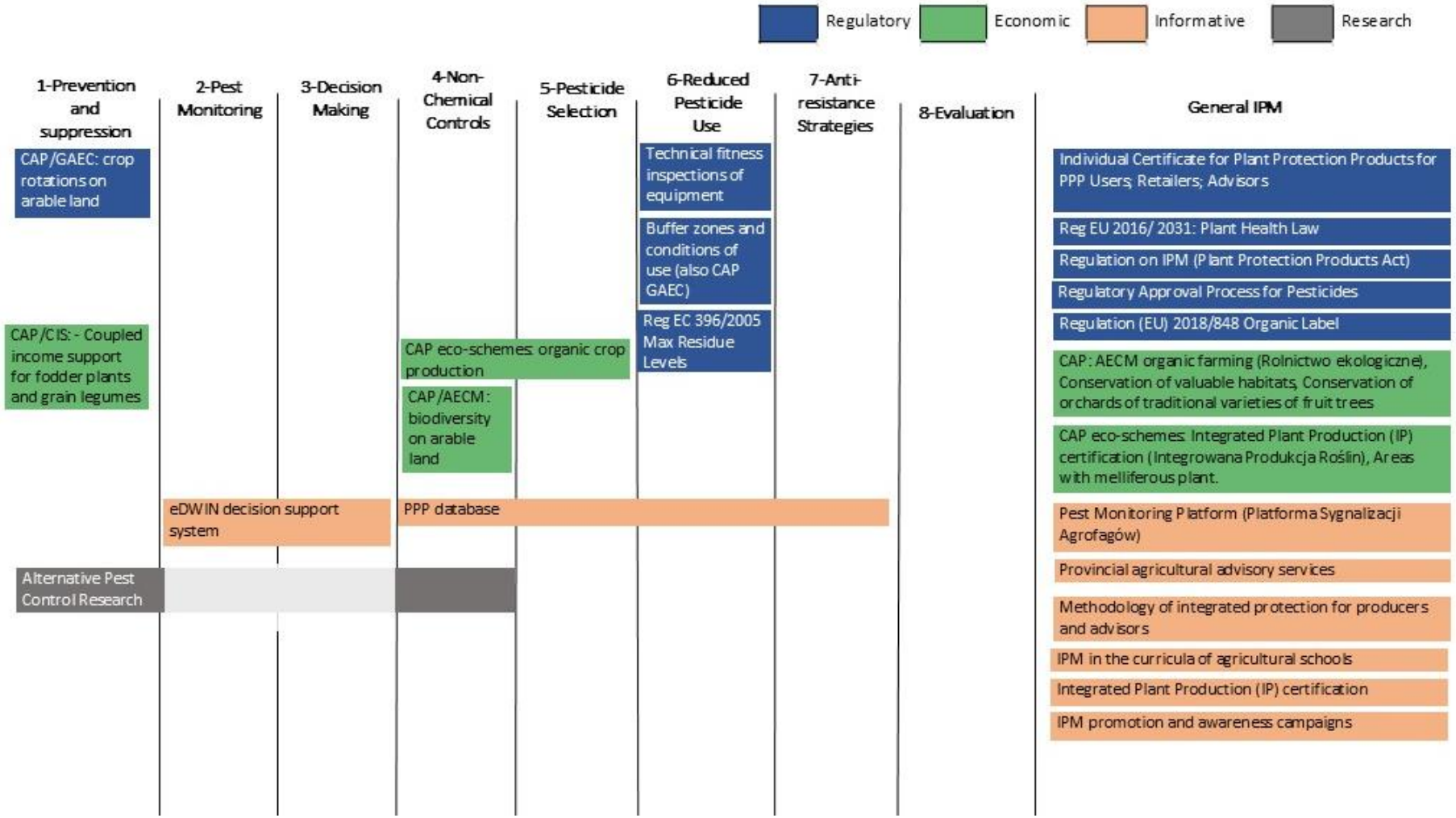

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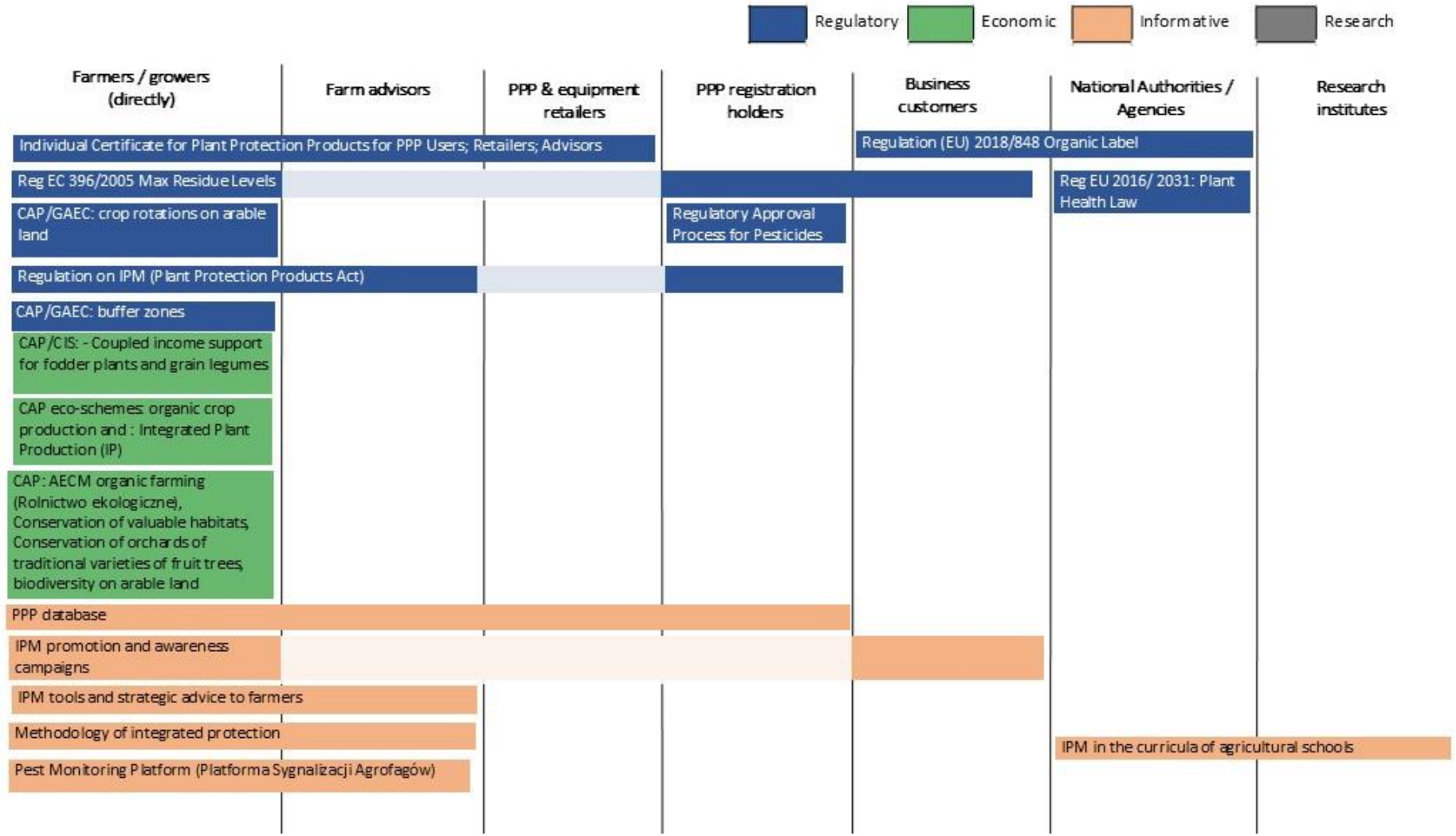
Figure 14: Policy instruments in Poland by targeted actor



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3.5.7 Romania Policy Instrument Overview

Figure 15: Policy instruments in Romania by targeted IPM principle

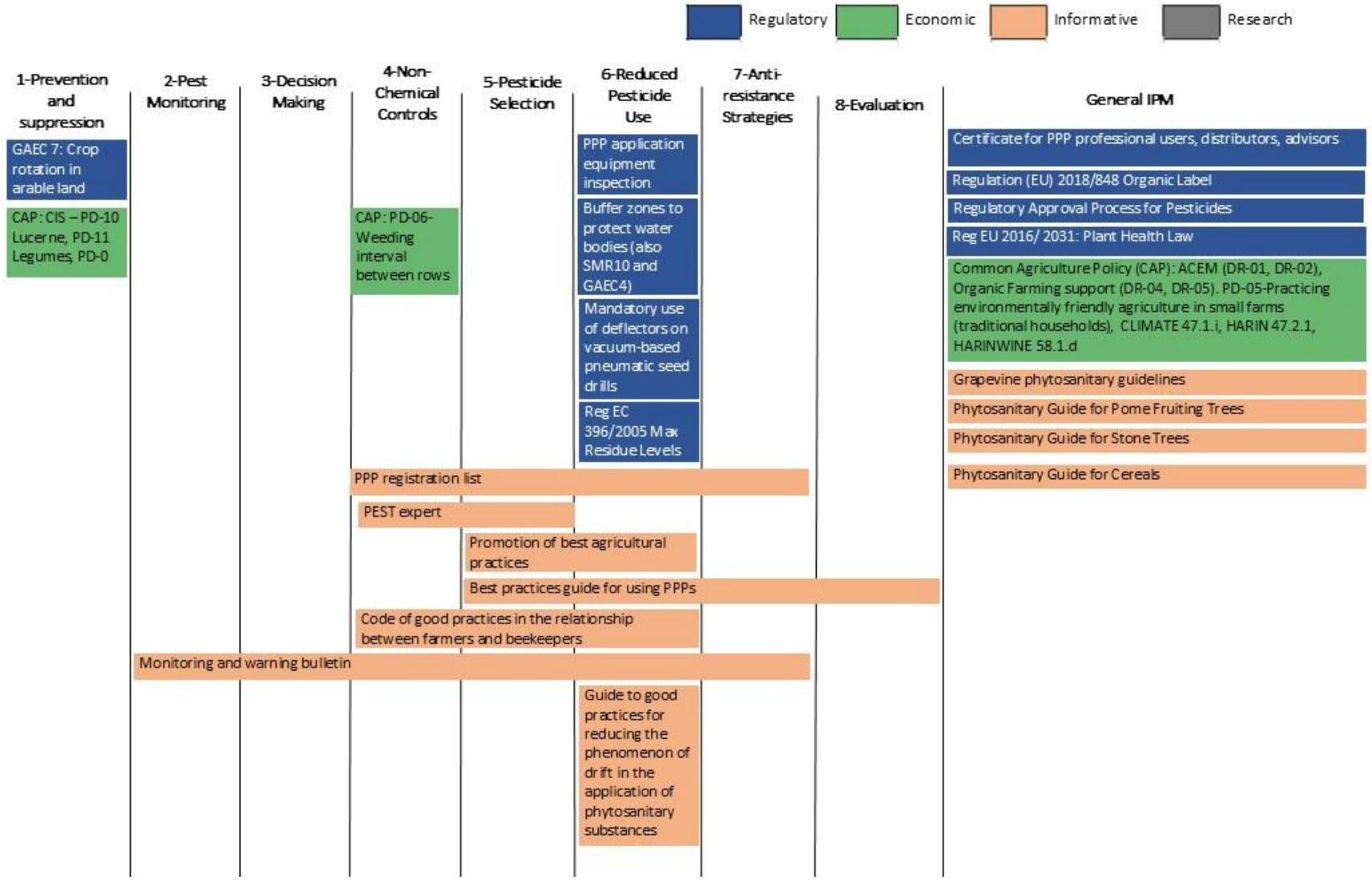

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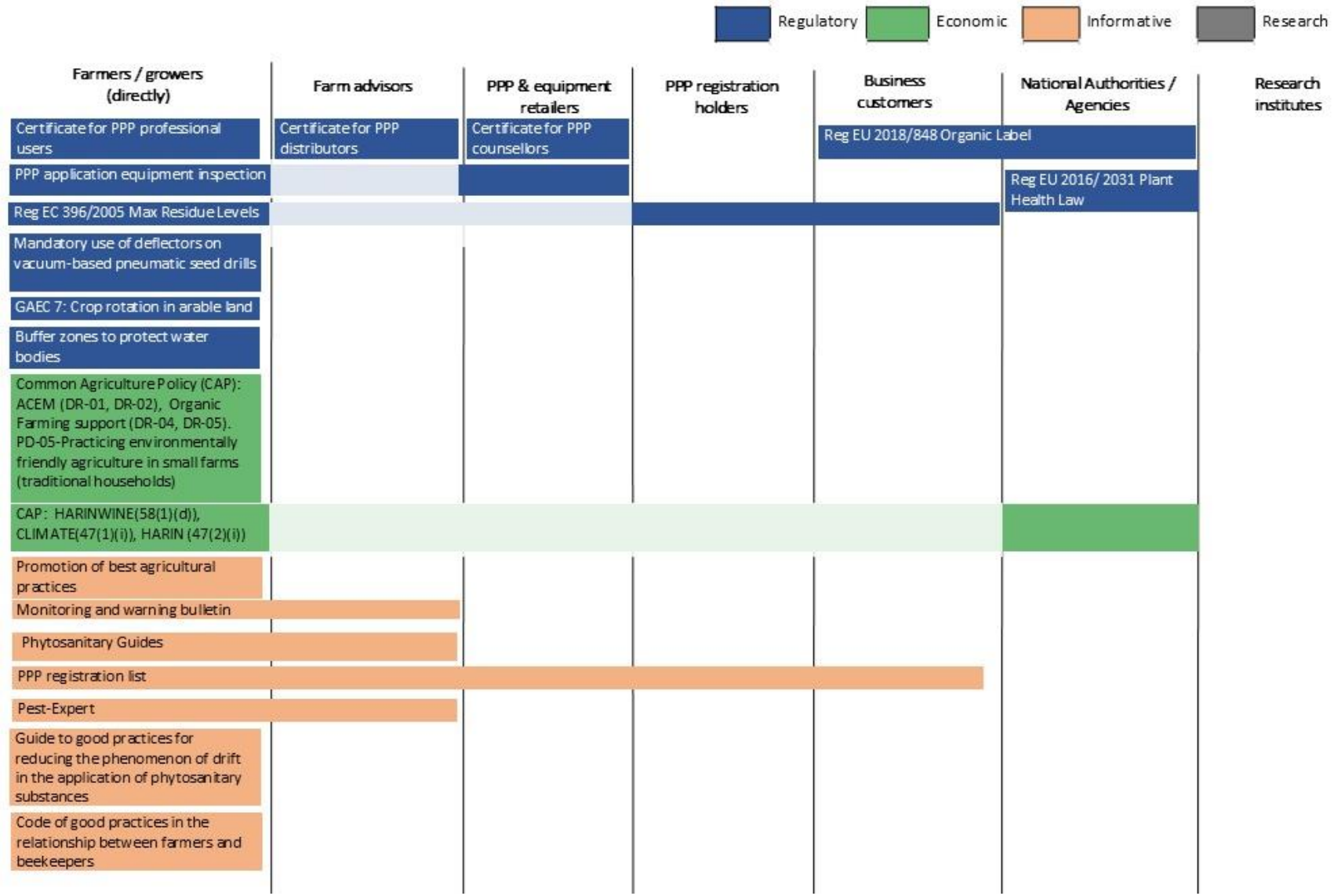
Figure 16: Policy instruments in Romania by targeted actor



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3.5.8 Sweden Policy Instrument Overview

Figure 17: Policy instruments in Sweden by targeted IPM principle

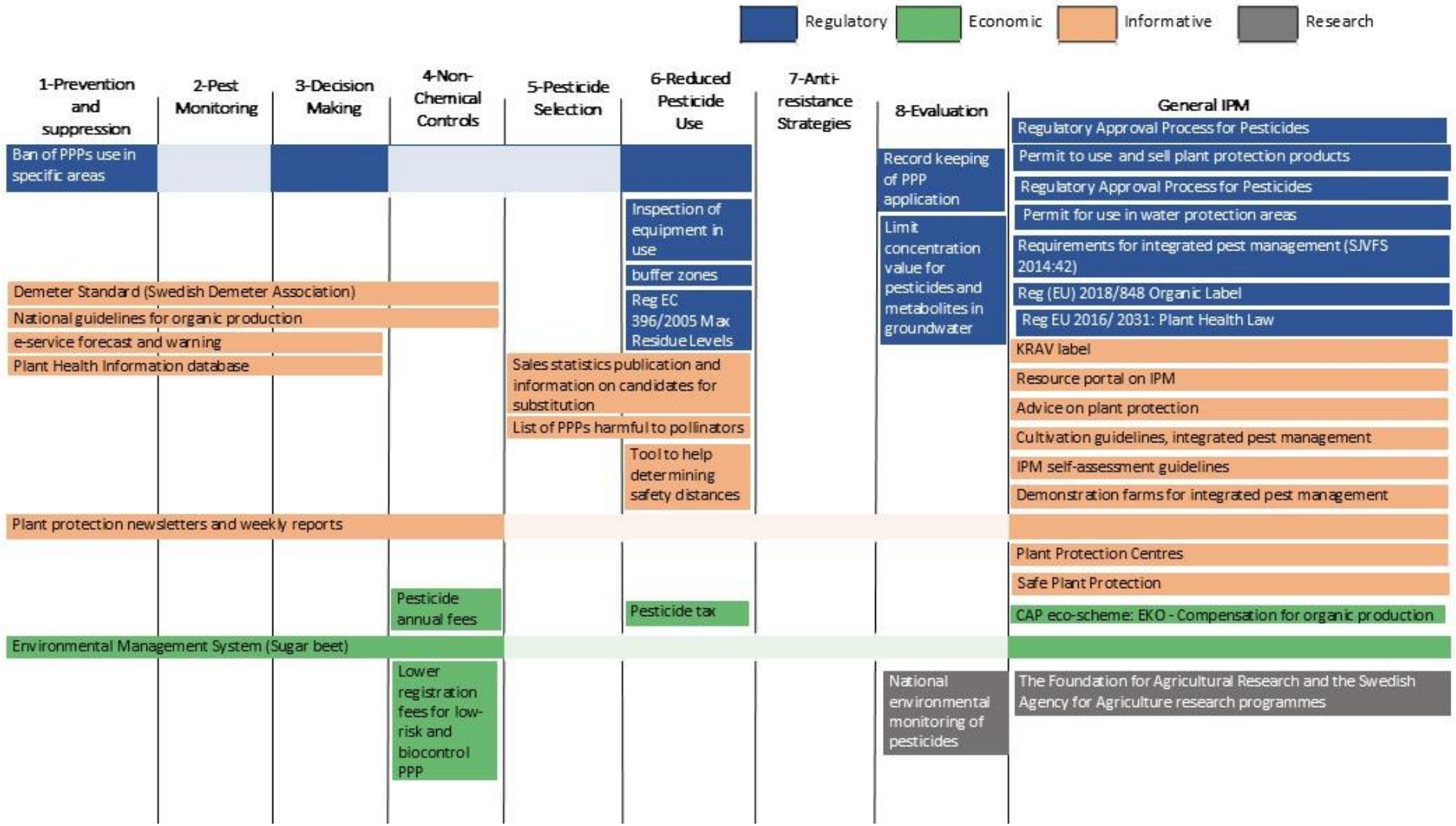

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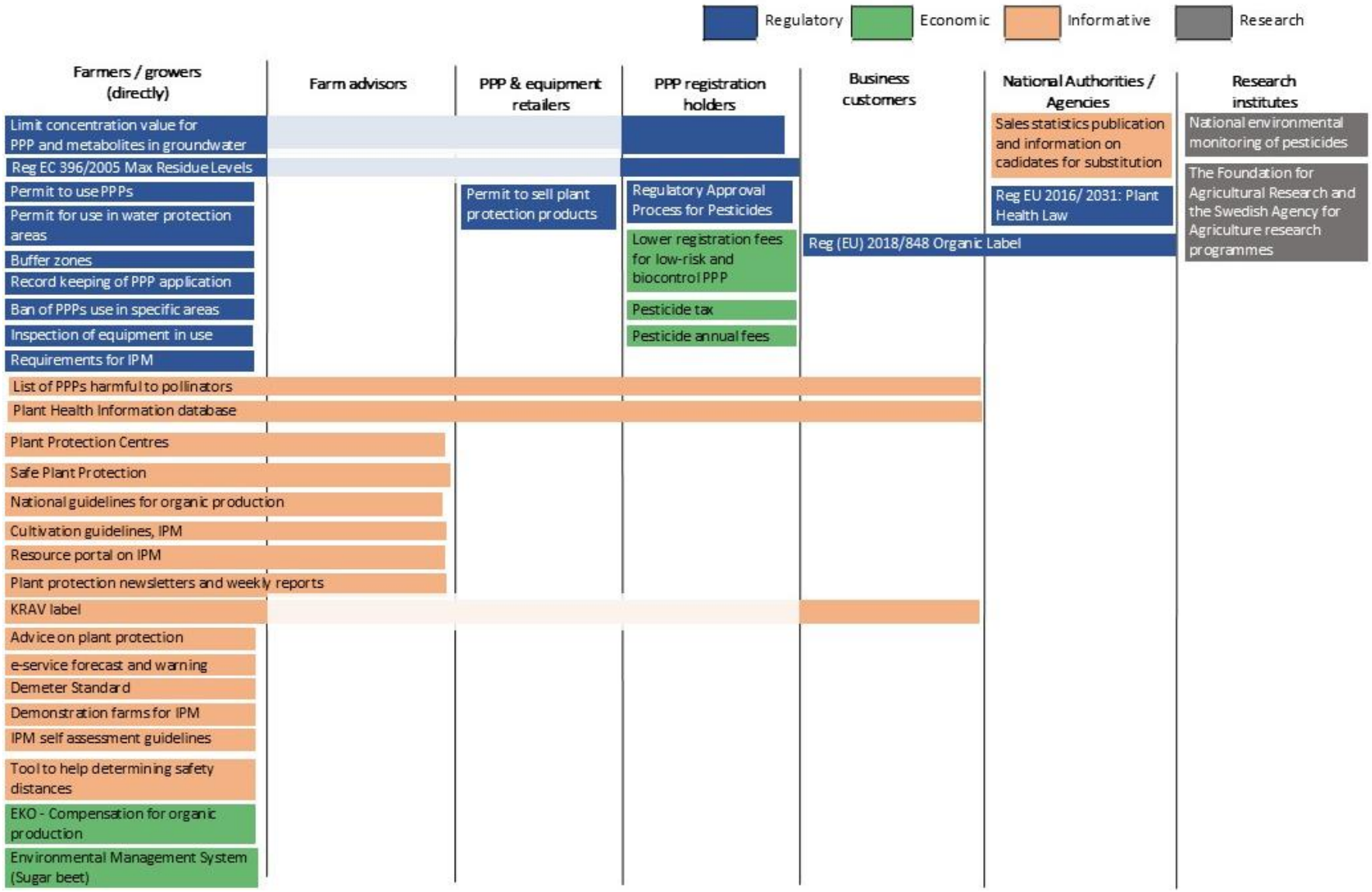
Figure 18: Policy instruments in Sweden by targeted actor



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4. NEXT STEPS

One task remains for WP4; Task 3 aims to develop a framework for member states to support the generation of Farm-Specific guidelines for targeted stakeholders. The goal of this is to improve the uptake and impact of the policy instruments which were identified, evaluated, and ranked in Tasks 1 and 2. In addition, three case studies will also be described to present different policy instruments developed at national level, and explore successful and challenging factors, stakeholders targeted and the degree of freedom left to each actor for the implementation. These guidelines and case studies are expected in August 2025.

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