



What is the environmental potential of the post-2022 common agricultural policy?

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ABSTRACT

With the latest reform of the EU's common agricultural policy (CAP) in 2021, the EU has introduced a modified toolkit of environmental instruments. This paper compares the final version of the legal texts of the current and preceding CAP to analyse whether there is potential scope for greater environmental ambition. A pivotal element of the new CAP is the new delivery model. This model grants Member States more flexibility to adjust CAP instruments according to their respective needs. While the new delivery model provides opportunities for more targeted interventions, clear guardrails are missing. In consequence, the EU institutions have limited influence on the CAP Strategic Plans' level of ambition. Generally, the ambition level of the conditionality and also the budget attributed to environmental instruments within Pillar 2 was increased. The design of and participation in Eco-schemes, a new instrument in Pillar 1, will be the key factors determining whether the new CAP will lead to a significantly higher environmental performance. However, the Strategic Plan Regulation only contains vague recommendations to the Member States to take the Green Deal into account, which in no way meets the requirements formulated in the Green Deal. Furthermore, recent revisions to the new CAP legislation have rolled back some of the potential improvements that we identify in this paper.

1. Introduction

After long negotiations, on December 2, 2021 the reform of the CAP for the programming period 2023–2027 was agreed with the adoption of the legislative texts by the European Parliament and the Council. The reform package consists of three interlocking regulations: CAP Strategic Plan Regulation (SPR) (EU, 2021/2115), Horizontal Regulation (HR) (EU, 2021/2116) and the Regulation for the Common Organisation of agricultural markets (CMOR) (EU, 2021/2117). We also take note of the recent revision of these Regulations in the so-called Simplification Regulation now awaiting Council approval (EU, 2024/0139).

Agriculture is the largest land user in the EU with significant negative impacts on nature and the environment (EEA, 2019; Secretariat of the Convention on Biological Diversity, 2020; IPCC, 2014). Previous policy instruments were not able to mitigate these negative impacts sufficiently (ECA, 2017; EEA, 2019; Hart et al., 2017; Pe'er et al., 2019; Heyl et al., 2021; ECA, 2020, 2021). A key objective of the CAP reform was to raise

the level of environmental ambition and thus also justify its budget. The SPR (Art. 105) sets out that Member States (MSs) should aim to achieve a greater overall contribution to the attainment of the environmental and climate objectives of the CAP compared to the previous programming period (No Backsliding (Art. 105(1))).¹¹ Furthermore, the Commission states in recital 94 that 40 % of the total CAP spending will contribute to the climate targets compared to its estimate of 26 % in 2014–2020 (ECA, 2021).

In December 2019, the Commission presented a Green Deal (GD) proposal to make Europe the first climate-neutral continent by 2050, to decouple economic growth from resource use, to reverse biodiversity loss and to cut pollution (EC, 2019). The Farm to Fork (EC, 2020c) and the Biodiversity Strategy for 2030 (EC, 2020d) as part of the GD propose environmental requirements and targets for agriculture, such as reducing the use and risk of chemical pesticides by 50 % by 2030 and strengthening organic farming (up to 25 % of the utilized agricultural area). The Commission intended that MSs should contribute to the goals

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¹ For easier legibility, Article references in the paper are to the SPR unless otherwise specified.

of the GD by designing their strategic plans (SP) accordingly (EC, 2020a). The demands for a higher level of environmental ambition and for addressing the goals of the GD through the new CAP 2023–27 are thus clearly formulated (EC, 2020a). However, the Council insisted that targets could only be set when based on legal acts which was not the case with the GD targets and the final legislation reflects the Council's position.

The final agreement on the CAP reform post-2023 was titled as a fairer, greener, more flexible CAP (EC, 2021a). But there were justified doubts as to whether the announcement of a greener CAP could really be realised and initial assessments confirmed these doubts (Guyomard et al., 2023; Matthews, 2021; Röder, 2021; Pe'er et al., 2022; Grethe et al., 2019; Runge et al., 2021; Nemcová et al., 2022; Metta and Lakner, 2021; Heyl et al., 2021; Becker, Grajewski and Rehburg, 2022; Pe'er et al., 2019). The objective of this paper is to analyse the potential contribution of this CAP reform to improve the environmental performance of the agricultural sector. We focus on the final version of the legal texts on the EU level, i. e. we are interested in the rules of the game. To this end, this paper compares the environmental and climate elements in the legal texts with its predecessor in the CAP funding period 2014–2022. In essence our research question is whether the new EU rules are better suited to achieve a higher environmental impact compared to their predecessor. We regard this as an essential first step before analysing how MSs manoeuvred within the set of rules. We are not dealing with the empirical question whether the implementation of the CAP within MSs is sufficient to address the environmental challenges linked to agriculture. We regard this differentiation as important as the decisive agents are different: the first is the outcome of negotiations between the three EU institutions (Commission, Council and Parliament), while the second is the result of 28 largely independent decision-making processes on the national level within the executive and sometimes with some guidance from the Commission.

We also consider what further recommendations can be derived for increasing the CAPs environmental impacts. Chapter 2 presents the material and methods, Chapter 3 describes and discusses the results of the analysis, while Chapter 4 contains a summary assessment of the latest CAP reform from the perspective of environmental protection and Chapter 5 closes with conclusion and recommendations for political action.

2. Material and methods

The legal framework influencing the potential achievement of environmental goals are mainly included in the SPR. The HR, CMOR and state aid law (EC, 2022/C 485/01) are also relevant, but they are not systematically addressed in this paper. Beside economic and social objectives, the SPR contains three specific objectives addressing environmental issues: climate change mitigation and adaptation (d); natural resources (e); and preservation of landscapes and biodiversity (f) (Art. 6 (1)). These objectives are to be achieved through the specific design of the MS' CAP SPs.

The paper presents an analysis of the legal text in its final version. Also, based on the authors' experience from policy advice, policy evaluation and diverse research projects, statements are made about the process of policy implementation. The paper is not intended as an empirical assessment of the environmental ambition in the MS SPs, although we make some reference, where relevant, to show how the MSs used the new flexibility to address environmental issues. The reference situation against which changes are evaluated are the regulations for the 2014–2022 funding period, i. e. the Direct Payments Regulation with the Cross Compliance and Greening requirements (EU, 1307/2013). With respect to the European Agricultural Fund for Rural Development (EAFRD) Regulation (EU, 1305/2013) we focus on the agri-environmental and climate measures (AECM) and organic farming (EU, 1305/2013). The following questions are assessed by the document analysis:

- Which requirements and design options arise from the New Delivery Model and the performance-based approach for the MSs and what effects on the environment can result from this?
- Which financial allocations relevant to environment are possible or prescribed, or how do the financial incentives change for the MSs to implement certain measures?
- What changes in the content of environment-relevant elements will result or can be used by the MSs (green architecture, definitions (Art. 4), etc.)?

3. Analysis and discussion

3.1. New delivery model

The central element of the CAP from 2023 onwards is the new delivery model which grants MSs considerably more design options and flexibility. They have new enhanced competences and responsibilities being accountable for the achievement of the CAP targets, measured by a complex system of output, result and impact indicators. The programming approach now also applies to Pillar 1 and requires adequate interface management, especially for the new green architecture.

The preparation of the SPs is based on successive steps such as the preparation of a SWOT and a needs assessment, the intervention strategy, the setting of targets, the selection of adequate instruments from the available catalogue, financial planning and the governance and coordination system (Art. 107(1)). All in all, this is a very extensive process with which the MSs had no previous experience, and in many cases the personnel and the organisational capacities for handling this process had to be created first. The involvement of the units responsible for Pillar 1 was particularly challenging, as for them the programming approach involving a rationale for the chosen instruments was unfamiliar. The tight timetable with certain uncertainties - as a political agreement on the regulations was not reached until June 2021 and the final texts of the regulations were not formally approved until December 2021 - complicated the process.

For the first time, Pillar 1 has also to be programmed together with Pillar 2. Particularly in the larger MSs, the programming level shifted from the regional to the national level. Problems arose in particular in MSs with regional responsibilities for agri-environmental policy due to multi-level interdependence. This can reduce the level of climate and environmental ambition of the SPs, as the defence of responsibilities, competences and budget distribution can prevent more effective specifications of the green architecture.

A positive aspect is that the MSs should address both the SDGs and the Paris Climate Agreement when programming their SPs (Art. 5 and Annex XIII). Compared to the Direct Payments Regulation of 2013, the environmental objectives (Art. 6(1) d-f) are now addressed in an article and not only in the recitals. They have also been formulated more pointedly compared to the previous EAFRD Regulation, reduced in number but expanded in content (e. g. climate protection: stronger focus on interventions; antibiotics and pesticides: new included topics). Being included in the general and specific objectives increases their legal relevance for the design process. In contrast, the reference to the objectives of the GD is only mentioned in Recital 125; no other specific requirements are formulated in the articles. The reason for this is Art. 118(4), which states, 'The approval shall exclusively be based on acts which are legally binding on Member States', which did not apply to the GD at the time of the approval of the SPR.

The SPR and HR grant more flexibility to MSs with respect to the design of individual interventions (e. g. beneficiaries, eligible area, content and maximum payment levels) and also of the administrative and control systems. Consequently, the approval process of the Commission is the key steering instrument to ensure that environmental objectives are adequately addressed depending on the needs of the respective MS. With its country recommendations (EC, 2020b) the Commission gave clear indications of where it saw the main needs in the

MSS. After the official submission of the draft Plans, the Commission services prepared an observation letter, which, in addition to general comments, contained questions on the strategic orientation of the objectives and on individual bullet points. As the submitted plans are much more abstract compared to the rural development programmes of the previous funding period, the Commission's assessment focused strongly on the intervention logic and the allocation to objectives and indicators as well as the request for more detailed explanations. Especially for environment-related measures, the assessment could only be very superficial, as the description of the interventions does not have the same level of detail as for the agri-environment-climate measures (AECMs) in the previous funding period. Many aspects that significantly determine the effectiveness and impacts of the interventions are only defined in the national or regional funding guidelines, for example, territorial settings or specific conditions.²

The assessment process of the SPs by the Commission remains somehow opaque for the public. Criteria and indicators for the process of drawing up the SPs and its contents are laid down, but not minimum values that must at least be achieved for the approval of the SPs. However, the Commission's recommendation and observation letters for the SPs were published. In order to secure comparable benchmarks for the SPs the geographical units in DG Agri were supported by horizontal units (Münch et al., 2023). In addition, numerous events were held with the MSS to present and discuss the Commission's basic ideas on the SP contents.

Ultimately, the approval of the SPs is a political negotiation process. Normally, drafts of individual chapters were intensively discussed with the Commission before the SPs were submitted. The changes required by the Commission in the formal approval process focussed more on the justification of the intervention strategy and the provision of additional information and less on basic specifications (layout of interventions / attribution of budgetary means). Theoretically, a rejection of the plan is possible (Art. 118). However, this will hardly happen in reality, as both the Commission and the MSS have an intrinsic interest in ensuring that the available funding is spent.

The indicator system forms the core of the change from a compliance-oriented implementation to a result-based approach. Basically, the indicators have changed little compared to the system in place for the 2014–2022 funding period. However, their importance for the design and the implementation of the programmes has increased.

This latter is especially true for the output indicators, which play an essential role in the accounting to the EU. Due to the Commission's powers to reduce Union funding to the MSS if the output indicators are not achieved (HR Art. 54(1)), the MSS have an incentive to programme indicators, interventions and payments in such a way that the achievement of the defined indicator values is ensured. The planned level of environmental ambition (e. g. in terms of supported area) will thus likely be intentionally underestimated. In addition, this provides an incentive for the MSS to focus on (frequently less environmentally ambitious) measures, for which uptake is more likely.

As in the past, the result indicators largely reflect the uptake of the interventions and are hardly suitable for reflecting the potential effects of interventions on the environment and thus steering interventions towards a higher environmental contribution (ECA, 2017). Unlike in previous periods, the Commission expects for the three specific environmental objectives a comprehensive justification for the allocation of interventions to objectives and result indicators. The Commission will provide first estimates of the environmental effects of the CAP, both for

² The German ex-ante evaluation (Schramek et al. 2022) also criticised this issue, e.g. the impact of extensive grassland management on climate mitigation protection, depends on the circumstance whether the programme also demands high water tables or not. In the first case, it is beneficial as it supports an adapted low-emission system, in the later intensively drained and dry grassland system with high emissions are stabilized

the review of the climate tracking method and for the predefined reports to the EU Parliament and Council. Based on a literature review, environmental effects will be attributed to land management methods and upscaled using data on the planned outputs (see JRC³).

MSS are required to present the expected improvements of the impact indicators listed in Annex I (Art. 105(2)). With respect to the environmental related objectives of the CAP mentioned in Art. 6(1 d-f), the assessment should take into account the national environmental legislation and climate plans mention in Art. 108. This is a step forward in achieving a consistent and coherent policy design process. However, the MSS need not specify targets for the contribution of the interventions to impact indicators in their SP. This implies that there is no way to determine how successful the interventions are in helping MSS to achieve these targets, and consequently the use of impact indicators in the SPR remains somewhat limited. However, in the implementing regulation (EC, 2022/1475) on monitoring and evaluation (Annex I), the Commission stipulates that for each specific objective, so-called factors of success are defined alongside the impact indicators, against which the evaluation is to be carried out. As an example, for biodiversity the Commission recommends the following factor of success: 'Biodiversity related to agricultural land is improving or, at least, biodiversity loss is halted. Biodiversity in Natura 2000 areas affected by agriculture or forestry is improving or, at least, biodiversity loss is halted. Agro-biodiversity is increasing.' MSS are required to define appropriate own factors as a basis for evaluation. In contrast to the previous period, DG Agri cooperates more strongly with other DGs (Environment and Health) in order to further develop existing indicator systems and also make them usable for CAP evaluation. This also applies to the use of administrative data (Integrated accounting and control system and area data).

MSS competences to weight different targets and select, design and remunerate interventions have increased substantially. However, these can also cause a lack of consistent planning at the level of the MSS and undermine a level playing field within the EU, as the Commission provides few concrete guidelines for the design of the planning process and its contents (hardly any steering options).

Although little has changed in the structure of the indicators, their strategic importance has increased as the Commission increasingly demands evidence-based mapping of interventions to targets and indicators. In doing so, it places a great emphasis on the three environmental goals. Whether this also results in concrete material improvements in the interventions offered in terms of their environmental effects will become clear later on in the official evaluation process of the CAP, which, however, is not considered further in this paper.

3.2. Financial allocations

Funding allocated to environmental objectives is one indicator of the relative priority given to the environment in the new CAP. However, the allocation of funds towards environmental objectives or interventions does not necessarily reflect the ambition or effectiveness of these interventions. We first look at the minimum spending requirements set out in the basic legislation, then at the amounts actually programmed by MSS in their SPs.

When comparing environmental spending between the two periods we regard it as more appropriate to classify the 'Greening payment' as a form of 'super-conditionality' rather than a 'targeted environmental payment'. In the 2014–2022 CAP, 30 % of Pillar 1 direct payments was allocated to the Greening payment. In the new CAP, the specific Greening payment has been eliminated but the Greening criteria have been incorporated into enhanced conditionality. Consequently, we assume an at least comparable environmental effect for the previous Cross

³ <https://wikis.ec.europa.eu/display/IMAP/Impacts+of+farming+practices+on+environment+and+climate>

Compliance and the Greening on the one side and enhanced conditionality on the other.⁴ In the new CAP, there is an additional requirement to programme at least 25 % of Pillar 1 as Eco-schemes (ES), intended to support voluntary efforts by farmers who make commitments to observe agricultural practices beneficial for the climate, the environment and animal welfare and combatting antimicrobial resistance. (Art. 97(1)), though the limit can be reduced for MSs that programme at least 30 % of their Pillar 2 allocation for specific environmental objectives (Art. 97(2)).

In the CAP 2014–22, at least 30 % of the total Pillar 2 contribution to MSs' rural development programmes had to be reserved for environment-climate related instruments, consisting of environment and climate related investments, forestry investment and improvements, AECMs, organic farming, Natura 2000 payments, and payments to farmers in areas of natural constraints (ANC). In the new CAP, the earmarked funds for the environment have been increased to 35 % of Pillar 2 funds (though also including animal welfare) (Art. 93(1,2)). Moreover, only 50 % of expenditure on areas with natural or other area-specific disadvantages (Art. 71) can count towards this target. Like in the previous period, advisory systems focusing on environmental issues are not considered in this budget requirement. Overall, the new CAP increases the (relative) requirement for the MSs to program environmentally relevant instruments within the framework of Pillar 2.

There are other financial flexibilities in the new CAP regulations that can influence the share of total CAP spending allocated to environmental and climate objectives. MSs were allowed to transfer up to 25 % of the funds for direct payments to the EAFRD (Art. 103(1,2)), compared to the previous 15 %, and a further 15 % if the funds would be used for specific environmental objectives (Art. 6) as well as a further 2 % for the support of young farmers (Art. 95). If the transferred funds are used for environmental purposes there is no need for MSs to provide additional co-financing which increases the attractiveness of this option. On the other hand, MSs also have the possibility to transfer up to 25 % (previously 15 %) of EAFRD funds to the Pillar 1, a percentage that can be increased to 30 % for MSs with direct payments per hectare below 90 % of the Union average (Art. 103(3)). MSs have made considerable use of these flexibilities. Overall, 5 % of Pillar 2 (2.4 bn. EUR) rural development funds were transferred to Pillar 1 direct payments (notably by Poland, Hungary, Portugal and Malta), while 4 % of Pillar 1 payments (7.2 bn. EUR) were transferred to Pillar 2 rural development budget (significantly by Netherlands, Germany, Belgium-Flanders, Greece, and France). As the Pillar 1 direct payment budget is about three times the size of the Pillar 2 rural development budget, this implies an annual net transfer of 4.783 bn. EUR in favour of rural development spending, though the precise share of this net transfer that benefits the environment and climate is unknown (EC, 2023a).

Another financial parameter that influences the willingness of MSs to allocate their Pillar 2 rural development spending to environmental and climate objectives is the extent of national co-financing of EU funds that is required. For animal welfare, AECM, organic farming, area-specific disadvantages resulting from certain mandatory requirements and non-productive investments, the EAFRD contribution rates (i. e. the share of EU co-financing) has increased (Art. 91(3)). There is thus an incentive for MSs to prioritise expenditure on these interventions in order to relieve the burden on their own budgets. On the other hand, the EU contribution to the Agricultural Knowledge and Innovation Systems (AKIS) will decrease (from 80 % to 43 % in most regions) as well as to cooperation in the form of EIPs and LEADER groups (between 10 % and 75 % depending on the region) (Art. 91(3)). As both knowledge and cooperation are essential for improving environmental performance these changes will have a negative impact. MSs also have the possibility to differentiate the basic income support per hectare 'amongst different

groups of territories faced with similar socio-economic or agronomic conditions, including traditional forms of agriculture as determined by MSs, such as traditional extensive alpine pasture' (Art. 22(2)). This option has the potential to provide further financial resources for more environmentally friendly farming practices and more targeted interventions.

Taken together, this ring-fencing of Pillar 1 payments for ES and the higher ring-fencing of Pillar 2 payments imply a further step in repurposing CAP payments for environmental and climate action (FAO, 2021), even if the figures alone cannot illuminate the level of environmental ambition. Excluding payments for areas with natural constraints, MSs will allocate 29 % of the EU and national funds (or 84 bn. EUR) covered by the SPs for environment and climate (EC, 2024a) (cf. Fig. 1). For the period 2015–2021 the respective share was 11 % (EC, 2023c). This implies that the annual spending for the environment increases by slightly over 10 bn. EUR per year.

Source: Own calculation based on (EC, 2024a) and (EC, 2023a); Note in contrast to the EU Commissions system of calculations, payments for areas facing natural constraints (ANC) are not considered as spending for 'targeted instruments in support of environment, climate and animal welfare' (TI ECAW) but as an income support instrument. 2015–2021: actual payments, 2023–2027: planned expenditures.

On average, MSs spend 48 % of their EAFRD funds for interventions earmarked for the environment and climate (EC, 2023a), however with substantial variation. While Luxembourg, Hungary, Ireland, Denmark and Sweden intend to spend more than 60 % of their EAFRD allocations, some like Croatia, Bulgaria and Greece just exceeded the 35 % threshold for the respective minimum budget allocation. With respect to ES the story is different. Only four MSs go beyond the required 25 % (Netherlands, Slovakia, Czech Republic and Greece) while for 10 MSs the share is below the 25 % and their SPs only comply with the regulation as a very large proportion of EAFRD is dedicated to environmental purposes. Taken Pillar 1 and 2 together, Luxembourg, The Netherlands, Czechia, Ireland intend to spend more than 35 % of their CAP budget for targeted environmental measures, while Malta Greece, Denmark, Cyprus and France intend to spend less than 25 % (Fig. 2)

Source: (EC, 2024a)

Also, relevant when considering financial allocations are the requirements around climate tracking (Art. 100). 40 % of the CAP's overall financial envelope should be dedicated to the achievement of climate-related objectives. This contribution is measured using a variant of the Rio markers under which CAP expenditure is deemed to be fully (100 %), partially (40 %) or not at all (0 %) allocated to climate-related actions. In response to the significant criticism by the European Court of Auditors (ECA, 2022) and others of the methodology used in the previous CAP these markers have been revised but are still quite unrealistic. The following expenditures are basically considered for the target:

- 100 % for ES and AECM
- 40 % (instead of the previous 20 %) for basic income support and complementary income support
- 40 % (instead of the previous 100 %) for ANC.

Other instruments included in the previous period (e. g. on risk prevention and management or on rural areas) are not taken into account (Wiegmann et al., 2022). Based on the approved SPs roughly 45 % of the CAP budget is linked to climate related objectives. Concerning ES a more specific estimation for Germany suggests that the contribution of ES to the achievement of climate-related objectives is 18–25 % instead of the proposed 100 % (Wiegmann et al., 2022). The regulation opens the possibility of adjusting the weightings within the framework of delegated acts if 'is warranted for more precise tracking of expenditure on environmental and climate-related objectives' (Art. 100(3)).

⁴ The optional derogation of the GAEC 7 & 8 regulations by MSs (EC (2022)/(1317) as a result of the war in Ukraine in 2022 is not considered here.

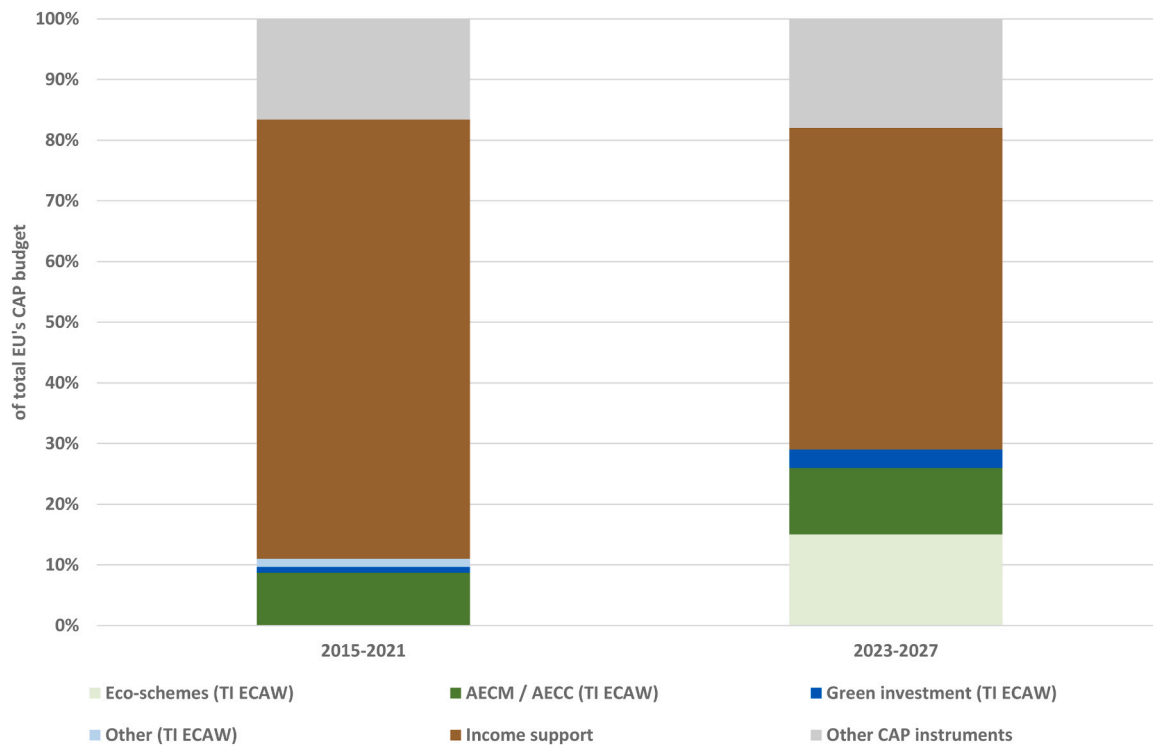


Fig. 1. Comparison of CAP public financing targeted at protection of environment, climate and animal welfare and income support (Pillar 1 and 2 as well as national funds, 2015–2021 (actual spending) and 2023–2027 (planned spending)) and other support instruments.

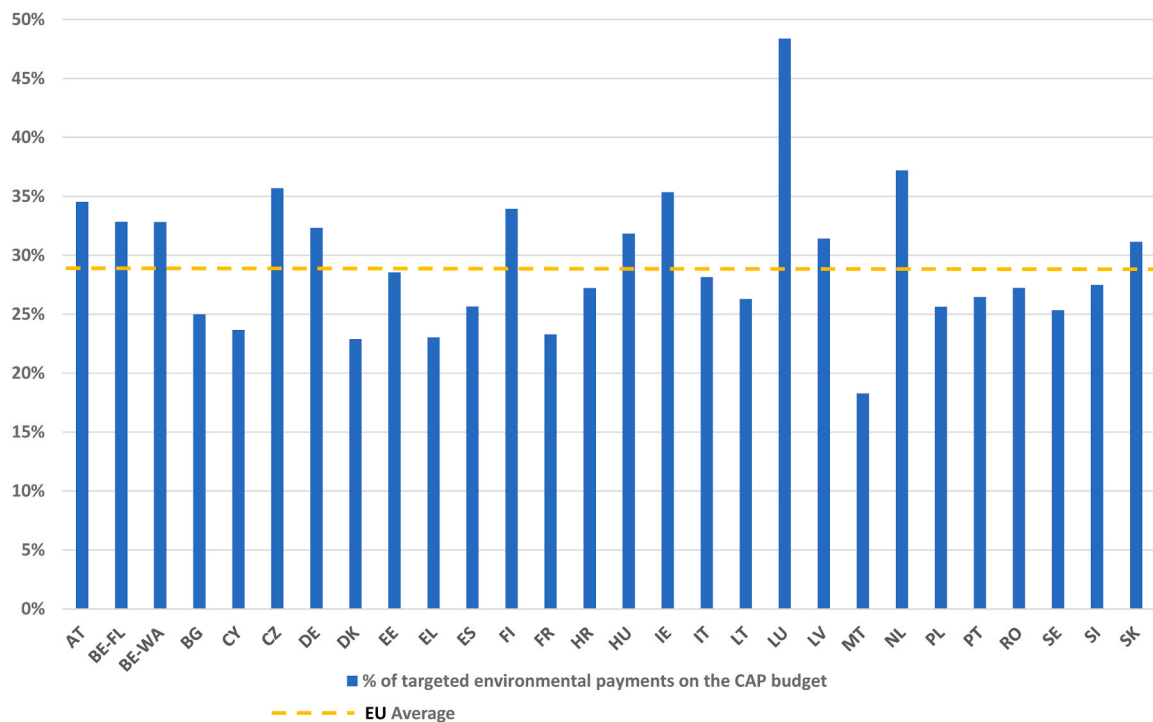


Fig. 2. Budget allocations for environment, climate and animal welfare as share of CAP budget including national co-financing (%), 2023–2027). Note: For details of the calculation see Fig. 1.

3.3. Green architecture

The central element of the SPR for achieving environmental objectives is the ‘Green Architecture’, which includes the three area-related components enhanced conditionality, ES and AECM. Fig. 3 shows the

structure of the Green Architecture and other environmentally relevant elements in comparison with the climate and environmental instruments of the CAP from 2014 to 2022. We highlight the most relevant novelties in the legal texts and implications of these elements in the following section, starting with enhanced conditionality.

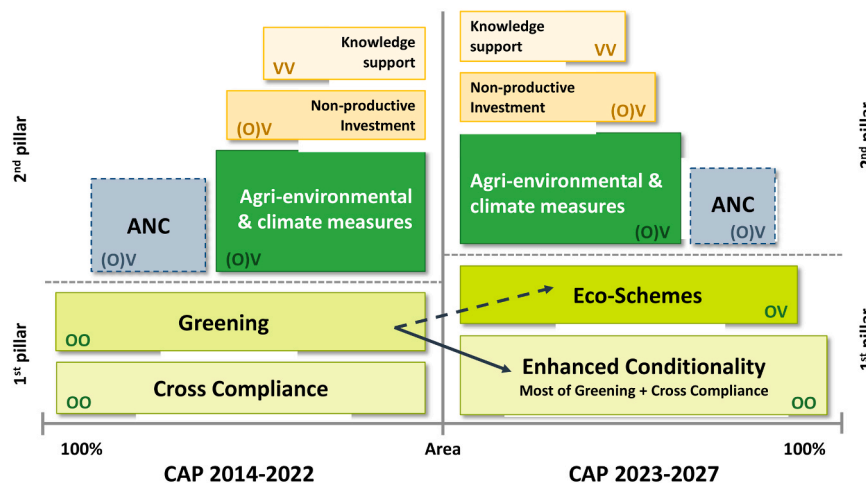


Fig. 3. Overview of the environmental relevant instruments of the Common Agricultural Policy pre- and post-2020.

Source: adapted after (Pe'er et al., 2022) OO = implementation obligatory for MS and farmers; OV = implementation obligatory for MS, but voluntary for farmers; VV: implementation voluntary for MS, voluntary for farmers; (O)V = MS states must ascertain a minimum implementation over several interventions, voluntary for farmers. Organic farming is included in agri-environment & climate measure.

3.3.1. Enhanced conditionality

Enhanced conditionality replaces the previous Cross Compliance and Greening requirements, adding new Statutory Management Requirements (SMRs) and new Standards for Good Agricultural and Environmental Conditions (GAECs) (Annex III SPR). Table 1 gives an overview of the changes compared to the 2014–2022 period, then the expected environmental impacts are discussed.

GAEC 1 and also GAEC 9 are still relevant for the protection of permanent grassland. Compared to the Greening requirements of the previous regulation, the SPR does not positively contain any exceptions for organic and small farms and thus more grassland than before is regulated by GAEC 1. However, defining 2018 as the new reference year allows further conversion of grassland and thus perpetuates the trend of grassland loss. GAEC 9 prohibits the conversion or ploughing up of permanent grassland designated as environmentally sensitive permanent grassland in Natura 2000 areas. The ban also covers grassland in Special Protection Areas, which is positive.

Positive with regard to grassland use - especially in the form of grazing - is the abolition of sanctions for non-compliance of the reporting procedure or missing eartags, which were previously one of the main causes of Cross Compliance penalties and sanctions (Bundesministerium für Ernährung und Landwirtschaft, 2020). In future, this standard will no longer be part of the conditionality (Art. 34(2)) and thus relieve livestock holdings.

The protection of organic soils (wetlands and peatlands) is addressed by GAEC 2. The MSs have to ensure that these areas can further be used for agricultural activities and classified as agricultural areas. Thus, these areas are still eligible for support and do not lose their attractiveness for farmers. MSs have the option to apply this GAEC standard only from year 2024 or 2025 on, if they demonstrate that this delay is necessary in

order to set up the management system in line with detailed planning. Most MSs have made use of this possibility (Nemcová et al., 2022). Moreover, the SPR continues to allow not only the maintenance but also the renewal of drainage systems, so the environmental effect will be limited.

Compared to the regulation of the previous period, GAEC 7 requires, with some exceptions,⁵ annual crop rotation rather than crop diversity. MSs can also set maximum field sizes to prevent large-scale monocultures. Thus GAEC 7 is much more environmentally ambitious than the Greening requirement. This will mainly affect farms with a high proportion of maize in intensive livestock farming or the production of grain maize, as well as, to a lesser extent, cash crop farmers with a high proportion of (durum) wheat (Gocht et al., 2017). Some of these farmers may opt out of agricultural support under these circumstances. Also, GAEC 7 does not yet specify which crops will be cultivated and what ecological effects will result. Overall, GAEC 7 will lead to a considerable administrative burden for the MSs, as time series have to be recorded and reconciled.

GAEC 8 is of particular importance from the point of view of biodiversity protection. It requires the provision of a 'Minimum share of at least 4 % of arable land at farm level devoted to non-productive areas and features, including land lying fallow', which may be reduced to 3 %.⁶ In contrast to the provision of the ecological focus areas under Greening, organic farms and small farms of 10 ha or more (previously 15 ha) are no longer exempt from this standard. In addition, weighting factors exceeding 1 are no longer permitted. This may lead to additional provision of non-productive land and landscape elements in some regions. However, in marginal regions, for example, where Greening obligations were previously met via the provision of 5 % non-productive land, the proportion may be reduced to the 4 % now required. But in

⁵ Holdings, (a) where more than 75 % of the arable land is used for the production of grasses or other herbaceous forage, is land lying fallow, is used for cultivation of leguminous crops, or is subject to a combination of those uses; (b) where more than 75 % of the eligible agricultural area is permanent grassland, is used for the production of grasses or other herbaceous forage or for the cultivation of crops under water either for a significant part of the year or for a significant part of; (c) with a size of arable land up to 10 ha.

⁶ (a) Where a farmer commits to devote at least 7 % of his/her arable land to non-productive areas or features, including land lying fallow, under an enhanced eco scheme in accordance with Article 31(6), the share to be attributed to compliance with this GAEC standard shall be limited to 3 %. (b) Minimum share of at least 7 % of arable land at farm level if this includes also catch crops or nitrogen fixing crops, cultivated without the use of plant protection products, of which 3 % shall be land lying fallow or non-productive features. Member States should use the weighting factor of 0,3 for catch crops.

Table 1
Conditionality rules CAP 2023–2027.

Main Issue	GAEC/ SMR	Standard	Change relative to 2014–2022 period
Climate	GAEC 1	Maintenance of ratio of permanent pasture at 2018 level	New GAEC standard former Greening obligation No exemptions for organic and small farms 2018 as new reference year
	GAEC 2	Protection of wetland and peatland	New standard
	GAEC 3	Ban on burning arable stubble	-
Water	SMR 1	Water Framework Directive	New standard
	GAEC 4	Establishment of buffer strips along water courses	> 3 m width
Soil	GAEC 5	Tillage management, reducing risk of soil degradation and erosion	-
	GAEC 6	Minimum soil cover in most sensitive periods	-
	GAEC 7	Crop rotation in arable land	New GAEC Standard former Greening obligation Now annual crop rotation required instead of crop diversification
Bio-diversity	GAEC 8	Minimum share of agricultural/arable land devoted to non-productive areas or features	New GAEC Standard former Greening obligation 4 % of arable land on farm level or 7 % if area includes catch crops or nitrogen-fixing crops grown without use of pesticides in which case the share of non-productive areas or features is reduced to 3 %
	GAEC 9	Ban on converting or ploughing permanent grassland designated as environmentally-sensitive grasslands in Natura 2000 sites	Includes grassland in special protected areas
Plant Protection products	SMR 8	Directive on the sustainable use of Pesticides	New standard

Source: own presentation

these regions targeted support programs, if available, could normally provide these additional fallows at a comparable low funding rate per hectare.

GAEC 8 can lead to an increase in the provision of non-productive areas in some MSs. In 2018 an equivalent of only 2.2 % of the EU-27 arable area was recorded as non or barely productive ecological focus areas (e. g. land lying fallow, terraces, buffer strips) according to the Greening obligation (EC, 2023b). The Commission estimates an increase by 1.1 million ha in the EU compared to the previous period caused alone by the GAEC 8 (DG AGRI, 2022).

The Water Framework Directive⁷ and the Sustainable Use of

⁷ Directive 2000/60/EC of 23 October 2000 of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1)

Pesticides Regulation⁸ are listed as a new SMR standards. Although the SPR does not formulate any specific requirements, this sanctions e. g. the appropriate handling and management of pesticides, which is positive.

Altogether, it is expected that the changed requirements of the new enhanced conditionality will result in limited positive changes in environmental impacts compared to the baseline situation, although several MSs are making use of the exemption possibilities defined in the SPR (Annex III) (EC, 2023a; Guyomard et al., 2023). As in the last funding period, it is to be criticised that there is a mixture of regulatory law and funding law. As farms will be affected to different degrees by the requirements, the level of income effects of the basic income support for sustainability will also diverge greatly between farms. Under certain circumstances, farms may opt out of agricultural support. However, the environmental impacts associated with such an exit also depend to a large extent on the design of the regulatory law and its enforcement, which must be complied with by farms even in the event of an exit from agricultural support.

3.3.2. Eco-schemes

ES (Art. 31) are included as a new instrument in Pillar 1 and comprise one-year measures with benefits for climate, environment, animal welfare and combatting antimicrobial resistance. Participation in ES is voluntary for farmers but must be offered by MSs. The ES must be 'consistent with' the AECM (Art. 31(9)) and thus different from them to exclude double funding, although a combination of ES and AECM on the same area is possible. Pre-registration or pre-notification of participation in ES is not necessary, rather MSs may design the support in such a way that 'all eligible hectares covered by the commitments' receive the corresponding annual payment (Art. 31(7)).

The MSs have the option to select measures of low effectiveness as ES. No specifications for the environmental ambition level or common European lists of possible measures are laid down in the SPR, so MSs can select fairly ineffective measures. A survey of 15 SPs showed that the number of planned ES as well as their environmental ambition varies strongly (Runge et al., 2021).

The payments for ES (Art. 31(7)) may consider 'income foregone and cost incurred' components and 'transaction costs' or be based on 'payments additional to the basic income support' (Art. 82(2)).⁹ This makes a compensation beyond the cost incurred of provided environmental services possible, though the amount must still be justified as necessary to achieve the environmental outcome in the SPs, 'Member States shall take into account the level of sustainability and ambition of each ES, based on objective and transparent criteria when determining the amount of payment (Art. 31(8))'. Further, because ES targeting crops/categories of land (e. g. arable, grassland or permanent crops) or differentiating payments according to crops/land type would not be compatible with the WTO Green Box requirements (Röder, 2021), these ES can only receive a payment in the form of compensation of additional costs/income foregone.

The regulation also incentivises MSs to define ES with low requirements in order to ensure that the minimum budget in the Pillar 1 for ES is spent safely,¹⁰ as corrections to the requirements will only be possible with difficulty - from one year to the next - if funds for the ES are

⁸ Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides (OJ L 309, 24.11.2009, p. 71)

⁹ With regard to WTO compliance and the classification of ES in the Green Box, the regulations seem to make it possible to assign payments for ES with an income component to the Green Box. Provided that the maximum amount per hectare is fixed (i.e. the payment is not dependent on price or production) and there is an option that non-productive use of the land is sufficient to receive the full payment (Röder, 2021).

¹⁰ Using the average funding amounts per hectare as an indicator ES tend generally to be light green measures (Becker et al. 2022).

not spent in the relevant year. There is some room for manoeuvre: Art. 101(3) allows MSs to shift funds in the same intervention category but also the two-year transition period for 2023 and 2024 allows for deviation from the budget allocation and the possibility of flexible mid-year premium adjustments. Furthermore, the MSs can define a corridor in which the payment level for the ES is allowed to fluctuate depending on the uptake. The MSs use the flexibility granted very differently. For example, the Netherlands implement the ES via a whole-farm, multi-dimensional point model, in Ireland each farm has to implement at least two ES, while Germany offers a pick and choose menu compromising of measures targeting single plots but also a farm's entire grass- or arable land.

As a rule, ES are one-year measures. As the ecological effectiveness of many measures increases with implementation time, and many species only react to an increasing supply of feeding, nesting and refugial habitats with a time delay, the ecological effect of ES will be lower per hectare than that of the AECM (or management obligation according to Art. 70). As farmers can decide on participation at very short notice - with the application in May - uptake at farm and regional level will fluctuate depending on the market situation and other framework conditions. The extent to which measures will be implemented over a period of several years is therefore uncertain. On the other hand, the hope is that because of lower hurdles and flexibility, some farmers may be attracted to participate in environmental schemes for the first time and be willing to continue as they gain experience (Murphy et al., 2014; Wossink and van Wenum, 2003). However, this would require very close coordination between ES and AECM to ensure a high degree of similarity in the management practices supported.

Designing ES with a low environmental ambition level has some short to medium term advantages for a MS. First, the competitiveness of the MSs agriculture within the common market is not negatively affected. Second, if the ES create essentially windfall profits their uptake will be fairly high and constant over the years. This facilitates the planning of output and results indicators and the management of the budget substantially. But at the same time, citizens receive fewer public goods per paid subsidies and market failure in the field of environment is only corrected to a smaller degree. Summing up, with the CAP reform 2021, the level of environmental ambition in the agricultural sector has become a more important subject of political decisions at the MS level.

With regard to WTO compliance and the classification of ES in the Green Box, the regulations make it possible to assign payments for ES with an income component to the Green Box, provided that is not 'related to, or based on the type of volume of production (including livestock units) undertaken by the producer in any year after a base period' (EC, 2021b). The allocation of interventions to the relevant paragraphs of Annex II of the WTO Agreement on Agriculture (Green Box) is, according to Art. 10 and Annex II, only obligatory for Pillar 1; with regard to the interventions of Pillar 2, MSs have greater leeway as to which paragraph of Annex II they wish to use.

3.3.3. Agri-environmental and climate measures (AECM)

AECM continue to exist in Pillar 2. Compared to the EAFRD Regulation the SPR contains few changes concerning AECM. In essence, the different EAFRD regulations for area or animal related support programs with management obligations were streamlined in Art. 70 SPR. The definition of maximum amounts and premiums has been dropped and left for further specification by the MSs. This offers the opportunity of setting higher payment levels in intensively farmed areas using the full EU co-financing, where farmers would otherwise not participate in AECM due to financial losses (Früh-Müller et al., 2018). However, it also gives MSs the leeway to set premiums at a level that is not justified in relation to the environmental services provided.

Art. 70(4) explicitly offers the opportunity that MSs 'shall determine the payments (...) taking into account the targets set'. In addition, the requirement that transaction costs must not exceed 20 % (30 % in case of joint implementation) of the payment has been waived. The increased

flexibility for MSs shows ambiguous effects: It allows MSs to set payment levels in a way reflecting the environmental impact and attracting the required number of participants. At the same time, it also allows for windfall profits within AECM.

The requirement for setting the payment amount on the basis of additional costs incurred and income foregone (Art. 70(4)) requires that, in the case of AECM that build on ES, the incentive contained in the payments for ES is deducted again when calculating the payment amount of the AECM. The payment calculations must also be adjusted as soon as the relevant legal baseline changes or the target levels are adjusted. In past periods MSs have therefore often opted for partial compensation of costs incurred and income foregone in order to have room for manoeuvre in case the legal baseline or targets are adjusted. However, this reduces the attractiveness of participation in AECM for farmers. Difficulties arise for the MSs with regard to the planning of AECMs that will run beyond the funding period, as it is not foreseeable whether and, if so, which ES will continue to be offered or which legal baseline or targets will apply at that time, or what level of EU co-financing will be available.

3.4. Further amendments with environmental potential

Apart from the Green Architecture the SPR introduces some further amendments which have the potential to improve the environmental impact of the CAP. Especially with respect to Pillar 1 payments the definitions given in Art. 4 SPR are of pivotal importance as they define who can claim payments on which land for which activities. The definition of agricultural activity now explicitly includes the provision of public goods and thus also the provision of non-productive land (Art. 4 (2)). This is a positive development, as the implementation of targeted measures to address climate mitigation targets or the goals of the Water Framework Directive such as the rewetting of peatlands often preclude 'normal' agricultural activities. In order to increase the incentive to realize such measures, Art. 4(c) broadens the scope of interventions to non-EU-funded programs and to programs addressing greenhouse gas mitigation so that they no longer negatively affect the eligibility of an area for direct payments. Also, areas set aside for GAEC 8 or ES are no longer subject to the minimum management requirement (Art. 4(4b)). Minimum management would require that land be managed normally every year and in duly justified cases every second year. However, in particular an annual management may have a negative impact on biodiversity (Ganser, Knop and Albrecht, 2019)).

Agro-forestry systems (Art. 4(3)) and paludicultures (Art. 4(2a)) were explicitly added to land uses eligible for support in the Pillar 1. The national definition of eligible agro-forestry systems allows a simplified support for traditional systems with frequently high biodiversity value such as e. g. the Iberian Montado or Dehesas as for new arable integrated cropping systems intending to buffer negative implications of climate change. The preservation of the carbon stored in organic soils is of overwhelming importance to reduce the climate impact of EU's agriculture as 4 million ha of drained organic soils (or 2 % of the EU's agricultural area) emit over 220 Mt CO₂ per year or 20 % of the EU's agricultural GHG emissions (ECA, 2021). Paludicultures can be an option to help farmers managing the transfer to more climate-friendly land-use practices.

Also, the consideration of landscape elements is not limited to landscape elements which were relevant for Cross Compliance (Art. 4 (4b)). As with regard to Cross Compliance, the protection and area-specific delimitation of landscape elements was necessary, and this is often not possible with e.g. shrubs or ephemeral features (open soils), especially in grazing areas, this is to be assessed positively, as these habitats in particular are important for biodiversity (e.g. (Hawkes et al., 2021)).

In contrast to its predecessors the SPR sets only a framework in which the MSs can define what they consider as eligible grassland, arable land and permanent crops. This allows to consider rough grazing system that

are of particular importance for European biodiversity but are not dominated by grasses, forbs or even eligible vegetation (Halada et al., 2011) e. g. habitat type¹¹ 2330 'Inland dunes with open *Corynephorus* and *Agrostis* grassland'. In addition, the MSs can adjust their respective definitions that voluntary buffer strips need not to be ploughed at least in 5-year intervals in order to maintain their status as arable land or that intensively managed and reseeded grasslands can be treated differently compared to grasslands with old species rich swards.

The possibility of granting coupled payments may be relevant, *inter alia*, with regard to the design of crop rotation systems. Art. 32(2) states that 'MSs shall not be required to demonstrate the difficulties encountered in relation to protein crops', as is the case with the granting of other coupled payments. The inclusion of legumes in crop rotation can have an impact on environmental protection through their potential to fix nitrogen and thus save mineral fertilisers, but also in terms of extending crop rotation and the positive effects mentioned above (Böhm et al., 2020). With regard to the granting of coupled payments, it should also be positively emphasised that the requirement for consistency with the Water Framework Directive and thus an environmental reference is new (Art. 109(2)).

Compared to the EAFRD Regulation the SPR makes the implementation of investment aids aiming at environmental targets much more attractive for MSs. The maximum support rates for investments aiming at the targets defined in Art. 6(1) d to f as well as animal welfare are raised to 80 % for productive investments (Art. 73(4a)) and even to 100 % for non-productive investments and agro-forestry systems (Art. 73(4c)). In contrast to the EAFRD Regulation (Art. 17(2)), the support for (productive) investments (Art. 73) is no longer limited to farmers. This extends the number of possible beneficiaries to non-farmers, who often manage and maintain HNV farmland. A new feature is that investments in animals and plants can be supported if ecological objectives are pursued with the investment (Art. 73(3d)). An important aspect with regard to the protection of organic soils is that the costs of land purchase for environmental conservation and carbon-rich soil preservation are not limited anymore to a certain proportion of the project's total eligible expenditure (Art. 73(3c)). Particularly in the case of the rewetting of peatlands, the share of land acquisition costs can exceed 70 % of the total costs, especially in productive regions.

A negative aspect is that within the framework of the support of cooperation (Art. 77(2, 7)) only new cooperations or cooperations that start a new activity can be supported. In the environmental sector in particular, however, lasting cooperation makes sense, since social capital is important, environmental problems persist in the long term and can often best be tackled at supra-farm level (Nguyen et al., 2022).

It is positive that, in contrast to the situation in the previous period, farm advisory services have to cover environmental aspects (Art. 15) and that MSs have to address environmental issues if they support the exchange of knowledge (Art. 78(1)). As lack of knowledge can often be seen as an obstacle to addressing environmental aspects at farm level (Brown et al., 2021), the consideration of these issues in the context of farm advisory services can foster greater adoption of environmental practices. Knowledge of environmental impacts and solutions in agriculture can be further improved through e. g. peer-to-peer learning (Sutherland and Marchand, 2021) and knowledge transfer from science to practice.

The principles of the partnership must be taken into account both when preparing and implementing the 2014–2022 rural development plans and the SPs. Regional authorities, economic and social partners and representatives of civil society must be involved in both the preparation and implementation. Although the delegated acts based on Article 5 of Regulation No. 1303/2013 (EU, 1303/2013) continue to apply to the organisation and implementation of the partnership, more specific procedural requirements are set out in the SPR. From an

environmental perspective, it is essential that Art. 106 explicitly ensures that the competent environmental and climate authorities must be involved in the preparation of the environmental and climate aspects. They must also be included in the monitoring committee. The mandatory involvement of the environmental and climate authorities and the extension of overall partner participation to the Pillar 1 could help to anchor environmental and climate aspects more firmly in the CAP. However, during the implementation phase of the SPs, the Monitoring Committee can only examine and provide opinions. The approval by the Monitoring Committee of the implementation report, which was required in the 2014–2022 funding period for Pillar 2 measures, has been cancelled.

4. Discussion

The post-2022 CAP shows substantial potential to address environmental protection and nature conservation issues compared to preceding regulations 2014–2020. More money is allocated to environmental and climate actions. But it is not enough to address the existing challenges. Hart et al. (2011) estimated the costs of undertaking environmentally beneficial land management on agricultural land in 2020 to be at least 31 bn. EUR per year. However, these costs focus primarily on management commitments to promote biodiversity and manage nutrient flows. Aspects like climate change mitigation and animal welfare are largely out of the scope. Just for Germany the costs to implement adequate animal welfare standards are estimated at 3–5 bn, EUR annually (Grethe et al., 2015). The sectoral opportunity costs to rewet agricultural used peatlands to mitigate greenhouse gas emissions in Germany are in the magnitude of 1.6 bn. EUR annually (Röder et al., 2015). If we compare with the financial ambition of the German coal-phase out, between 14 and 16 bn. EUR could be necessary and justified for peatland rewetting at German level in the next two decades (Sommer et al., 2022).

Based on the new flexibility of the post-2022 CAP, instruments are less predetermined by the EU. MSs can use the additional room to manoeuvre either to realize the environmental potential but also to program their SPs in such a way that they meet the formal requirements and avoid any risk of not achieving the set target values. First evaluations of the SPs argue that they were not or hardly used to program a higher level of environmental ambition (Nemcová et al., 2022).

The setting of environmental ambition and payment levels carry the risk of overcompensation of environmental requirements and thus also the risk of greenwashing of the spent funds. The MSs shape the Green Architecture largely independently and supplement it with their own financial and human resources as well as instruments outside Pillar 2. Especially for a federal state with regional responsibilities for agricultural policy, the Green Architecture system is not very suitable. The MSs experience developing the national SPs suggests that the whole process is adapted to centralized MSs and does therefore not fit the constitutional system of federal states.

However, MSs can also program ambitious ES and focus on the principle of public money for public goods. Whether the given degrees of freedom will be reflected in a higher level of environmental ambition compared to the situation in the 2014–2022 funding period depends on many factors which only a deeper assessment of the approved SPs and their implementation will show. But doubts arise at least about a level playing field between MSs.

The SPR does not contain any mandatory formulations to address the objectives of the GD, they are named in SPs, but 'largely unquantified and unspecified' (Münch et al., 2023) or targets are set too low by the MSs e. g. for organic farming (Becker, Grajewski and Rehburg, 2022). It would be an obvious priority to include a requirement that the next iteration of MS SPs should address the agreed targets in GD legislation. However, there has been significant opposition to the legislative initiatives set out in the Farm to Fork and Biodiversity Strategies, with the result that several significant initiatives either have not been taken

¹¹ of the Habitats Directive (92/43/EEC).

forward by the Commission or have been weakened by the co-legislators or withdrawn (EPRS, 2024). These include the proposal for a Framework Law on Sustainable Food Systems, a proposal on sustainability labelling, and proposals to improve animal welfare (apart from a proposal to improve the welfare of animals during transport) which have yet to emerge from the Commission. The proposal for a strengthened Sustainable Use of Pesticides Regulation has been withdrawn, while the Industrial Emissions Directive (removing the proposal to include large cattle farms within its scope) and the Nature Restoration Law were severely weakened. The absence or removal of legal targets in this legislation undermines the scope for further increasing environmental ambition in the next revision of the CAP.

The complexity of the regulations and unclear differentiation between interventions (and national and regional programmes and requirements) as well as new tasks and responsibilities lead to more elaborate processes on the part of the MSs (e. g. planning, reporting). Given the short time available, and the challenges linked to the new salience of environmental aspects to be addressed, we doubt whether the responsible ministries and authorities exploited the new degrees of freedom adequately to efficiently address the various requirements.

Due to the given structure, the SPs are very complex (the average SP has more than 1000 pages) and convoluted and at the same time too superficial for an assessment of the effects. Also the Commission has too little detailed information to really assess the expected environmental outcomes (Schramek et al., 2022). Based on the principle of subsidiarity the transfer of competences to the national and regional level appears to be a reasonable step. However, this comes at the cost that the transparency on the likely environmental impacts declines drastically.

5. Conclusion

With the post-2022 CAP more money is earmarked for environmental concerns, but it is likely too little given the large-scale challenges of climate change adaption and protection, the maintenance of biodiversity, closure of nutrient flows and other environmental issues.

The Green Architecture is also a step forward in terms of policy design. It could be used for addressing the big environmental challenges, however, it also contains many inconsistencies, challenges and exceptions that allow MSs to focus on the 'economic needs of the agricultural sector', which they mostly do (Münch et al., 2023). Overall, the different designs of ES and AECM make it difficult to programme and coordinate them consistently, which can lead to competition between the instruments or a lack of policy integration.

If the result-based approach is going to prevail, we regard it as necessary that already in the planning documents the output indicators (e. g. ha, heads) are weighted with their respective environmental impact and thus are developed towards a 'predicted effect indicator' using the terminology of Bockstaller, Feschet and Angevin (2015). This is particularly important as the CAP contains not only pure budgetary instruments and is not operating in a regulatory vacuum. So, neither counting hectares, heads nor expenditures is sufficient to get an adequate picture of the MSs' ambition level. Such a weighting procedure would increase transparency on the importance assigned to different goals as well as highlight instances where either relative expenditure levels per unit impact might be set fairly high compared to MSs with similar interventions. Such a system could be used with a multi-tier methodology like the one used for reporting of greenhouse gas emissions. In this respect the Commission's current activities to develop such a weighting system could substantially improve the entire process.

A key message in this paper is the importance, when analysing the environmental ambition of the CAP, of distinguishing between potential (what is possible to implement given the legal texts) and practice (how MSs in practice make use of this potential). This allows to give proper weight to the fact that decision-making rules and the actors involved differ between the two dimensions. The rules of the game are negotiated at EU level, while implementation decisions are made at the level of

MSs. In this paper we have signalled at various points that MSs, in drawing up their SPs, may have exploited the additional flexibility they have been given, in the absence of adequate guardrails, to minimise the extent to which they use the opportunity to ambitiously address their environmental challenges. This reflects the political economy factors at play in each MS.

In the early months of 2024, changing political economy factors also brought about a change in the rules of the game at EU level. Farm protests across the EU revealed significant farmer dissatisfaction with falling prices, import competition and also the perceived bureaucratic burden stemming e. g. from animal husbandry or from environmental regulation (Lakner, 2024; Möllers and Frisch, 2022). Influences outside the CAP – including the Ukraine war and inflation – gave a higher salience to issues such as food security and import dependence, and led to the rolling back of some of the environmental elements in the new CAP. This started with the optional derogation in 2023 from the GAEC 7 and 8 standards by MSs (EC, 2022/1317) as a result of the war in Ukraine. This was followed by waiving the pivotal GAEC 8 obligation for farmers to provide non-productive features on short notice at least for 2024 (EC, 2024b). These relaxations of GAEC standards were formalised for the remaining CAP funding period in the Simplification Regulation (EU, 2024/0139) and in a further Commission Regulation which relaxed the rules on maintaining permanent grassland (GAEC 1) (EC, 2024/1235). The Simplification Regulation gives MSs more flexibility in establishing GAEC standards at national level as well as to give temporary derogations. Importantly, it removes from the GAEC 8 standard the obligation to devote a minimum share of arable land to non-productive areas (fallow land) or features (hedges, trees, ...), while keeping the protection of existing landscape features. Instead, MSs are required to establish an ES offering support to farmers for keeping a not specified share of arable land in non-productive state or to create new landscape features. Especially GAEC 8 had been expected to have a significant environmental impact (Lakner, 2023; Röder, 2022). In addition, smaller farms (up to 10 ha) are exempted from controls to check their compliance with the conditionality requirements (GAECs and SMRs) and consequently from any payment cuts in case of infringements. Within the EU-27, this will be relevant for 76 % of the farms farming on 11 % of the utilized agricultural area (Eurostat, 2024). The exemption of small farms involves the risk that basic national and EU regulatory laws, as defined in the SMRs, will not be controlled at all. Altogether, all these changes diminish the expected environmental contribution of the new CAP as described in this paper. It remains for future research to investigate the precise effects of the changes made in 2024.

Summarising, the CAP-2023–2027 provides potential for environmental ambition, even if somewhat reduced by the latest legislative revisions. At the same time, weak guardrails permit MSs to downscale environmental actions if they wish. Some MSs use the opportunities more extensively than others, giving rise to concerns that there is no longer a level playing field within the Single Market. Additional research on mechanism design is urgently needed to prepare stakeholders to address these issues as attention turns to the negotiation of the next CAP 2028–2035 following elections to the European Parliament in June 2024 and the appointment of a new Commission later in that year.

CRedit authorship contribution statement

Dr. Norbert Röder: Writing – original draft, Conceptualization.
Prof. Alan Matthews: Writing – original draft. **Prof. Dr. Sebastian Lakner:** Writing – original draft. **Regina Grajewski:** Writing – original draft. **Dr. Christine Krämer:** Writing – review & editing, Writing – original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

the work reported in this paper.

Data Availability

No data was used for the research described in the article.

References

- Becker, S., Grajewski, R. and Rehburg, P. (2022). Where does the CAP money go?: Design and priorities of the draft CAP Strategic Plans 2023-2027: Thünen Working Paper 191a. Braunschweig.
- Bockstaller, C., Feschet, P., Angevin, F., 2015. Issues in evaluating sustainability of farming systems with indicators. *OCL* 22 (1), D102.
- Böhm, H., Dauber, J., Dehler, M., Amthauer Gallardo, D.A., Witte, T. de, Fuß, R., Höppner, F., Langhof, M., Rinke, N., Rodemann, B., Rühl, G. and Schittenhelm, S. (2020). Fruchtfolgen mit und ohne Leguminosen: ein Review. 489-509 Seiten / Journal für Kulturpflanzen, Bd. 72 Nr. 10-11 (2020): Schwerpunkt Pflanzenbauwissenschaften. 2024 2024. EPRS, Brussels.
- Brown, C., Kovács, E., Herzon, I., Villamayor-Tomas, S., Albizua, A., Galanaki, A., Grammatikopoulou, I., McCracken, D., Olsson, J.A., Zinngrebe, Y., 2021. Simplistic understandings of farmer motivations could undermine the environmental potential of the common agricultural policy. *Land Use Policy* 101, 105136.
- Bundesministerium für Ernährung und Landwirtschaft (2020). Statistic of Cross-Compliance infringements for the EU Commission 2009-2020.
- DG AGRI, 2022. Common agricultural policy for 2023-2027: 28 CAP strategic plans at a Glance. DG AGRI, Brussels.
- EC (2019). The European Green Deal: COM/2019/640 final. Brussels.
- EC (2020a). Analysis of Links Between CAP Reform and Green Deal: SWD(2020) 93. Brussels.
- EC (2020b). Recommendations to the Member States as regards their strategic plan for the Common Agricultural Policy: Annexes to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels.
- EC (2020c). A Farm to Fork Strategy for A Fair, Healthy and Environmentally-friendly Food System: COM/2020/381. Brussels.
- EC (2020d). EU Biodiversity Strategy for 2030 Bringing nature back into our lives. Brussels. https://eur-lex.europa.eu/resource.html?uri=cellar:a3c806a6-9ab3-11ea-9d2d-01aa75ed71a1.0001.02/DOC_1&format=PDF, Accessed March 7, 2022.
- EC (2021a). Political agreement on new Common Agricultural Policy: fairer, greener, more flexible. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2711?pk_campaign=HP-Local-News&pk_kwd=https%2F%2Fec.europa.eu%2Fcommission%2Fpresscorner%2Fdetail%2Fen%2Fip_21_2711, Accessed May 11, 2023.
- EC (2021b). Questions and Answers. Eco-Schemes Artikel 28 of the SPR Proposal and related Provisions: Expert Group for Direct Payments.
- EC (2022/1317). Commission Implementing Regulation (EU) 2022/1317 of 27 July 2022 providing for derogations from Regulation (EU) 2021/2115 of the European Parliament and of the Council as regards the application of the standards for good agricultural and environmental conditions of land (GAEC standards) 7 and 8 for claim year 2023.
- EC (2022/1475). Commission Implementing Regulation (EU) 2022/1475 of 6 September 2022 laying down detailed rules for implementation of Regulation (EU) 2021/2115 of the European Parliament and of the Council as regards the evaluation of the CAP Strategic Plans and the provision of information for monitoring and evaluation.
- EC (2022/C 485/01). Communication from the Commission guidelines for state aid in the agricultural and forestry sectors and in rural areas.
- EC (2023a). Approved 28 CAP strategic plans (2023-2027). Summary overview for 27 Member States. Brussels.
- EC (2023b). Biodiversity Indicators. <https://agridata.ec.europa.eu/extensions/DashboardIndicators/Biodiversity.html>, Accessed January 23, 2023.
- EC (2023c). Financing the CAP: Dashboard Indicators. <https://agridata.ec.europa.eu/extensions/DashboardIndicators/Financing.html>, Accessed October 5, 2023.
- EC (2024/1235). Commission Delegated Regulation (EU) 2024/1235 of 12 March 2024 amending Commission Delegated Regulation (EU) 2022/126 supplementing Regulation (EU) 2021/2115 of the European Parliament and of the Council as regards the rules on the ratio for the good agricultural and environmental condition (GAEC) standard 1.
- EC (2024a). Catalogue of CAP interventions. https://agridata.ec.europa.eu/extensions/DashboardCapPlan/catalogue_interventions.html, Accessed March 6, 2024.
- EC (2024b). Commission Implementing Regulation (EU) 2024/587 of 12 February 2024 providing for a derogation from Regulation (EU) 2021/2115 of the European Parliament and of the Council as regards the application of the standard for good agricultural and environmental conditions of land (GAEC standard) 8, dates of eligibility of expenditure for contribution from the EAGF and rules concerning amendments of CAP Strategic Plans for modifications of certain eco-schemes for claim year 2024.
- ECA (2017). Greening: a more complex income support scheme, not yet environmentally effective: Special Report No 21, European Court of Auditors. Luxembourg.
- ECA (2020). Biodiversity on farmland: CAP contribution has not halted the decline: Special Report 13, European Court of Auditors. Luxembourg.
- ECA (2021). Common Agricultural Policy and climate. Half of EU climate spending but farm emissions are not decreasing: Special Report, European Court of Auditors. Luxembourg.
- ECA (2022). Climate spending in the 2014-2020 EU budget. Not as high as reported: Special report, European Court of Auditors. Luxembourg.
- EEA, 2019. The European environment — state and outlook 2020. European Environment Agency, Copenhagen.
- EU (1303/2013). Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006: (EU) No 1303/2013.
- EU (1305/2013). Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on Support for Rural Development by the European Agricultural Fund for Rural Development (EAFRD) and Repealing Council Regulation (EC) No 1698/2005: Reg (EU) 1305/2013.
- EU (1307/2013). Regulation (EU) No 1307/2013 OF the European Parliament and of the Council of 17 December 2013 Establishing Rules for Direct Payments to Farmers under Support Schemes within the Framework of the Common Agricultural Policy and Repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009: Reg (EU) 1307/2013.
- EU (2021/2115). Regulation (EU) 2021/2115 OF the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013: Reg (EU) 2021/2115.
- EU (2021/2116). Regulation (EU) 2021/2116 of the European Parliament and of the Council of 2 December 2021 on the financing, management and monitoring of the common agricultural policy and repealing Regulation (EU) No 1306/2013: Reg (EU) 2021/2116.
- EU (2021/2117). Regulation (EU) 2021/2117 OF the European Parliament and of the Council of 2 December 2021 Amending Regulations (EU) No 1308/2013 establishing a common organisation of the markets in agricultural products, (EU) No 1151/2012 on quality schemes for agricultural products and foodstuffs, (EU) No 251/2014 on the definition, description, presentation, labelling and the protection of geographical indications of aromatised wine products and (EU) No 228/2013 laying down specific measures for agriculture in the outermost regions of the Union.
- EU (2024/0139). Proposal for a Regulation of the European Parliament and of the Council Amending Regulations (EU) 2021/2115 and (EU) 2021/2116 as regards good agricultural and environmental condition standards, schemes for climate, environment and animal welfare, amendments to CAP Strategic Plans, review of CAP Strategic Plans and exemptions from controls and penalties (COM(2024)0139 – C9-0120/2024 – 2024/0073(COD)).
- Eurostat (2024). Farm indicators by utilized agricultural area and number of the farm. Luxembourg.
- FAO, 2021. A multi-billion-dollar opportunity -Repurposing agricultural support to transform food systems. Food and Agricultural Organization of the United Nations, Rome.
- Früh-Müller, A., Krippes, C., Hotes, S., Breuer, L., Koellner, T., Wolters, V., 2018. Spatial correlation of agri-environmental measures with high levels of ecosystem services. *Ecol. Indic.* (84), 364–370.
- Ganser, D., Knop, E., Albrecht, M., 2019. Sown wildflower strips as overwintering habitat for arthropods: effective measure or ecological trap? *Agric., Ecosyst. Environ.* 275, 123–131.
- Gocht, A., Ciaian, P., Bielza, M., Terres, J.-M., Röder, N., Himics, M., Salputra, G., 2017. EU-wide economic and environmental impacts of CAP greening with high spatial and farm-type detail. *J. Agric. Econ.* 68 (3), 651–681.
- Grethe, H., Christen, O., Balmann, A., Bauhus, J., Birner, R., Bokelmann, W., Gauly, M., Knierim, U., Latacz-Lohmann, U., Nieberg, H., Qaim, M., Spiller, A., Taube, F., Weingarten, P., Matinez, J. and Tenhagen, B.-A. (2015). Wege zu einer gesellschaftlich akzeptierten Nutztierhaltung: Gutachten des Wissenschaftlichen Beirats für Agrarpolitik beim Bundesministerium für Ernährung und Landwirtschaft. *Ber Landwirtsch SH* 221. Bonn.
- Grethe, H., Nieberg, H., Renner, B., Balmann, A., Birner, R., Christen, O., Gauly, M., Latacz-Lohmann, U., Martinez, J., Pischetsrieder, M., Spiller, A., Taube, F., Vogt-Kleschin, L., Weingarten, P., Grajewski, R., Röder, N., Schmid, J., 2019. Designing an effective agri-environment-climate policy as part of the post-2020 EU Common Agricultural Policy: Scientific Advisory Board on Agricultural Policy. Food and Consumer Health Protection at the Federal Ministry of Food and Agriculture, Berlin.
- Guomard, H., Détang-Dessendre, C., Dupraz, P., Delaby, L., Huyghe, C., Peyraud, J.-L., Reboud, X., Sirami, C., 2023. How the green architecture of the 2023–2027 common agricultural policy could have been greener. *AMBIO A J. Hum. Environ.* 52, 1327–1338.
- Halada, L., Evans, D., Romão, C., Petersen, J.-E., 2011. Which habitats of European importance depend on agricultural practices? *Biodivers. Conserv.* 20, 2365–2378.
- Hart, K., Baldock, D., Tucker, G., Allen, B., Calatrava, J., Black, H., Newman, S., 2011. Costing the environmental needs related to rural land management: report prepared for DG environment. Contract No ENV.F.1/ETU/2010/0019r. Institute for European Environmental Policy, London.
- Hart, K., Mottershead, D., Tucker, G., Underwood, E., Maréchal, A., Menet, L., Martin, I., Dayde, C., Bresson, C., Deniel, E., Sanders, J., Röder, N., Osterburg, B., Klages, S., 2017. Evaluation study of the payment for agricultural practices beneficial for the climate and the environment: final report. European Commission (EU-COM), Luxembourg.

- Hawkes, R.W., Smart, J., Brown, A., Jones, H., Lane, S.A., Lucas, C., McGill, J., Owens, N., Ratier Backes, A., Webb, J.R., Wells, D., Dolman, P.M., 2021. Experimental evidence that novel land management interventions inspired by history enhance biodiversity. *J. Appl. Ecol.* 58 (5), 905–918.
- Heyl, K., Döring, T., Garske, B., Stubenrauch, J., Ekaradt, F., 2021. The Common Agricultural Policy beyond 2020: a critical review in light of global environmental goals. *Reciel* 30, 95–106.
- IPCC (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: Pachauri, R. K. and Meyer, L. A.
- Lakner, S., 2023. Auswirkungen des Ukrainekrieges auf die EU-Agrarpolitik. *Wirtschaftsdienst* 103 (13), 42–49.
- Lakner, S., 2024. Dispute on agricultural Diesel - what is behind the protests? ([in German]). *Nat. Und Landsch.* 56 (3), 10–14.
- Matthews, A., 2021. Can the new CAP help EU agriculture to meet the targets in the European Green Deal? *ECA J.* 2, 13–19.
- Metta, M. and Lakner, S. (2021). *Post-2022 CAP in Trilogue Negotiations: Reflections and Outlook for CAP Strategic Plans: Policy Analysis*. Brussels.
- Sommer, P., Lakner, S., Nordt, A., Tanneberger, F., Wegmann, J. (Eds.), 2022. What are the (dis-)Similarities between Coal Phase-out and Rewetting Agricultural Used Peatland?. *EGU General Assembly, Vienna, Austria*, 23–27 May.
- Möllers, I., Frisch, M., 2022. Farm work instead of office work – considerably simplifying information obligations in agriculture: in German. *Wirtsch. und stat.* (2), 68–76.
- Münch, A., Badoux, M., Gorny, H., Messinger, I., Schuh, B., Ade, S.A., Beck, Monika, Bodart, Sarah, Van Bunnan, Partick, 2023. Comparative analysis of the CAP Strategic Plans and their effective contribution to the achievement of the EU objectives: research for AGRI Committee. *European Parliament, Policy Department for Structural and Cohesion Policies, Brussels*.
- Murphy, G., Hynes, S., Murphy, E., O'Donoghue, C., 2014. An investigation into the type of farmer who chose to participate in Rural Environment Protection Scheme(REPS) and the role of institutional change in influencing scheme effectiveness. *Land Use Policy* 39, 199–210.
- Nemcová, T., Nyssens-James, C., Caiati, S., Dhaskali, M., Gurreck, M., Henningson, L., Kachler, J., 2022. New CAP unpacked and unfit, *BirdLife Europe. EEB and NABU*.
- Nguyen, C., Latacz-Lohmann, U., Hanley, N., Schilizzi, S., Iftekhhar, S., 2022. Spatial coordination incentives for landscape-scale environmental management: a systematic review. *Land Use Policy. Elsevier* (114(C)).
- Pe'er, G., Zinngrebe, Y., Moreira, F., Sirami, C., Schindler, S., Müller, R., Bontzorlos, V., Clough, D., Bezák, P., Bonn, A., Hansjürgens, B., Lomba, A., Möckel, S., Passoni, G., Schleyer, C., Schimidt, J., Lakner, S., 2019. A greener path for the EU common agricultural policy: it's time for sustainable, environmental performance. *Science* VOL 36 (5 Issue), 449–451, 6452.
- Pe'er, G., Finn, J.A., Diaz, M., Birkenstock, M., Lakner, S., Röder, N., Kazakova, Y., Šumrada, T., Bezák, P., Concepción, E.D., Dänhardt, J., Morales, M.B., Rac, I., Špulerová, J., Schindler, S., Stavrinides, M., Targetti, S., Viaggi, D., Vogiatzakis, I.N., Guymard, H., 2022. How an European common agricultural policy help halt biodiversity loss? recommendations by over 300 experts. *Conserv. Lett.*, e12901
- Röder, N. (2021). *Payments for the Environment - New Turmoil around an Old Issue*. <http://capreform.eu/payments-for-the-environment-new-turmoil-around-an-old-issue/>, Accessed January 24, 2023.
- Röder, N. (2022). *Der Ukraine jetzt und in Zukunft helfen, Nahrungsmittelversorgung in der Welt sicherstellen sowie europäische und deutsche Landwirtschaft krisenfest gestalten (BT-Drs. 20/1336) Stellungnahme im Rahmen einer öffentlichen Anhörung im Ausschuss für Ernährung und Landwirtschaft des Deutschen Bundestags am 16. Mai 2022*. Braunschweig.
- Röder, N., Henseler, M., Liebersbach, H., Kreins, P., Osterburg, B., 2015. Evaluation of land use based greenhouse gas abatement measures in Germany. *Ecol. Econ.* 117, 193–202.
- Runge, T., Latacz-Lohmann, U., Schaller, L., Todorova, K., Daugbjerg, C., Termansen, M., Liira, J., Le Gloux, F., Dupraz, P., Leppanen, J., Fogarasi, J., Vigh, E.Z., Bradfield, T., Hennessy, T., Targetti, S., Viaggi, D., Berzina, I., Schulp, C., Majewski, E., Bouriaud, L., Baciu, G., Pecurul, M., Prokofieva, I., Velazquez, F., 2021. Implementation of eco-schemes in fifteen European Union member states. *EuroChoices* 21 (2), 19–27.
- Schramek, J., Horlitz, T., Stegmann, S., Becker, S., Carolus, J., Gehrlein, U., Müller, O., Nitsch, H., Jungmann, S., Theilen, G., Welz, D., Fengler, B., Franz, K., Fynn, L.-L., Grajewski, R., Krämer, C., Peter, H., Pollermann, K., Reiter, K. and Roggendorf, W. (2022). *Ex-ante-Evaluierung des GAP-Strategieplans für die Bundesrepublik Deutschland, Förderperiode 2023–2027*. Frankfurt/Main, Hannover, Bonn, Braunschweig.
- Secretariat of the Convention on Biological Diversity (2020). *Global Biodiversity Outlook*. Montreal.
- Sutherland, L.-A., Marchand, F., 2021. On-farm demonstration: enabling peer-to-peer learning. *J. Agric. Educ. Ext.* 27 (5), 573–590.
- Wiegmann, K., M. Scheffler, M., Schneider, C., Lakner, S., Sommer, P. and Meyer-Jürshof, M. (2022). *Climate protection within the CAP 2023-2027 - Impacts and Expenditure [in German]: Study for the German Environmental Agency (Umweltbundesamt)*. Dessau-Roßlau.
- Wossink, G., van Wenum, J.H., 2003. Biodiversity conservation by farmers: analysis of actual and contingent participation. *Eur. Rev. Agric. Econ.* 30, 461–485.