

Towards a greener Common Agricultural Policy

Ensuring an environmentally friendly overhaul of the European Union's Common Agricultural Policy will entail payments for environmental objectives, promoting High Nature Value Farmlands, improved flexibility and policy integration.

Alberto Navarro and José Vicente López-Bao

The Common Agricultural Policy (CAP) is among the most important and expensive sectoral policies within the European Union (EU), accounting for 37.5% of the European budget in the period 2014–2020 (€362.8 billion, ca. €100 per citizen per year). The CAP is directly implemented on ca. 40% of the European landscape¹. The importance of this policy for the future of the EU is reflected in the last budget released by the European Commission, in which the CAP budget will be cut by less than 5% for the period 2021–2027, and it will be built around direct payments and rural development funding. Updating the CAP must reflect the environmental challenges that Europe faces in the twenty-first century, without overlooking necessary support for new generations of farmers and small farms, as well as strengthening rural development. This will entail a profound transformation.

History of the CAP

Since its implementation in 1957, under the Treaty of Rome, the CAP has undergone multiple reforms. These successive transformations have pursued improved well-being of not only farmers, but all European citizens (for example, through increased focus on rural development and environmental related issues). Following the Agenda 2000 reform, restructuring the CAP permitted endorsement of diversified farming activities beyond agrarian production, following a multifunctional paradigm assuming that agricultural systems have both productive and non-productive functions, such as cultural services or landscape maintenance². The integration of environmental concerns was reinforced again in 2010, when the Commission outlined the three main challenges of the CAP: food security, environment and climate change, and a balanced territorial development approach³.

However, with the passage of time, the payments linked to markets did not have the expected positive impacts on the

primary sector, for example, increasing workforce and securing balanced territorial development. Despite prioritizing “optimum utilization of the factors of production” within the Treaty of Rome (2007), during the previous CAP period (2007–2013), Europe lost >17% of the primary sector workforce (farm labour force; a decrease of >14% in agricultural labour), and more than 420,000 farms have been lost annually (3 million in total)⁴ (Fig. 1; Supplementary Tables 1–5). Worryingly, the CAP has not been equitable with producers: for example, in 2011, 37% of CAP direct payment beneficiaries within the EU-27 received less than €500 per year, representing less than 2% of such payments⁵. This is either because these farms did not meet the allocation requirements (established thresholds or criteria for payments, such as farm size or the number of livestock heads per farm) or because of poorly designed bureaucracy⁵.

Intensification has also been catalysed by the CAP⁶, illustrated by the fact that livestock farms have decreased on average by 28% in nearly all member states (Supplementary Table 5), yet the number of livestock has decreased by only 4.6%⁴. This intensification process may have accentuated pre-existing inequalities within the EU, yet effectiveness of the CAP in transforming production systems into more sustainable practices has proved to be doubtful, and the lack of alignment between economic, environmental and social challenges, and the measures implemented to reach such goals, has often been highlighted⁷. For example, agricultural intensification is known to have multiple consequences on the environment and the sustainable use of natural resources^{6,8}, and is also the greatest driving force of biodiversity loss linked to agroecosystems in Europe^{6,9}. Nevertheless, the EU is the largest food exporter worldwide¹⁰, which suggests that the CAP remains predominantly focused on food production. This is emphasized by the lack of improvement for most CAP environmental indicators over the past period (Fig. 1).

The CAP for tomorrow

As a first step towards updating the CAP after 2020, the Commission opened a public consultation process in February 2017. Among the points with greater consensus, participants highlighted the fact that the current CAP has failed to respond to environmental challenges (only 23% of respondents felt the current CAP successfully addressed environmental challenges to a large or fairly good extent)¹¹. The environmental challenge most frequently identified was protection of biodiversity¹¹, reflecting the increasing concern with environmental issues among European citizens¹².

Implementation of the Omnibus Regulation in 2018¹³, which amends the financial regulation governing the implementation of the EU budget, has introduced several amendments to the four regulations of the CAP: direct payments, rural development, common market and horizontal regulation. Some aspects, such as increased flexibility in defining terms such as ‘permanent pastures’, may promote greening, but at the same time may lead to reduction in pasture size at national level as permitted within the EU Natura 2000 framework. Similarly, ‘crop diversification’ is now more flexible, but this measure has already been questioned for effective biodiversity conservation¹⁴. Additionally, new ‘Ecological Focus Areas’ have been introduced in order to favour pollinators, as will inclusion of land left fallow. However, two newly introduced ‘greening’ measures are of doubtful environmental interest: the inclusion of areas farmed with silvergrass (*Miscanthus* spp.) and silphion (*Silphium perfoliatum*), because they are foreign crops and are mainly aimed at bio-energetic purposes and fodder, respectively. Moreover, the new CAP budget (2021–2027) at best follows a business-as-usual structure or at worst actually reduces the budget allocated to the pillar in which the main environmental objectives are included¹⁵. As such we question whether these changes will be translated into a greener CAP.

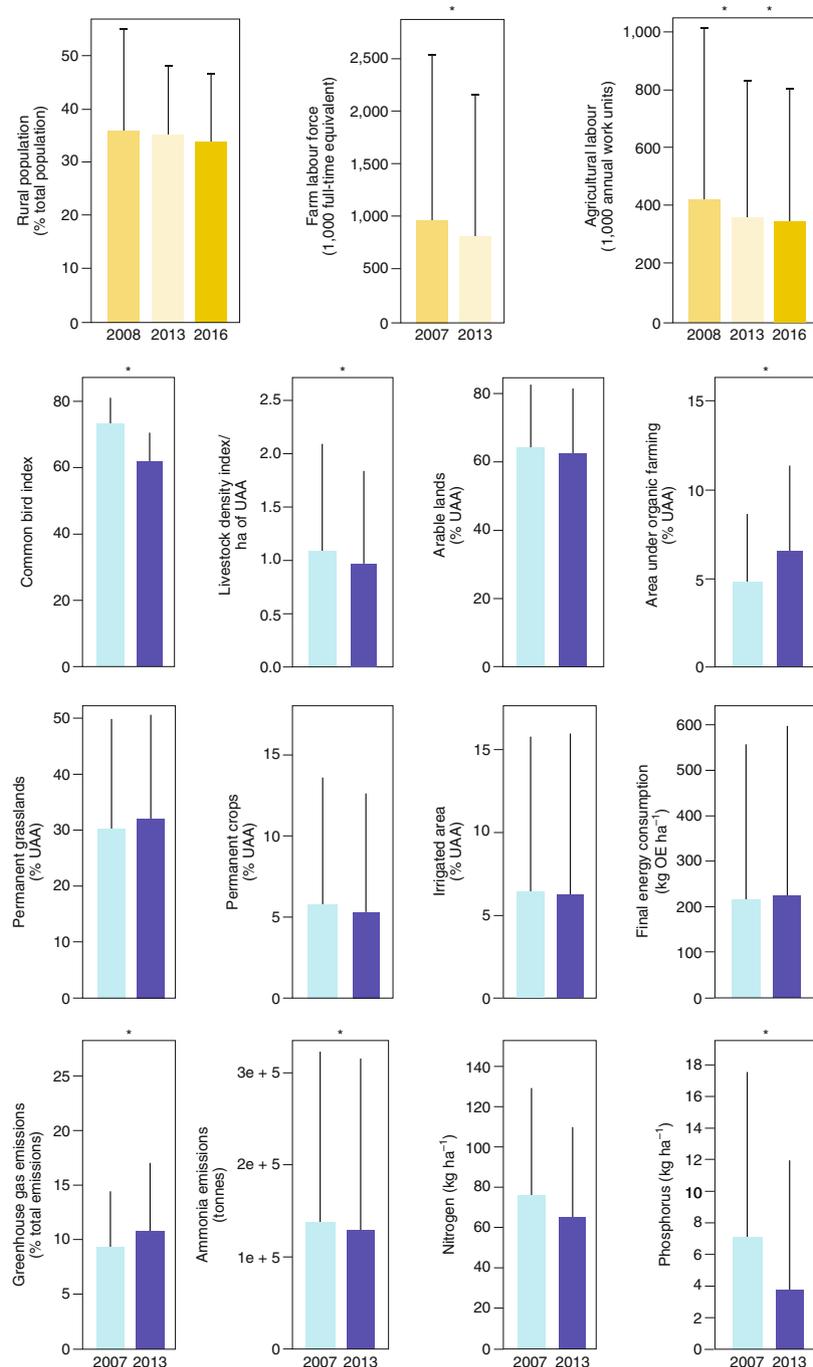


Fig. 1 | Trends in multiple socio-economic (yellow colour scale) and environmental (blue colour scale) indicators related to the CAP during the past period (2007-2013). Average (\pm s.d.) values for EU member states are shown. Source for all indicators: eurostat (<http://ec.europa.eu/eurostat>). Rural population is shown as a percentage of total population. Farm labour force (1,000 full-time equivalent) includes all persons who, having completed their compulsory education, carried out farm work on the holding during the 12 months ending on the reference day of the survey. Agricultural labour (1,000 annual work units) corresponds to the work performed by one person occupied on an agricultural holding on a full-time basis. The common bird index integrates the population abundance and diversity of a selection of 39 common bird species associated with farmland habitats in Europe. The livestock density index measures the stock of the different livestock species converted to livestock units (LSUs) per hectare of utilized agricultural area (UAA). Arable lands, permanent grasslands, permanent crops and irrigated area are shown as a percentage of UAA. The area under organic farming not only includes the percentage of total UAA, but also areas undergoing conversion. Final energy consumption per UAA is the total energy consumed by end users in agriculture (kg OE ha^{-1} ; OE, oil equivalent). The greenhouse gas emissions from agriculture (percentage of total emissions) measure the aggregated annual emissions from agriculture of methane (CH_4) and nitrous oxide (N_2O), converting them to carbon dioxide equivalents. Ammonia (NH_3) emissions show the contribution of agriculture to the annual atmospheric emissions of NH_3 (in tonnes). The gross phosphorous and nitrogen balance (kg ha^{-1}) is calculated from the total inputs minus total outputs to the soil (reference area: the sum of arable land, permanent grassland and land under permanent crops). See more details on the different indicators in the Supplementary Tables. Wilcoxon paired tests were used to compare the values of indicators between periods. Significant comparisons ($P < 0.05$) are denoted by asterisks.

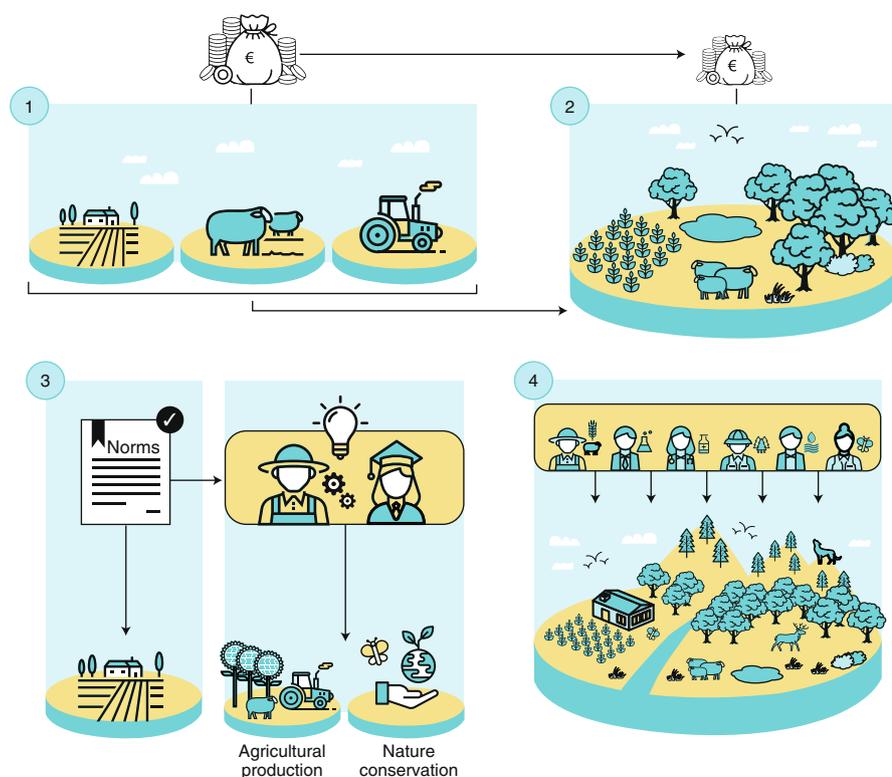


Fig. 2 | The four steps that would make the CAP greener. Step 1: how payments are made. The CAP has long been based on production-oriented uniform payments grounded, for instance, in the size of farms or the number of livestock heads. A greener CAP should consider payments for environmental services (biodiversity conservation), where the payment is linked to conservation objectives. Step 2: how payments are allocated. Agricultural areas showing better metrics linked to biodiversity in Europe are known as High Nature Value Farmlands (HNVF), but their delineation remains an issue. Improving the identification of HNVF, and prioritizing their eligibility (that is, prioritizing biodiverse areas), would help to better allocate CAP aids, improving the cost-effectiveness of the CAP payments from an environmental point of view. Step 3: how payments are implemented. Currently, most CAP measures are fixed across member states. However, lack of flexibility is known to impact negatively on social and environmental outcomes. Adapting general rules to local conditions and knowledge could improve the effectiveness of result-oriented CAP schemes, and their acceptance. Step 4: how CAP payments are integrated with multiple policies. Effective integration of multiple policies affecting environment still remains unresolved. The effective integration of environment within the CAP framework is fundamental for Europe to achieve the objectives of international conservation and sustainability agreements. The current model of a single CAP advisor should be substituted by an interdisciplinary group of advisors, including experts in environmental, social, economic and agronomic issues. Credit: Alfred Portátil, Alberto Navarro and José Vicente López-Bao

Towards a truly green CAP

After reviewing the available scientific literature produced from the past CAP period (2007–2013) to date, in order to fuel the ongoing debate on the future of the CAP, here we propose four steps that would make the CAP greener (Fig. 2).

First, a fundamental aspect that could be improved within the CAP is how payments are made. The structure of the CAP has long been dominated by uniform payments^{14,16}, based on farm size, the number of livestock heads or historical rights (for example, payments linked to olive oil production in Spain). However, uniform payments are the

least effective approach in terms of nature conservation¹⁷. Under the World Trade Organization framework, the Agriculture Agreement¹⁸ allows payments for environmental services, such as biodiversity conservation. As the environment and biodiversity are public goods, a greener CAP would require payments to be uncoupled from production and instead linked to environmental objectives, which could improve cost-effectiveness in line with previous recommendations of the European Court of Auditors^{19,20} and increase the likelihood of reaching biodiversity conservation goals established in the

European Biodiversity Strategy for 2020¹⁴. As concern for environmental issues is on the rise in modern society, as is willingness to pay for the provision of more services than the mere production of food, we expect this change would be supported by the general public.

Second, although biodiversity linked to agroecosystems has generally declined across Europe in recent decades²¹ (for example, farmland birds; Fig. 1), some farmlands show remarkable biodiversity metrics²². Those agricultural areas showing better metrics in Europe are identified as High Nature Value Farmlands (HNVF); they are usually small farms and are found in areas less favourable for agriculture, such as remote and mountainous regions²³. However, despite integration of HNVF within the CAP structure and their recognition as a priority objective²⁴, their delineation remains an issue²⁵. This hinders practical implementation of actions favouring their maintenance²⁶. Potential frameworks do exist, however²⁵. For example, use of the Integrated Administration and Control System, which is mandatory for member states for the management and control of CAP payments, provides a high spatial and temporal resolution tool to support the assessment of HNVF^{27,28}. Improving the delineation of HNVE, including the use of standardized protocols across member states, and prioritizing the eligibility of these farmlands, would help to better allocate CAP aids from an environmental perspective. This strategy would benefit the most biodiverse areas while again positively impacting cost-effectiveness of CAP payments^{27,28}. Business as usual — applying the current payments scheme based on income loss, translating into low incomes — will only perpetuate the abandonment of HNVE²⁹.

Third, flexibility (adapting general rules and actions to local conditions) of the CAP will be key. Currently, most CAP measures are fixed across member states^{14,16}. However, this lack of flexibility is known to negatively impact social and environmental outcomes^{30–32}. The numerous conflicts emergent in recently added member states from eastern Europe following incorporation of measures designed for western member states illustrates this point^{32–34}. Instead, the CAP must be adapted in line with the EU's Principle of Subsidiarity, whereby “decisions are taken as closely as possible to the citizen and local knowledge and needs”. For example, high biodiversity meadows need mowing for conservation and maintenance, but when, where and how to implement this depends on the local soil, weather and climatic

conditions. Allowing farmers to participate in the decision-making processes of when to implement actions, based on local conditions and knowledge, could improve the effectiveness of result-oriented CAP schemes³⁵.

Fourth, although there is firm commitment within Europe to the idea of integrating environmental questions across numerous sectorial policies (for example, industry, trade, agriculture, rural development), where the environment is concerned many policies are unresolved^{36,37}. For example, the CAP has not successfully integrated the objectives of the Water Framework³⁸ or Sustainable Pesticide Use⁷ directives, yet achieving the objectives of international agreements, such as the Aichi Targets¹⁴ or the Sustainable Development Goals⁷, will depend on this. To ensure effective policy integration, the CAP must ensure that different stakeholders understand the essential elements needed to achieve a full integration of environmental issues^{39,40}. Better communication with farmers is important but insufficient: a greener CAP would require advisors to increase their understanding of environmental aspects to redress perceived biases towards production⁴¹. Furthermore, given the multiple objectives pursued by the CAP, the current model of a single CAP advisor should be substituted with an interdisciplinary group of advisors, including experts in environmental, social, economic and agronomic issues.

What is at stake worldwide

Sustainability objectives in Europe are ambitious and require land-sharing approaches between agriculture and nature conservation. This in turn demands profound changes in the current CAP to be realistic. As European citizens have expressed important concerns about how the current CAP is addressing environmental challenges, we may risk not only the future of the CAP, but also European rural environment identity and public trust in European institutions if the CAP is not updated accordingly. The importance of the debate on the future of agricultural policies, and their link to environmental objectives and biodiversity conservation, is not exclusive to Europe. The US Farm Bill currently under negotiation shares dimensions with the CAP — the estimated budget for this policy is €387 billion for the 2019–2023 period;

44% of territory is implemented, of which the bulk is privately owned — and will have similarly important consequences for biodiversity conservation within the region.

Zooming out yet again, in a globalized world, changes in large-scale agricultural policies can have planetary impacts as changes in production systems and regional intensification respond to new markets and regulations⁴². Improving the link between agricultural policies and nature conservation is needed if we are to achieve the objectives of international conservation agreements. □

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Competing interests

The authors declare no competing interests.

Additional information

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