POLICY BRIEF

Using the CAP to Reduce Pesticide Dependence: Creating the Conditions for Structural Change

- The current CAP (2023–2027) holds key levers for reducing pesticide dependence, but **weak enforcement, diluted standards, and lack of strategic integration** prevent the policy from driving substantial change in farming systems.
- To unlock the CAP's full potential, its instruments need to be **more strategically aligned, ensuring that baseline rules, financial incentives, and knowledge systems are coherently integrated** to operate in a complementary and mutually reinforcing way in support of reduced-pesticide farming.
- Achieving lasting pesticide reduction depends on **closing gaps between mandatory and voluntary measures**, **redirecting incentives** towards preventive practices, strengthening advisory and sectoral **support**, and **safeguarding environmental standards** against derogations, enabling farmers to overcome persistent **pesticide lock-ins.**

Further reading

Riedel, A., Hendricks-Franco, L., Bibu, T., Meier, J., Rouillard, J., et al. (2025). Transition pathways and policy recommendations (Deliverable D7.3). SPRINT Project, Horizon 2020, Grant Agreement No. 862568.

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1: The relevance of the CAP for reducing pesticide use

The CAP is the EU's primary framework for translating agricultural objectives into farm-level action.

With a budget of around **EUR 55 billion per year** (31% of the EU budget for the 2021-2027 programming period), it strongly shapes land use, farming practices, and investment decisions. While originally focused on food security and income support, the CAP now carries a broader climate and environmental mandate, **giving it both the responsibility and potential to support a structural shift towards farming systems that are less dependent on synthetic pesticides** and more ecologically integrated.

The current CAP is implemented through national CAP Strategic Plans (CSPs) which allow Member States flexibility within a common EU framework. Three CAP specific objectives are especially relevant for pesticide reduction – climate change mitigation and adaptation (SO4), sustainable management of natural resources (SO5), and protection of biodiversity and ecosystems (SO6) – alongside two result indicators directly linked to pesticide use, i.e., sustainable and reduced use of pesticides (R24) and development of organic agriculture (R29).

Environmental ambitions are implemented through the CAP's Green Architecture, comprising mandatory conditionality, through Statutory Management Requirements (SMRs) and Good Agricultural and Environmental Conditions (GAECs), and voluntary instruments such as eco-schemes, agri-environment-climate (ENVCLIM), and investment interventions. Agricultural Knowledge and Innovation Systems (AKIS)-related measures and sectoral interventions can further support environmental objectives. Whether these instruments can drive a long-term shift towards more sustainable pest management and ecologically integrated farming systems depends on how coherently they are designed and implemented. To assess this, in the following, the interventions were analysed based on a typology of agricultural practices developed by Angileri et al. (2024).

2: Strengthening CAP implementation to reduce pesticide dependence

2.1: Conditionality (SMRs and GAECs)

Conditionality establishes the environmental baseline for CAP payments. In relation to pesticides, relevant SMRs (Regulation 1107/2009, Article 55) focus primarily on lawful use of authorised products and do not set expectations for reducing overall pesticide inputs or shifting towards preventive practices. Although Integrated Pest Management is referenced, it lacks measurable requirements and does not function as an enforceable baseline. Variation in interpretation and inspection across Member States further weakens its impact, while the removal of CSP alignment with new environmental legislation risks undermining policy coherence.

The GAEC standards, while not explicitly regulating pesticides, shape key agronomic conditions influencing pest pressure. Buffer strips (GAEC 4), crop rotation (GAEC 7), soil protection (GAEC 5 and 6), and landscape features (GAEC 8) support soil health, biodiversity, and natural pest regulation. However, their potential has been significantly weakened by recent relaxations introduced in response to political pressure. In particular, the relaxation of GAEC 7 allows Member States to replace crop rotation with simple crop diversification, weakening an effective agronomic tool for breaking pest cycles and encouraging continued reliance on monocultures and synthetic pesticides. Similarly, changes to GAEC 8 removed the mandatory minimum share of land dedicated to landscape features, eliminating one of the most effective mechanisms for supporting biodiversity and natural pest regulation. Although Member States are required to offer an eco-scheme as an alternative, this does not provide an equivalent safeguard due to optional participation and variable compensation.

As a result, **conditionality currently functions more as a minimum safeguard than as a driver of pesticide reduction.** Further, weak or unevenly enforced baseline standards reduce the effectiveness of voluntary instruments. When voluntary schemes substitute for insufficiently enforced mandatory measures, both layers of the policy architecture are weakened: it erodes the universality of baseline protections and diminishes the transformative potential of voluntary measures to drive more sustainable, pesticide-reducing practices.

Turn over for recommendations

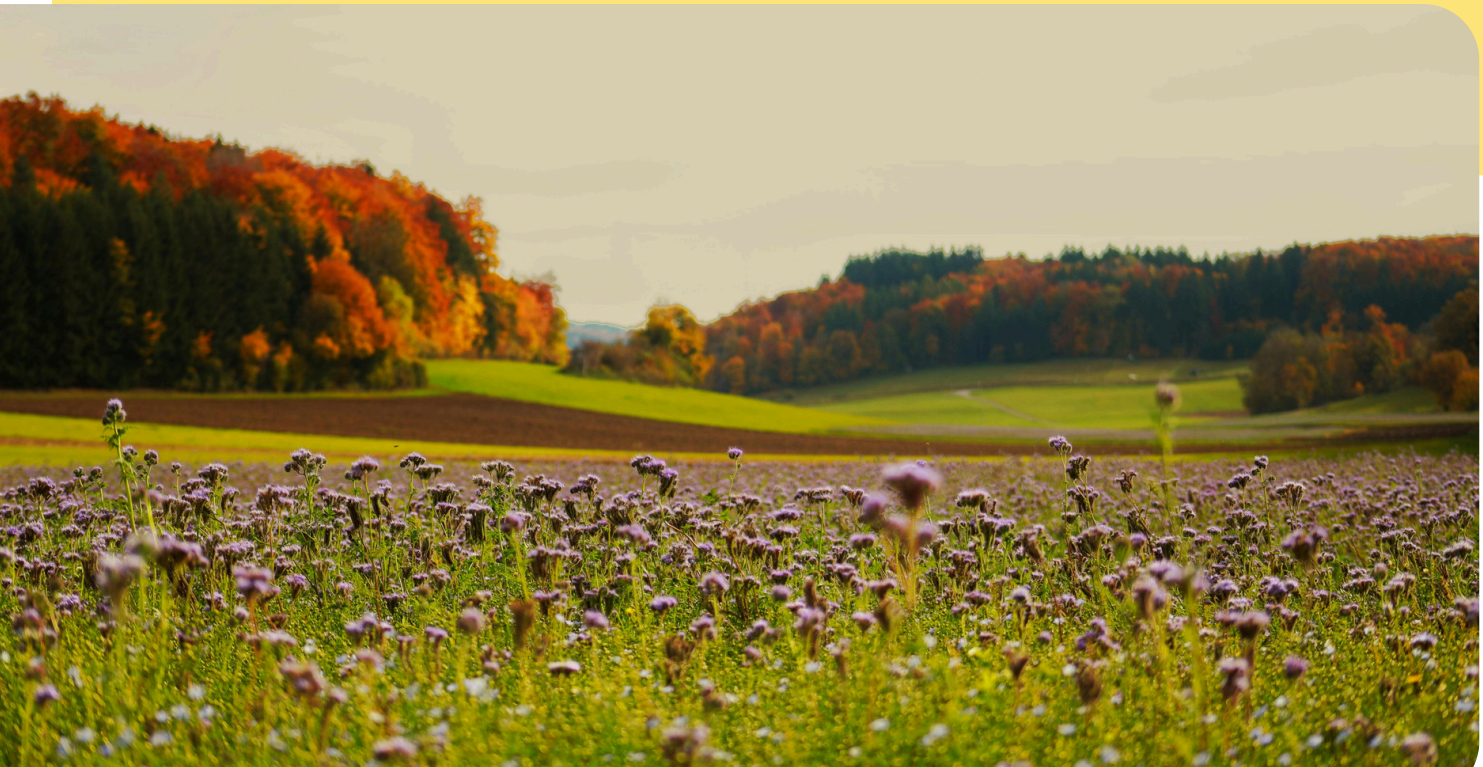
2.1: Conditionality (SMRs and GAECs) - continued

Recommendations:

1. Reinforce the **GAEC framework as a coherent, enforceable environmental baseline** to support sustainable pesticide management and broader environmental goals.

2. **Strengthen agroecological foundations within GAEC standards** to enhance natural pest control and build resilient farming systems. This includes in particular:
   - **GAEC 8**: Reinstate and strengthen mandatory requirements for landscape features and ecological focus areas to promote biodiversity and natural pest regulation.
   - **GAEC 4**: Harmonise definitions and enforcement of buffer strips across Member States to protect all ecologically significant watercourses from pesticide runoff.
   - **GAEC 7**: Preserve robust crop rotation obligations to meaningfully disrupt pest cycles and improve agronomic resilience.

3. Strictly **limit exemptions and derogations that compromise environmental integrity** within the GAEC framework to ensure consistency, credibility, and effectiveness of standards.



2: Strengthening CAP implementation to reduce pesticide dependence

2.2: Eco-schemes and ENVCLIM interventions

Eco-schemes and ENVCLIM interventions represent the CAP's main tools for encouraging farmers to adopt practices that go beyond the baseline.

Eco-schemes are offered annually and are designed for broad uptake, incentivising practices such as reduced pesticide use, the establishment of nature-friendly features, or diversified cropping systems. ENVCLIM interventions operate through multi-year contracts and aim to support more enduring changes in land use and farm management.

Current CSPs show that a notable proportion of eco-scheme and ENVCLIM budget is linked to pesticide-related objectives. In eco-schemes, significant funding is channelled towards crop diversification, land laying fallow, unproductive areas and landscape features such as hedgerows, alongside limitations in the use of plant protection products and support for organic farming (see Figure 1). Similarly, ENVCLIM budgets are largely concentrated on unproductive areas, different landscape features, crop rotation and diversification, and cover crops (see Figure 2). While these interventions can contribute to reduced pesticide pressure, their transformative potential depends on how they are defined and implemented.

In practice, many measures closely mirror GAEC requirements rather than going beyond the baseline, limiting their additionality. Recent relaxations of conditionality therefore heighten the risk that voluntary schemes compensate for a weakened mandatory floor instead of raising overall ambition. Moreover, pesticide-use limitations largely function as risk-management tools, reducing applications within otherwise unchanged systems, and are often supported by relatively low per-hectare payments. For instance, limitation in the use of plant protection products is widespread across CSPs and accounts for a large share of budget. At the same time, the high intervention share relative to the budget share suggests that these interventions are, on average, supported by relatively limited financial allocations per intervention.

More preventive and ecologically grounded practices are included in both eco-schemes and ENVCLIM interventions, but play a limited role in practice. Instead, significant funding is allocated to practices that can contribute indirectly to pesticide reduction, such as land laying fallow or basic crop diversification, which are often designed as relatively low-ambition options and do not necessarily drive broader changes in production systems. Practices that require deeper adjustments to cropping systems and farm management, such as mixed cropping or non-chemical control measures, remain less frequently offered, weakly incentivised, or administratively complex, which constrains their uptake.

Turn over for more...

2.2: Eco-schemes and ENVCLIM interventions

Germany: Uptake concentrates on “easy-fit” eco-schemes while pesticide-relevant options lag behind

Early uptake of eco-schemes in Germany has been uneven. In 2023, ÖR 5 (Payment for plant species-rich grassland) accounted for 45% of total eco-scheme payouts and was the only eco-scheme exceeding its area target (172% in 2023, rising further in 2024). This strong uptake is linked to its relatively high payment level combined with comparatively low required farm adjustments. Participation was especially high among grassland-oriented and mixed farm types, including organic farms. However, more structurally transformative measures such as ÖR 3 (Agroforestry) remained marginal in overall spending. Uptake of the pesticide-relevant eco-scheme ÖR 6a (Pesticide-free arable crops (selected crops)) was low, reaching only 10% of the target area in 2023 (19% in 2024), reflecting comparably higher management effort, more uncertainty, and the need for alternative control techniques.

Reference: Duden et al., 2025

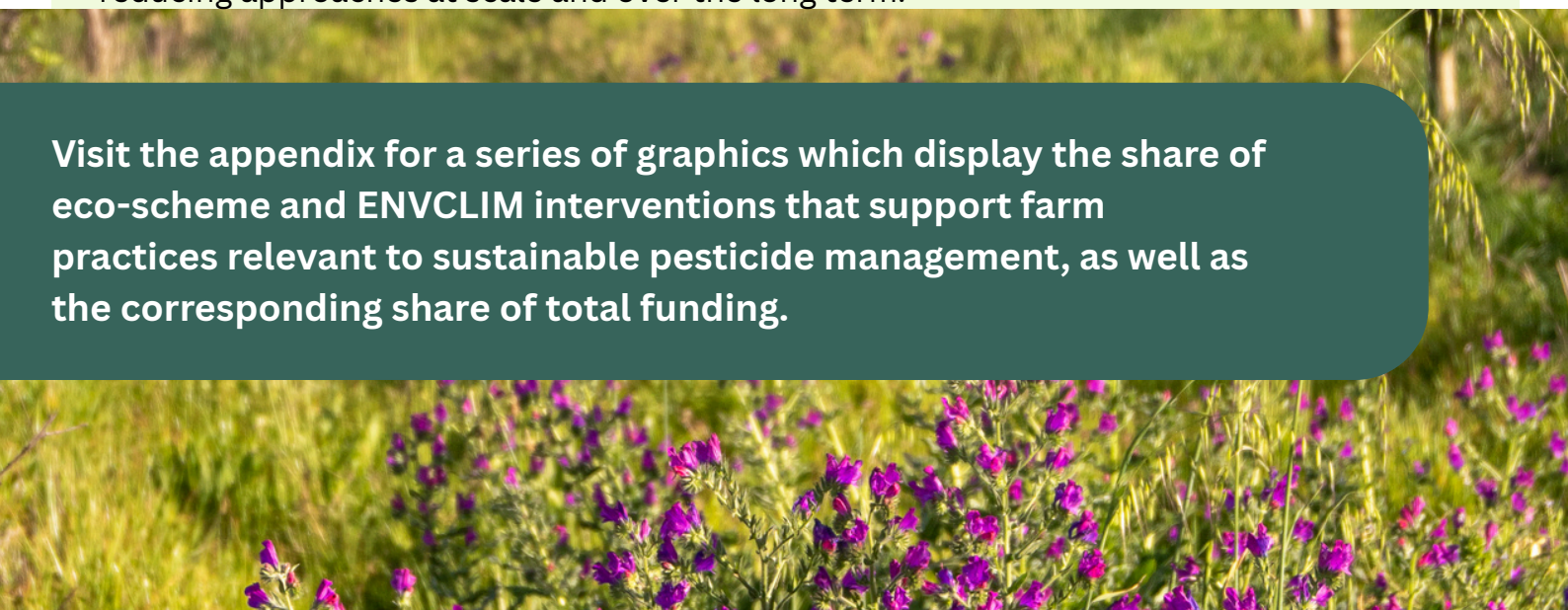
2.2: Eco-schemes and ENVCLIM interventions

Where more demanding options are available, participation is often limited. Particularly, **complexity, unclear definitions, overlapping requirements, and insufficient remuneration continue to deter farmers from engaging in practices that would deliver more substantial reductions in pesticide dependence**. Creating viable participation frameworks – through clear scheme design, adequate payment levels, and compatibility with other CAP instruments – is therefore essential to enable wider adoption of more transformative, pesticide-reducing approaches.

Despite receiving a significant share of budgets relative to the number of interventions, organic farming support in many CSPs still fails to provide adequate incentives and meaningful competitive advantage for farmers to ultimately opt for participation in these schemes. Payments are often aligned with those for less transformative practices, and in some Member States are limited to conversion rather than long-term maintenance. Rules to avoid double funding may further oblige farmers to choose between overlapping schemes, weakening incentives to adopt or remain in organic production.

In addition, most eco-schemes and ENVCLIM interventions remain action-based rather than result-based, remunerating compliance with predefined practices rather than rewarding measurable environmental outcomes, including verified reductions in pesticide pressure.

Overall, the current portfolio of eco-schemes and ENVCLIM interventions only partially exploits its potential to drive systemic reductions in pesticide use. Support remains limited in both availability and budgetary weight for measures with high transformative potential. In many CSPs, funding is spread across numerous modest commitments rather than strategically concentrated on ambitious practices capable of catalysing broader farm-system change. This constrains farmers' ability and incentives to adopt more demanding pesticide-reducing approaches at scale and over the long term.



Visit the appendix for a series of graphics which display the share of eco-scheme and ENVCLIM interventions that support farm practices relevant to sustainable pesticide management, as well as the corresponding share of total funding.

2.2: Eco-schemes and ENVCLIM interventions

Recommendations:

1. Require Member States to prioritise preventive and ecological practices in eco-schemes and ENVCLIM by **setting minimum budget shares for measures that reduce pest pressure at its source**, such as diversification, ecological infrastructure, and biological control.

2. Increase payment levels, unify administrative requirements, and ensure that **support schemes for organic and other low input systems offer a clear and financially attractive alternative to conventional practices** so that farmers have real incentives to adopt and maintain more sustainable approaches.

3. **Shift from action-based schemes to result-based approaches** by introducing payment options that reward demonstrable reductions in pesticide pressure or verifiable improvements in ecological resilience. Examples from current CSPs include farmers receiving payments:
   - if a **certain number of valuable plant species** are detected on their land (as currently done in e.g., Germany);
   - if they achieve a **minimum reduction of 30% of (non-)herbicide treatment frequency** (as currently done in e.g., France);
   - if **high floral diversity is maintained or improved** for five consecutive years (as currently done in e.g., Spain).

2.3: Complementary instruments: knowledge, advisory, and sectoral support

Complementary instruments designed to foster knowledge, innovation, and digital technologies fall under the cross-cutting Specific Objective 10 (SO10) and include the Agricultural Knowledge and Innovation System (AKIS), Farm Advisory Services (FAS), and the European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP AGRI). In addition, sectoral support programmes – for example in fruit and vegetables, olives, or wine – can influence pesticide use patterns through targeted interventions.

Across CSPs, 9% of CAP interventions are formally linked to AKIS-related result indicators, including enhancing performance through knowledge and innovation (R1), linking advice and knowledge systems (R2), and improving environmental or climate performance through knowledge and innovation (R28). However, **strategies and ambition levels vary widely across Member States, with target values ranging from very small beneficiary numbers to over one million, and several Member States not setting targets at all.** Only four of these interventions are also linked to the pesticide-related result indicators R24 or R29, and only an additional nine explicitly mention sustainable pesticide use in their titles. These figures likely underestimate the true number of relevant interventions, partly due to the flexibility granted to Member States in assigning result indicators, which makes systematic identification and tracking of pesticide-relevant knowledge and advisory measures difficult. Sector-specific schemes account for 33% of interventions across CSPs, around 24% of which are linked to R24 or R29, with notable activity in organic and integrated production, particularly in the fruit and vegetable sector.

Although these **complementary instruments have significant potential to support more sustainable pesticide use, their real contribution is difficult to determine**, as the available data provides only limited grounds for assessing their actual relevance and effectiveness in promoting more sustainable pesticide management.

Recommendations:

1. Strengthen the **integration of sustainable pesticide management into knowledge exchange and sectoral support programmes** to provide farmers with coherent access to knowledge, innovation, and targeted support.

2. **Improve the consistency and ambition of Member State targets across knowledge and advisory instruments** to ensure progress and comparability across countries.

3. Establish **mandatory reporting and tracking mechanisms** to increase transparency and allow systematic tracking of outcomes.

2.4: Alignment and coherence of CAP instruments

Within the CAP architecture, the different instruments serve distinct but complementary functions and therefore offer significant potential for strategic alignment in addressing shared objectives from multiple angles. Yet, their **potential for complementarity and mutual reinforcement remains underexploited**. Instead of forming a coherent strategic framework within national CSPs, instruments tend to be designed and implemented in parallel, resulting in fragmented support structures and missed opportunities for synergies.

The case of organic farming illustrates this lack of alignment. In principle, eco-schemes and ENVCLIM interventions are well suited to support different stages of organic transition: eco-schemes can incentivise conversion, while ENVCLIM measures can provide sustained support for maintenance. In most CSPs, however, coordination between these instruments remains insufficient. Separate procedures and limited integration create gaps in continuity, increase administrative complexity, and discourage long-term commitment, ultimately weakening both sectoral development and environmental outcomes.

This pattern of fragmentation is also evident in knowledge and advisory support. Training, advisory services, and knowledge exchange are frequently implemented as isolated measures, insufficiently integrated with financial incentives or aligned with the practical challenges farmers face when adapting their production systems. As a result, their potential to support farmers and to complement and amplify the momentum generated by other instruments remains largely underutilised.

In a similar vein, the potential of sectoral interventions to support change in input intensive sectors is constrained. As these interventions remain tied to single supply chains, they do not incentivise crop rotations, wider farm management, or coordination among neighbouring producers, even though such cooperation could support circular production systems and shared landscape features that naturally suppress pest pressures and reduce the need for pesticides. Although they can address immediate symptoms and foster the efficiency of pesticide use through precision tools and other technical measures, they do not tackle the underlying drivers that lock farmers into pesticide dependency, including market pressures that reinforce input intensive practices.

Turn over for more...

2.4: Alignment and coherence of CAP instruments

Beyond alignment across instruments, **coherence over time is equally important. The transition to more sustainable farming systems depends on stability and clear long-term signals**. While crises may require short-term responses, these should not weaken agri-environmental standards or undermine environmental protection. Farmers, in particular, need predictable and consistent policy frameworks that allow them to plan ahead and commit to reduced-pesticide systems with confidence.

Overall, the portfolio of instruments and interventions within CSPs is largely fragmented and insufficiently guided by a coherent strategic framework. As a result, measures tend to deliver isolated effects rather than reinforcing one another to support long-term pesticide reduction pathways, which ultimately limits its capacity to achieve systemic and enduring reductions in pesticide use.

Recommendations:

1. Require Member States to **design eco-schemes, ENVCLIM measures, and complementary instruments as an integrated intervention pathway** aimed at structurally reducing pesticide use and supporting the transition towards ecologically integrated farming systems, with aligned eligibility criteria, harmonised procedures, and continuity across different stages of farm-level transition.

2. Ensure that CAP **instruments operate as a coherent framework** that promotes changes in the overall management of farming systems, instead of limiting support to the refinement of individual pesticide related practices.

3. **Introduce safeguards that prevent agri-environmental standards from being weakened** through ad hoc political or crisis derogations, ensuring farmers can rely on stable long-term policy signals when investing in reduced-pesticide systems.

Methods

The analysis was conducted in spring 2025 and draws primarily on data from the Agri-Food Data Portal, complemented by insights from policy debates and relevant academic literature.

Literature

Duden, C., Böhner, H., Kuhnert, H., Lampkin, N., Offermann, F., Röder, N., & Tegetmeyer, I. (2025). Beiträge zur Evaluierung der Öko-Regelungen nach GAP-Direktzahlungen-Gesetz (GAPDZG) [Contributions to the evaluation of eco-schemes under the CAP Direct Payments Act (GAPDZG)] (Thünen Working Paper 257). Johann Heinrich von Thünen-Institut. https://literatur.thuenen.de/digbib_extern/dn069382.pdf

Angileri, V., Guerrero, I., & Weiss, F. (2024). A classification scheme based on farming practices. Publications Office of the European Union. https://doi.org/10.2760/33560

Further reading

Riedel, A., Hendricks-Franco, L., Bibu, T., Meier, J., Rouillard, J., et al. (2025). Transition pathways and policy recommendations (Deliverable D7.3). SPRINT Project, Horizon 2020, Grant Agreement No. 862568.

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About SPRINT

SPRINT is a 5-year international research project. It investigates pesticides' risks to health and the environment, and aims to accelerate the transition towards more sustainable plant protection.

The SPRINT project is funded by the EU under Horizon Europe. Project number: 862568.

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Appendix

The following figures present aggregated shares for eco-scheme and ENVCLIM interventions that support farm practices relevant to sustainable pesticide management. For each instrument, the “intervention share” indicates the proportion of interventions labelled with pesticide-relevant practices relative to the total number of interventions under that instrument across all CSPs.

The “budget share” refers to the proportion of eco-scheme or ENVCLIM funding allocated to interventions carrying such labels. Note that interventions tend to be associated with multiple practice labels. Farm practice labels are based on the typology developed by Angileri et al. (2024).

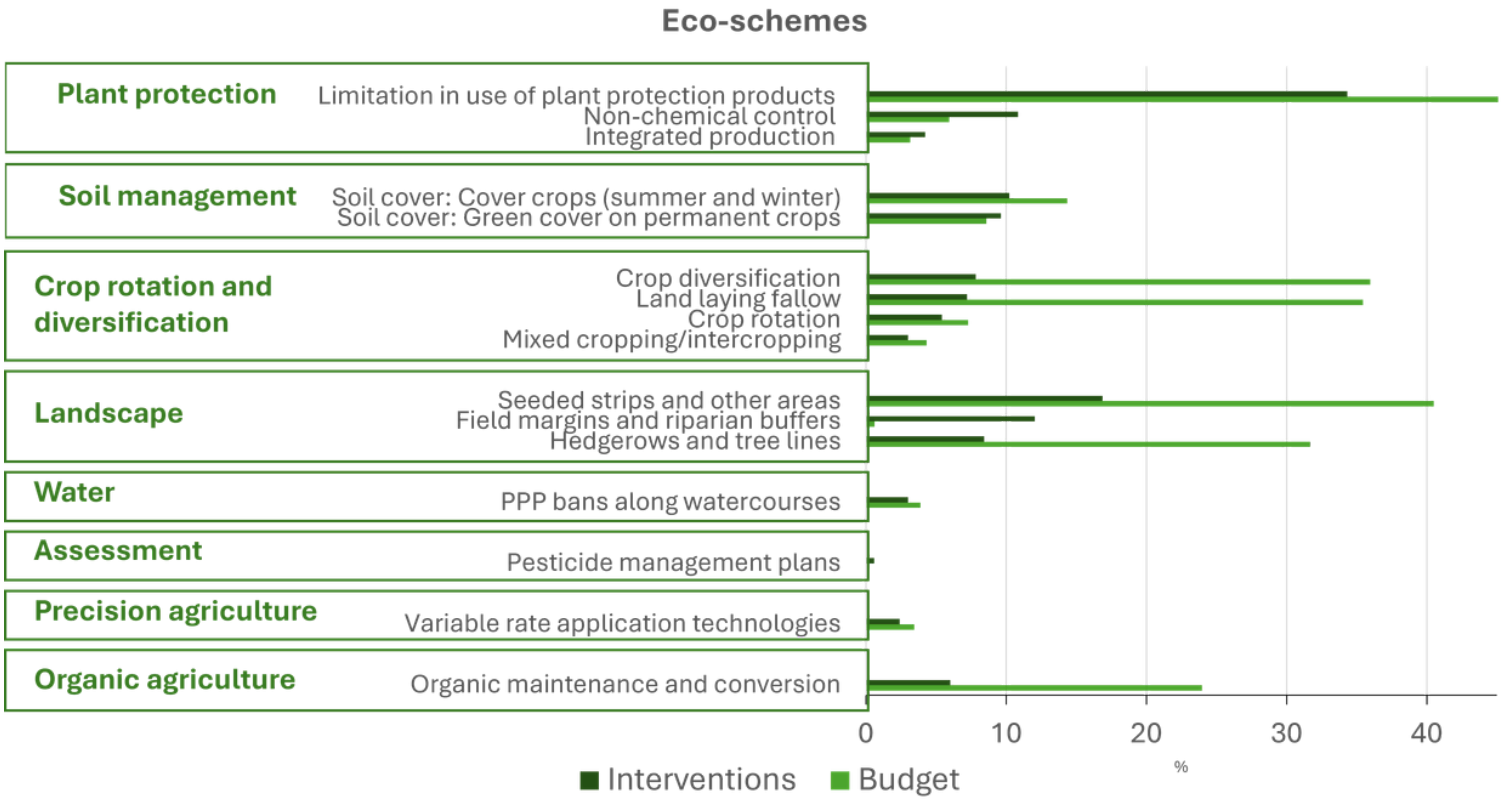

Figure 1. Share of eco-scheme interventions and corresponding share of budget allocations dedicated to farm practices relevant to sustainable pesticide management across CSPs.

Appendix

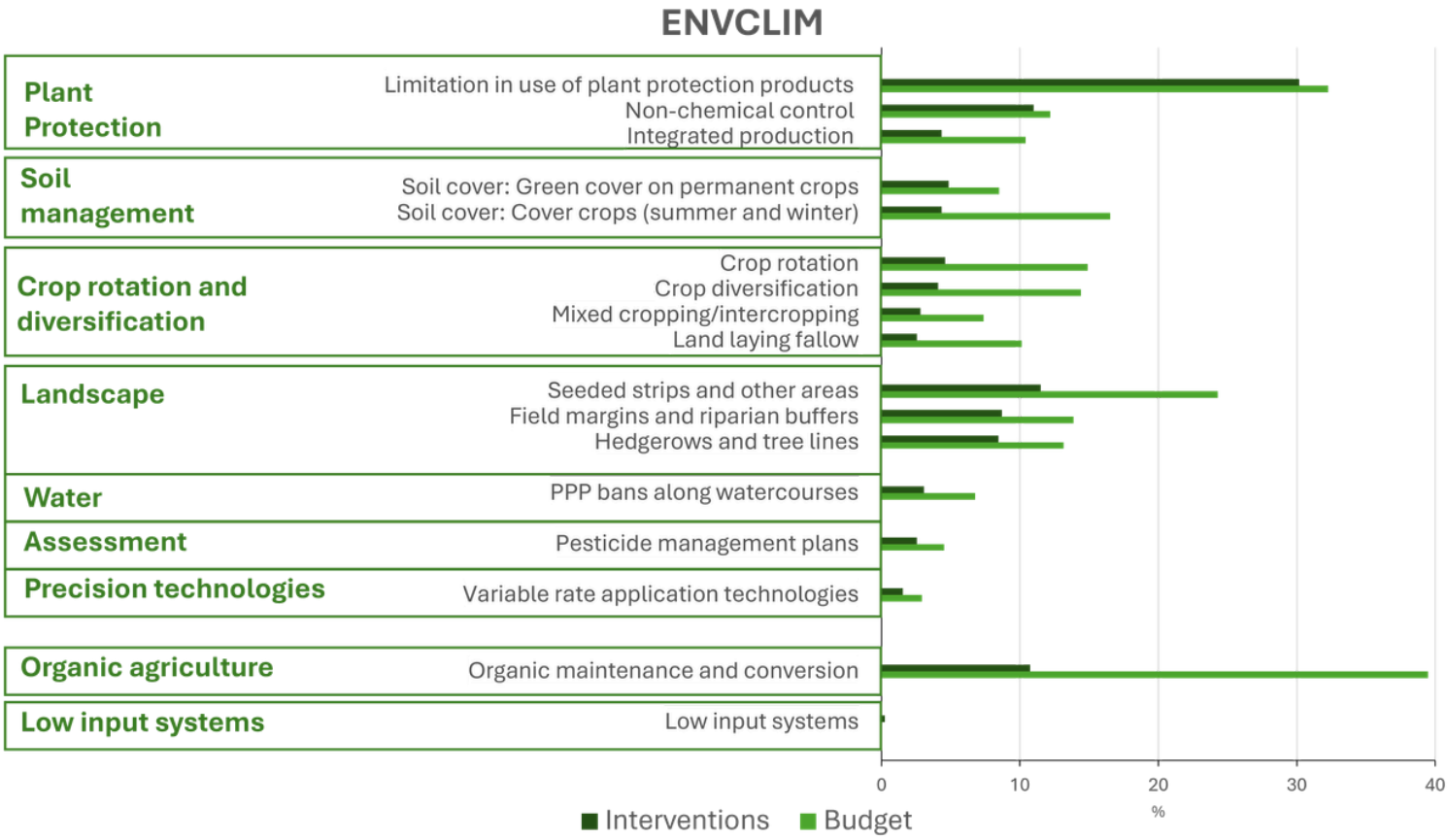

Figure 2. Share of ENVCLIM interventions and corresponding share of budget allocations dedicated to farm practices relevant to sustainable pesticide management across CSPs.