

The Current CAP Reform Process Does Not Adequately Address Agricultural GHG Emissions in Europe: How Can it be Improved?

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The European Union (EU) has long been an active participant in international climate negotiations. Through its signing of the 2012 Paris Agreement, the EU as a bloc committed to a 40% reduction in greenhouse gas (GHG) emissions by 2030 (from 1990 levels) and complete carbon neutrality by 2050 (European Commission 2012). In order to meet these goals, the EU will need to mobilize change in many sectors. Land use change and agriculture have been identified as key sources of GHG emissions (IPCC, 2019). For this reason, the EU's Common Agricultural Policy (CAP) will be an important tool in reaching its Paris Agreement targets. Currently, the CAP is undergoing a process of reform scheduled to come into effect in 2021. Improvement of the policy's climate change mitigation outcomes is a major focus of this process.

Given the importance and complexity of both climate change and EU agricultural policy, it is essential that the CAP reform process be based on a solid empirical footing in order to achieve its ambitious mitigation goals. Unfortunately, based on a close examination of EU policy documents, academic literature, and 'grey literature', it is clear that the European Commission's proposed CAP reforms will not be sufficient to make a meaningful contribution to climate change mitigation efforts at the EU level.

This paper will present a case for strengthening the climate provisions in the CAP, followed by a set of specific policy recommendations. First, it will describe the primary ways in which EU agriculture contributes to global GHG emissions, along with current emission trends. Following a short overview of EU agricultural policy, the paper will next identify current CAP policy elements related to climate change, presenting evidence that that current and previous EU level agricultural policy has failed to significantly decrease GHG emissions. Next, it will argue that the current proposed reforms will not significantly improve emission trends. Based on current research, the paper will finally suggest a set of recommendations that might enable the CAP to foster genuine climate mitigation in European agriculture.

Climate Impacts of European Agriculture

Agriculture makes up a large percentage of the EU's total GHG emissions. Even without accounting for emissions from land use change and energy use in the sector, direct emissions from agriculture make up over 10% of total emissions in the bloc (EEA 2017). Most GHG emissions from agriculture are not in the form of CO₂, but rather methane (CH₄) and nitrous oxide (NO₂). Three primary sources account for 95% of the total direct agricultural emissions.

The biggest source of GHG emissions in EU agriculture is CH₄ generated by ruminant enteric fermentation. In order to digest cellulose and other nutrients from forage crops, ruminants rely on a process of bacterial fermentation that generates CH₄ as a waste gas. Due to the large number of ruminants raised in the EU, this process accounts for 40% of total GHG emissions in

the sector (Müller et al., 2016). A second key contributor to emissions is NO₂ generated by the application of N fertilizer to agricultural land. While N is a necessary agricultural input, biochemical processes in the soil convert a significant percentage into NO₂, which is emitted directly into the atmosphere, accounting for a further 40% of direct agricultural emissions. Finally, the management of manure in livestock systems accounts for 15% of direct emissions through CH₄ and NO₂ generated by anaerobic decomposition (Müller et al., 2016).

In addition to these direct emissions, European agriculture also produces greenhouse gases indirectly through fuel and energy use, fertilizer production, and land use change. While these numbers are not included in official EU accounting of agricultural emissions, one recent report suggests that indirect emissions bring the total GHG emissions from agriculture up to 15% of total EU emissions (Institute for European Environmental Policy, 2019).

Clearly, agriculture is responsible for a significant portion of EU GHG emissions. Unfortunately, for the past decade this sector has lagged behind other major GHG producing industries in terms of mitigation. While agricultural emissions dropped sharply in the early 90s (reducing by 12% between 1990 and 1993 as a result of new regulations on nitrates and reduced livestock numbers), it took another 20 years to achieve another 12% reduction. Since 2012, agricultural emissions in the EU have actually been increasing (EEA 2017, presented by Matthews 2019). Based on current EEA projections, GHG emissions from agriculture in the EU are expected to slowly decrease, with a 5% reduction between 2017 and 2030 (EEA 2017). Given that economy wide reductions of 18% are currently expected by 2030, it is clear that the agricultural sector is rapidly falling behind.

While the estimates presented above do not account for possible indirect emissions reductions (from changes in land use, agricultural input production and energy use) it is clear that improving GHG mitigation in the agricultural sector will likely be necessary if the EU is to meet its Paris commitment to achieve a 40% reduction in economy-wide GHG emissions by 2030.

Agri-Environmental Policy in the CAP

Unlike most signatories of the Paris agreement, the European Union has committed to achieving its climate goals as a bloc. EU efforts to reduce GHG emissions fall into three general categories. The first of these is the Emissions Trading System (ETS), a carbon cap and trade system for heavy industry and energy production that covers about 45% of total European emissions (European Commission, 2018). A second set of policies covers indirect emissions from land use, land use change and forestry (LULUCF). Currently, the EU has embraced a 'no debit' rule in this sector (zero net change) rather than incorporating LULUCF offsets into its other climate mitigation strategies (Matthews 2020). A third climate policy category, the Effort Sharing Regulation (ESR), covers all other sectors of the EU economy, setting variable but binding emissions reduction goals for all member states. (European Commission 2020). All policies aimed at reducing direct GHG emissions from agriculture are included in this category.

Most of the EU's policy instruments governing agricultural emissions are housed in the Common Agricultural Policy (CAP). The CAP was established in 1963 as a part of the system

established by the Treaty of Rome in 1956, with the aim of creating a unified European market for agricultural products, improving agricultural productivity, and increasing farm incomes through farm payments (paid for through a common budget) (Delayan, 2007).

After many years of regular reform, the current CAP (2014-2020) looks very different from its original form. Currently comprising 35% of the total EU budget, the CAP funds programs in two pillars. Pillar 1, the European Agricultural Guarantee Fund (EAGF), is aimed at supporting farm incomes across the EU through direct payments to farms. Pillar 2, the European Agricultural Fund for Rural Development (EAFRD), provides support for national and EU level programs to promote rural development and also aims to address environmental and social issues associated with agriculture (European Parliament, 2020).

Since the 1970s the CAP has slowly increased the ambition of its environmental policy objectives, as politicians and members of civil society have pushed the EU to move from a productivist paradigm toward a more multifunctional approach. This has been reflected in the adoption of new ‘greening’ measures designed to reward through the CAP budget the public goods generated by European agriculture (Swinnen, 2015). It is through these measures that the current CAP architecture works to address the climate impact of EU agriculture.

The highest level policy aimed at addressing GHG emissions from agriculture has been the introduction of ‘climate mainstreaming’ into the EU budget during the 2013-2020 Multiannual Financial Framework (MFF). Essentially, this means that the EU has committed to devoting at least 20% of its budget (including the CAP) to climate mitigation and adaptation (General Secretariat of the Council, 2013). Percentages are estimated ex ante by means of ‘climate markers’ adapted from the OECD’s system of ‘Rio markers’. Each spending category within the EU budget is assigned an ex ante percentage value based on its predicted climate mitigation effect (Matthews 2020). While researchers have strongly questioned the legitimacy of this scoring system (Bas-defosse & Mottershead, 2020), this framework is currently the primary way in which all other CAP policy climate impacts are evaluated.

Current CAP climate policy elements are divided between the two pillars of the policy. In Pillar 1, the most basic climate-related measure is *cross compliance*, which requires farmers to meet certain Statutory Management Requirements in order to receive full direct payments from the EU. While these are not limited to environmental concerns, cross compliance aims to hold all EU farmers to some minimum standard of production (Dupraz & Guyomard, 2019). *Green payments* are the other climate related element of Pillar 1. These payments must make up 30% of the direct payments budget for each member state and are given to farmers who meet three requirements: crop diversification, maintenance of permanent grassland, and biodiversity protection on at least 5% of arable land (European Commission, 2020).

Pillar 2 payments are intended for rural development and are co-financed by each member state, making them a more flexible base for innovative environmental policy instruments. The primary instruments addressing climate mitigation in this pillar are the Agri-Environment and Climate Schemes (AECS), which are set at the national level and are voluntary for farmers. These provide reimbursement payments to farmers for costs incurred and income forgone as a result of utilizing certain environmentally friendly practices. Each member state is

required to offer AECS, and payments are 50% financed by the EU. Pillar 2 also includes modest support for organic farming, farming in constrained areas, and preservation of protected agricultural land (Dupraz & Guyomard, 2019).

Currently, the EU estimates ex ante (using the climate marker system) that 28% of CAP funds currently go toward climate objectives, exceeding the current climate mainstreaming goals (European Court of Auditors, 2016), as presented by Matthews 2020). Unfortunately, this optimistic perspective is not supported by recent data. As mentioned above, GHG emissions from European agriculture have actually increased since 2012. Clearly the agri-environmental components of the CAP have not been effective in mitigating agricultural emissions. Recent research has sought to explain why this is the case.

Why Current CAP Climate Policy is Ineffective

One answer may lie in the way climate mitigation is accounted for in the EU budget process. As noted earlier, the EU's climate mainstreaming policy is based on the so-called 'Rio markers'. While this simplified approach makes calculations easier, it is far from accurate. Most importantly, the assigned values are not at all based on actual results (ex post), but rather on theoretical predictions (ex ante). Unfortunately, recent evaluations of CAP climate policy have shown that current assigned values overestimate positive impacts for a variety of reasons. For example, pillar one spending is assigned a value of 40% due to cross compliance regulations. However, most of these regulations were already obligatory at a national level, eliminating any real added value attributable to pillar one spending. Greening measures have similarly been found to be less effective than assumed (Alliance Environment, 2018; Bas-defosse & Mottershead, 2020).

Another major problem with current CAP climate policy has to do with the non-centralized administration of pillar 2 policies, with national governments choosing how to structure agri-environment schemes. In some ways, this approach makes sense, as it allows for a more targeted response to local conditions and concerns. On the other hand, research has shown that some national governments have used these payments to achieve non environmental objectives like farm income support, with only tenuous environmental benefits. Even when national governments choose to prioritize environmental goals, this structure tends to lead to the prioritization of local public goods rather than global public goods like climate mitigation (Dupraz & Guyomard, 2019). Finally, some have criticized the EU for not allowing LULUCF carbon offsets to play a role in mitigating agricultural emissions (Matthews 2020).

Due in part to the above issues, it is clear that the current CAP does not do nearly enough to achieve its stated goal of reducing GHG emissions from European agriculture. In response to these concerns, the European Commission has proposed a new round of 'greening' reforms to take place at the start of the next MFF budget period. While representing a step forward, a closer look at the details of these proposals reveals that they are unlikely to lead to significant climate improvements.

New Reform Proposals from the EC

The current round of CAP reform aims to address a wide variety of social and environmental issues. Overshadowing this round are the significant EU budget issues resulting from the withdrawal of Great Britain (a major net contributor) from the bloc. While the new 7 year budget will represent a higher percentage of EU GNI (from, 1.00% to 1.08%), CAP spending is slated to be cut by 5% in nominal terms and 12% in real terms. In order to prevent nominal reductions in income support levels within Pillar 1, the EC has proposed instead to cut Pillar 2 spending (Blandford & Matthews, 2019). While these changes must be approved by the European Council and the EP, this budgetary context has cast a shadow on the CAP reform process.

Despite these proposed cuts, the Commission has still sought to maintain a focus on climate mitigation among its other reform goals. First, the Commission proposes to eliminate cross compliance requirements and optional 'greening payments' from Pillar 1, replacing them with a new 'enhanced conditionality' requirement that will be obligatory for all farmers receiving CAP payments across both Pillars. In addition, the proposed reform will introduce new 'eco-schemes' into Pillar 1 spending. Each member state would be required to create a new funding instrument (eco-scheme) that would address environmental objectives and would be optional for farmers. These will be required to go above and beyond conditionality requirements (Dupraz & Guyomard, 2020). Importantly, these schemes would be fully funded by the EU budget and would allow non compensatory payment to farmers (a key difference between eco-schemes and Pillar 2 AECs). Beyond budget cuts, the only change in Pillar 2 is an increase in co-financing rates for member states (Blandford & Matthews, 2019).

Along with these specific changes, another major innovation in the Commission's proposed CAP reform will be a shift from compliance-based to results-based evaluation of member state performance in CAP implementation. This would require each member state to produce a strategic plan (NSP) outlining how their policies will achieve the various environmental (and other) goals of the CAP. In terms of climate mitigation, 40% of spending on NSPs will be required to contribute to climate objectives (based on the 'Rio marker' system described above). The objective of this major shift is to reduce regulatory complexity and enable member states to design strategies best suited for their own needs and context (Dupraz & Guyomard, 2020).

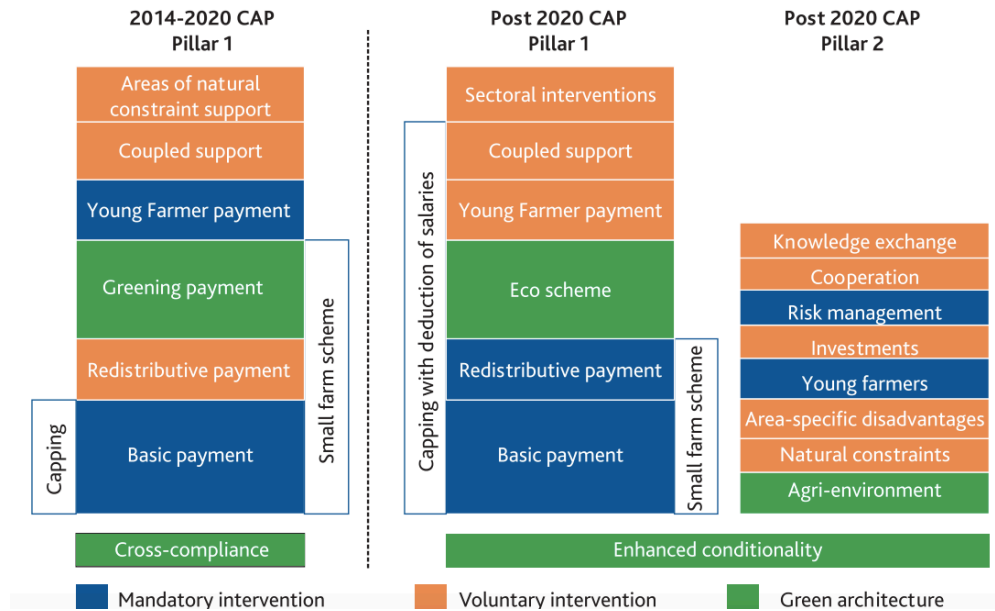


Figure 1: Schematic of Current Policy and Proposed Reforms to the CAP
Source: (Blandford & Matthews, 2019)

Why the Proposed Reforms Will Not Be Sufficient

Recent analyses of the proposal outlined above have concluded that it will likely do little to improve the climate performance of the CAP. Unsurprisingly, many researchers have argued that this is at least partially a result of mis-application of climate markers. As mentioned above, the new CAP proposal claims that 40% of funds will be able to be considered climate-related. The biggest part of this claim is based on an assumption that enhanced cross-conditionality will justify applying a 40% ‘significant’ marker to all direct payments. This has been refuted by several independent analyses (Matthews 2020, Bas-defossez 2020). In order to meet the European Commission’s own standards on climate mainstreaming, the proposed CAP would have to be significantly reformed.

A recent article published in the journal *Science* argues that two key issues prevent the latest CAP reform proposal from effectively addressing GHG emissions in agriculture. First, the authors argue that the ‘green architecture’ of the new proposal is actually no more effective than in the current CAP. In Pillar 1, for example, cross compliance requires farmers to meet basic environmental requirements, but gives the EU limited sanctioning power (Pe’er et al 2019). The strictest punishment for farmer noncompliance remains at most a 20% reduction in funds. In addition, many of the requirements in their current form have a marginal impact on GHG emissions. This also holds true for “green payments”. One commonly cited example is the fact that required maintenance of ‘permanent grassland’ allows tilling and reseeded of the land, practices which eliminate most carbon sequestration benefits. As the authors argue, the actual climate effects of current greening measures are not clear. Criteria and regulations are not clearly defined and not based on solid empirical evidence.

Even more importantly, the shift in the funding balance from Pillar 2 to Pillar 1 represents a major reduction in environmental effectiveness. A large body of evidence suggests that Pillar 2 is far more effective for climate mitigation than Pillar 1 (Alliance Environment 2018, Pe'er et al., 2017). While popular politically among farmers, direct payments have no climate benefit beyond the cross compliance described above. Even worse, the new proposal still includes coupled payments for GHG intensive systems including beef and dairy production (Pe'er et al 2019). As such, the fact that the new proposed CAP reform increases the share of Pillar 1 funding to 73% from its current level of 60.6% is a major area of concern.

How Can Proposed Reforms Be Improved?

Given the European consensus on the urgency of climate action (formalized through the Paris Agreement), it is clear that climate mitigation must play a larger role in EU agricultural policy. Based on the literature described above, it is possible to identify several specific evidence-based recommendations for CAP reform.

First, the EU should substantially reform the 'climate mainstreaming' approach used in the MFF. As shown above, the current application of the Rio markers is unrealistic in its optimistic assumptions about various elements of CAP policy (Matthews 2020, Bas-defosse et al 2019). This has allowed EU policymakers to showcase an ambitious 40% of the bloc budget dedicated to climate mitigation. In order to make this promise a reality, the EU must maintain this ambitious budget goal while simultaneously adopting a conservative approach to climate accounting. Only measures that can be proven to actually reduce emissions should be counted.

Second, the EU should explore integrating LULUCF strategies into its CAP carbon accounting. As described in a recent IEEP report, increased conversion of cropland to pasture or forest can indirectly lower the total climate impact of agriculture (Lóránt & Allen 2019). While this fact is generally recognized, many stakeholders have worried that including offsets from LULUCF in climate mainstreaming calculations could weaken the EU's ambition on agricultural direct emission reductions. The relative impermanence of land based sequestration is another common criticism of this approach. These reservations have led to strict limits on the extent to which LULUCF credits are allowed to count toward emission reductions in the CAP (Matthews 2020). While well intentioned, these limits have made it difficult for the CAP to use land based carbon sequestration tools. Given that yearly soil carbon loss within the EU is equivalent to 18% of total agricultural emissions (Lóránt & Allen 2019), potential CAP policy tools focused directly on LULUCF should not be neglected if the EU is serious about reducing the carbon footprint of its agricultural system.

Third, the final version of the current reform should reverse the proposed cuts to Pillar 2 spending. The research cited above shows that direct payments are not an effective instrument for reducing emissions, even with enhanced cross compliance measures in place. To maximize climate results, the maximum proportion of CAP funding possible should be moved to Pillar 2. Coupled payments would be a particularly helpful category in which to reduce spending given their high impact. If policymakers are unwilling or unable to reduce Pillar 1 spending, it is essential to dramatically strengthen cross compliance requirements. Punishments for

noncompliance must be increased, while at the same time the EU should insist upon evidence-based cross compliance norms based on a realistic estimate of effectiveness. (Dupraz & Guyomard, 2020; Pe'er et al., 2019, Cullen et al 2018).

Finally, the specific agri-environment programs in both Pillars must be reformed in several ways. To begin with, specific and measurable climate outcomes must be provided by which National Strategic Plans can be evaluated. By doing so, the EU will be able to capitalize on the benefits of nationally and locally targeted policy measures without risking a degradation of climate mitigation outcomes (Cullen et al., 2018; Pe'er et al., 2019). If possible, more of Pillar 2 spending should be ring-fenced for climate and other environmental objectives. In addition, national governments should be allowed to transfer a higher percentage of Pillar 1 funds toward Pillar 2 (Pe'er et al., 2019).

Conclusion

Based on the data and analysis presented above, it is clear that neither current CAP policies nor the EC's proposed reforms will be sufficient in adequately addressing the current environmental issues caused by the EU agriculture and food system. While any change to the CAP will require significant political will, the reforms identified above will be necessary in order to bring EU agricultural policy in line with the bloc's international commitments.

Unfortunately, ambitious climate-friendly reforms to the CAP are currently politically unlikely. This is because CAP reform discussion have long been dominated by the inherent conflict between EU budgetary tightening and massive political pressure to maintain income support for farmers. Despite the growing influence of environmental and social movements on EU politics, sufficient political will to genuinely move toward 'public money for public goods' is so far simply not there (Petit, 2019).

In 2020, the situation has been made even more complicated by the global coronavirus pandemic. The MFF stated to take effect in 2021 has been further delayed as EU member states consider massive, unprecedented increases in the EU budget and deal with major disruptions to agricultural production and trade across the continent. In some ways, the current chaos could represent an opportunity for positive change in the CAP (if, for example, a significant portion of crisis-related budget increases were directed towards climate related agricultural initiatives). On the other hand, economic pressures on the farm sector are just as likely to lead to reduced climate ambition. The literature cited above points toward a set of achievable, evidence based reforms that would significantly improve climate mitigation in the CAP. Whether or not EU policymakers will rise to the challenge and genuinely prioritize climate leadership remains to be seen.

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Bibliography:

- Alliance Environment. (2018). Evaluation study of the impact of the CAP on climate change and greenhouse gas emissions. Retrieved from the European Commission website: https://ec.europa.eu/agriculture/sites/agriculture/files/evaluation/market-and-income-reports/2019/cap-and-climate-evaluation-report_en.pdf
- Bas-defosse, F., & Mottershead, D. (2020). Keeping track of climate delivery in the CAP ?, Report by Naturschutzbund Deutschland for the Institute for European Environmental Policy, Brussels. Retrieved at: <https://ieep.eu/publications/policy-brief-keeping-track-of-climate-delivery-in-the-cap>
- Blandford, D., & Matthews, A. (2019). Guest Editorial EU and US Agricultural Policies: Commonalities and Contrasts. *EuroChoices*, 18(1). <https://doi.org/10.1111/1746-692X.12217>
- Cullen, P., Dupraz, P., Moran, J., Murphy, P., Flaherty, R. O., Donoghue, C. O., ... Ryan, M. (2018). Agri-- Environment Scheme Design: Past Lessons and Future Suggestions. *EuroChoices*, 17(3), 26–30. <https://doi.org/10.1111/1746-692X.12187>
- Delayan, C. (2007). The common agricultural policy: a brief introduction. In Global Dialogue Meeting. Washington, DC: Institute for Agriculture and Trade Policy. <https://doi.org/10.1177/004711788700900201>
- Dupraz, P., & Guyomard, H. (2020). Environment and Climate in the Common Agricultural Policy. *EuroChoices*, 18(1), 18–25. <https://doi.org/10.1111/1746-692X.12219>
- European Commission. (2014). Communication from the Commission to the European Parliament: A policy framework for climate and energy in the period from 2020 to 2030, 1–18. Retrieved from: https://ec.europa.eu/clima/policies/strategies/2030_en#tab-0-1
- European Commission. (2018). The EU Emissions Trading System (EU ETS). Climate Action, (July), 6. <https://doi.org/10.2834/55480>
- European Commission. (2020). Sustainable Land Use (Greening). Retrieved April 1, 2020, from https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/income-support/greening_en
- European Court of Auditors. (2016). Spending at least one euro in every five from the EU budget on climate action: ambitious work underway, but at serious risk of falling short. Luxembourg. Retrieved at: https://www.eca.europa.eu/Lists/ECADocuments/SR16_31/SR_CLIMATE_EN.pdf
- European Environmental Agency. (2017). EEA Greenhouse Gas Emissions 2017. [Data file]. Retrieved from <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
- European Parliament. (2020). Second pillar of the CAP: rural development policy. Retrieved March 15, 2020, from <https://www.europarl.europa.eu/factsheets/en/sheet/110/second-pillar-of-the-cap-rural-development-policy>
- General Secretariat of the European Council. (2013). Conclusions (Multiannual Financial Framework). Brussels, Belgium. Retrieved from <https://data.consilium.europa.eu/doc/document/ST-37-2013-INIT/en/pdf>
- IPCC. (2019). Climate Change and Land. Geneva. Retrieved from Intergovernmental Panel on Climate Change (IPCC) website: https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf
- Lóránt A., Allen B. (2019) Net-zero agriculture in 2050: how to get there? Report by the Institute

for European Environmental Policy

- Matthews, A. (2019, December 19). Role of the land sector in meeting EU's climate targets [Blog post]. Retrieved from <http://capreform.eu/role-of-the-land-sector-in-meeting-eus-climate-targets/>
- Matthews, A. (2019, April 12). The Greenhouse Gas Emissions Challenge for Agriculture [Blog post]. Retrieved from <http://capreform.eu/the-ghg-emissions-challenge-for-agriculture/>
- Matthews, A. (2020, March 24). Climate Measures in Agriculture [Blog post]. Retrieved from <http://capreform.eu/climate-measures-in-agriculture/>
- Müller, A., Bautze, L., Meier, M., Gatteringer, A., Gall, E., Effimia Chatzinikolaou, S. M., ... Tončí, U. (2016). Organic Farming, Climate Change Mitigation and Beyond: Reducing the Environmental Impacts of EU Agriculture. Brussels, Belgium. Retrieved from https://www.ifoam-eu.org/sites/default/files/ifoameu_advocacy_climate_change_report_2016.pdf
- Pe'er, G., Zinngrebe, Y., Moreira, F., Sirami, C., Schindler, S., Müller, R., ... Lakner, S. (2019). A greener path for the EU Common Agricultural Policy. *Science*, 365(6452), 449–451. <https://doi.org/10.1126/science.aax3146>
- Pe'er, G., Lakner, S., Müller, R., Passoni, G., Bontzorlos, V., Clough, D., ... Von Cramon-Taubadel, S. (2017). Is the CAP Fit for purpose?, (November), 1–20. Report by the European Environmental Bureau. Retrieved from: https://www.idiv.de/fileadmin/content/iDiv_Files/Documents/executive_summary_17.11_final.pdf
- Petit, M. (2019). Point de Vue: Another Reform of the Common Agricultural Policy: What to Expect. *EuroChoices*, 18(1), 34–39. <https://doi.org/10.1111/1746-692X.12221>
- Swinnen, J. F. M. (2015). The political economy of the 2014-2020 common agricultural policy: an imperfect storm. Brussels: Centre for European Policy Studies. <https://doi.org/10.1111/jcms.12537>