

The CAP post 2013: Ineffective for Mitigating Climate Change

La PAC après 2013 : inefficace pour réduire le changement climatique
Die GAP nach 2013: Ineffektiv für den Klimaschutz

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Greenhouse gas (GHG) emissions from agriculture account for more than 11 per cent of the total emissions from the EU-27 Member States (European Environment Agency, 2012). Emissions include nitrous oxide (N₂O) from nitrogen application to soils and methane (CH₄) from enteric fermentation and manure management. In addition, carbon dioxide (CO₂) is released from grassland conversion to cropland and drained organic soils, combustion of fossil fuel, and indirect pre-chain emissions by synthetic fertiliser production and imported feed to farms. However, agriculture also stores and sequesters carbon in plants and soils. Agriculture is also highly vulnerable to climate change.

The decisions of the United Nations Climate Change conference in Durban in December 2011 lacked speedy, stringent global emission reduction targets, making global warming beyond the critical threshold of 2°C more likely. Responding to climate change is one of the major societal challenges of the Europe 2020 Flagship Initiative.

In this article we point out the shortcomings of the European Commission's (EC) Common Agricultural Policy (CAP) Reform Proposals and present some specifications to be included in the main text or the implementing regulations to support European agriculture in its transition towards

climate-friendly production. We focus on effectiveness of measures in the sense of measurable mitigation through CAP instruments related to farming and land use (not the whole agro-food system).

The aspiration of CAP post 2013 for combating climate change

The recent EC Foresight report of the Standing Committee on Agricultural Research (SCAR, 2011) has warned that strong feedbacks between environmental and social systems are amplifying and speeding up changes, uncertainty and risks for the agro-food system. Many policy, market-



The greening of the CAP will establish new ecological focus areas such as hedgerows, which enhance landscape structure, biodiversity, reduce erosion and mitigate climate change by carbon sequestration.

based and social factors affect farmers' willingness and actions taken to reduce GHGs (SCAR, 2011), but the CAP is a central one. The European Commission clearly recognised these big challenges facing the CAP, *inter alia* to (1) mitigate and adapt to climate change, (2) secure the provision of public goods, and (3) make the European agro-food system more resilient in times of increasing price instability and more frequent extreme weather events.

According to the budget proposal of the Commission for the period 2014–2020, 20 per cent of the overall EC budget should be devoted to climate related measures (EC, 2011a). The high share of the CAP in the EC budget implies that climate related measures should roughly have a 20 per cent share in CAP as well. In our view, general conditions and targets for mitigating climate change need to be agreed upon at the EU level while, following the subsidiarity principle, Member States can decide about the details of implementing such measures. The general conditions, according to the Commission, shall (1) guarantee a reasonable budget attribution to climate measures by every Member State, and (2) ensure a balance between climate change mitigation and adaptation. Otherwise, there is a risk that no country would adopt mitigation measures in isolation.

The CAP Reform Proposals maintain the aspiration of a strong climate component. However, they lack a clear vision of how agriculture and rural areas should and could respond to climate change. In particular, they lack a clear link to GHG mitigation targets by 2020 and a proactive architecture to facilitate transitions and innovations towards mitigating climate change.

Climate targets for the agriculture sector

The EC Climate and Energy Package has defined GHG reduction targets for 2020 at Member State level for sectors outside the EU emission trading system (ETS) including agriculture. However, it is in the responsibility of Member States to decide on cross-

sectoral allocation of GHG reductions, considering differences in mitigation potentials and cost. Methane and N₂O emissions from agriculture are included in the EU 2020 targets for the non-ETS sectors, but CO₂ emissions from agricultural land use and land use change (LULUC) are excluded (EC, 2011b). Thus, CAP support to reduce CH₄ and N₂O emissions from agriculture would simply help Member States to achieve the EU 2020 targets but not go beyond them. In contrast, concerning LULUC, the CAP can promote additional GHG mitigation beyond the EU 2020 targets.

“ Les propositions de réforme de la PAC voudraient réagir au changement climatique, mais elles ne parviennent pas à apporter les incitations suffisantes pour avancer de manière significative. ”

Another case for the CAP could be to foster an integrated strategy to abate nitrogen pollution, to increase the productive use of nitrogen fertilisers and to improve manure management. Surprisingly, the CAP Reform Proposals do not specifically address nitrogen. Reducing N₂O, nitrate and ammonia emissions would contribute to GHG mitigation and support the objectives of the Water Framework Directive, National Emission Ceiling Directive, and Biodiversity Strategy. Improved manure management also reduces methane emissions, e.g. by covering manure storage facilities or through biogas production from manure. A more effective use of fertilisers, manure and energy decreases the carbon footprint of EU agriculture, especially in the livestock sector. Further increased resource effectiveness can help to limit indirect land use changes by spatial relocation of food production. Such multiple

benefits are strong arguments in favour of GHG abatement policies for the sector. However, to avoid double support, co-ordination with other environmental policy instruments is needed.

An adaptation target could include the protective management of soils and resilient cropping systems, develop resource-effective technologies (including those for livestock breeding and feeding), and support for pluri-activity in farms and rural areas. These measures also support the EU Soil Thematic Strategy and the EU Biodiversity Strategy. Adaptation will happen locally and regionally as it is in the intrinsic self-interest of the farmers. According to the subsidiarity principle, it can be strongly argued that adaptation should be a private or regional responsibility rather than a European one.

The CAP tools for responding to climate change

In principle, the CAP has three different sets of tools for responding to climate change. (1) The 1st Pillar includes area-based direct payments conditional upon compliance with environmental requirements (cross compliance), and targets only farmers. With this tool, general targets e.g. an increase in nitrogen efficiency or the maintenance of soil organic carbon stocks could be tackled. (2) The 2nd Pillar allows a more regionalised fine-tuning of measures and has a territorial scope. Typical instruments comprise the promotion of adapted management techniques, e.g. for manure spreading or investment aids, e.g. rewetting of organic soils. (3) The common market organisation would principally allow the setting of product standards to promote resource efficiency.

First Pillar proposal: a minute step forward?

It is estimated that the 1st Pillar of the CAP post 2013, which is paid in total by the EU, will account for about 75 per cent of the EU agricultural budget as direct payments to farmers. These payments are linked to cross

compliance standards and a proposed 'greening' component. The European Commission attributes 30 per cent of the direct payments to the cost of 'greening'. Two 'greening' standards are linked to the mitigation of climate change:

- Maintenance of permanent grassland: Per farm up to 5 per cent of the area of permanent grassland may be converted between 2014 and 2020. This measure could help maintain the higher organic carbon stocks of grassland soils, which would be lost when converted to croplands. Additionally, a new cross-compliance standard bans conversion to cropland of grasslands located on wet or carbon rich soils; large amounts of soil organic carbon in these soils are also lost when the soils are drained. The Reform Proposals can potentially help reduce GHG emissions from land use change but would still allow intensified drainage of carbon rich soils, which would increase GHG emissions. Also, use of such soils for arable farming, a key source of GHG emissions, remains eligible for direct payments if established before 2011.
- Ecological focus area: 7 per cent of the farm area cultivated with arable or permanent crops must be

dedicated as ecological focus areas. We propose spatial targeting to ensure that ecological focus areas maximise synergies with other environmental targets related to water, climate and biodiversity. Additionality must be guaranteed by ensuring that farmers do not include existing non-agricultural landscape elements in the reference area.

Overall the impacts of the 1st Pillar on GHG mitigation would be significantly increased through restrictions on drainage and phasing out direct payments for agricultural use of drained peat soils. Minimum standards for nitrogen fertilisation and manure management should be strengthened. Such minimum standards at farm level are already in force in some Member States for implementing the Nitrates Directive. The Commission for Agriculture in the German Federal Environment Agency (KLU, 2011) proposed a maximum annual nitrogen surplus of 50 kg N per hectare of utilised agricultural area. We alternatively suggest incremental targets for minimum nitrogen input–output ratios at farm gate, based on balances averaged over several years.

Second Pillar proposal: broad toolbox for Member States. It is estimated that the 2nd Pillar of the CAP post 2013 will use about 25 per

cent of the CAP budget and is co-financed by the Member States. Mitigating climate change is one of the cross-cutting themes of the 2nd Pillar. The current Proposal contains some relevant principles, but due to the co-financing by Member States the national priorities, strategy plans and implementation will ultimately determine the pathway and speed of mitigation (Grajewski *et al.*, 2011).

“ Die Reformvorschläge für die GAP haben den Anspruch, auf den Klimawandel zu reagieren, setzen jedoch keine Anreize für einen quantifizierbaren Schritt nach vorne. ”

Two of the six priorities of the 2nd Pillar explicitly address environmental issues: (1) restore, preserve and enhance ecosystems dependent on agriculture and forestry, and (2) improve resource efficiency and foster a low carbon economy. The indicative list in Annex V of the Proposal addresses agriculture, forestry and other sectors of the rural economy. The recitals principally maintain the existing rules to allocate at least 25 per cent of the 2nd Pillar budget to area-based payments for agri-environment and climate (Art. 29), organic farming (Art. 30), and areas facing natural or other specific constraints (less favoured areas, Art. 32). Many regions or Member States spend more than 50 per cent of their 2nd Pillar budget for area-based measures. The CAP Reform Proposals do not provide further earmarking of the 2nd Pillar budget (except a minimum share of 5 per cent for LEADER), so that the flexibility of Member States to allocate the 2nd Pillar budget will increase.



The present CAP and biofuel subsidies have boosted rapeseed production in Europe, the least performing bioenergy option for mitigating climate change. The CAP reform is a strong political instrument to make agriculture and bioenergy production in Europe more effective for mitigating climate change.

Many area-based measures are judged to have only small or no net mitigation effect or even negative net effects, and many effective mitigation measures are not area based. For instance, agro-environmental measures often support extensive systems but it remains indeterminate whether products from extensive systems have a smaller carbon (climate) footprint than those from intensive production. Similarly, organic farming products tend to have a slightly lower climate footprint than conventional ones, but within large variability. Both conventional and organic farming still have significant scope for improving resource efficiency within and across farms. The short-term perspective of 2nd Pillar voluntary contracts limits the usefulness of agri-environmental measures for long-term GHG mitigation strategies in the LULUC sector because the mitigation effects can be quickly reversed.

“ CAP reform proposals aspire to respond to climate change but fail to provide incentives to make a quantifiable step. ”

Lump sum payments for areas facing natural or other specific constraints tend to work against climate change mitigation because marginal areas which would otherwise return to natural carbon-rich ecosystems are kept free of woody vegetation or drained. The same applies to 1st Pillar direct payments for such areas. Woodlands recovering on abandoned agricultural land are a significant carbon sink in many remote areas of Europe.

Area based 2nd Pillar payments have been designed to support goals for biodiversity, water and rural areas. They have proven their usefulness for these goals (Reiter *et al.*, 2011), but



Grassland conversion to cropland on wet or carbon rich soils will be banned by CAP's new cross compliance standard.

only certain measures, especially those targeting nitrogen pollution, show clear synergies with climate targets.

Measurable net GHG reductions are achieved when GHG emissions per unit of production on farms and in the whole food processing chain decline. Mitigation must go beyond area-based measures and include, for example, investment in physical assets for rewetting of peatland or covering manure storage systems, renewable energy, improving efficiency of energy and nitrogen inputs via innovation, investments and knowledge transfer (SCAR, 2011).

Opportunities should be taken

The current EC CAP Reform Proposals offer opportunities for integrating climate change abatement into the CAP. However, success largely depends on the implementation measures and on implementation at Member State level.

In our view, the current Proposals miss the chance for a soft landing for European agriculture in a world of speeded-up risk of resource constraints, market instability and climate change. The Proposals set the

aspiration to respond to climate change but fail to provide incentives for a quantifiable step. The agriculture sector is facing increasing pressure to reduce GHG emissions from the EC Climate and Energy Package and for mitigation commitments beyond 2020. The sector has significant potential for win-win and low-cost measures, in particular when synergies with other environmental goals are considered. The CAP Reform Proposals can still set enabling conditions for mitigation, define binding targets and introduce systems to monitor and verify results. It is also timely to prepare for steps reaching beyond 2020 and to develop a clear vision for mitigation pathways in the agriculture sector with short-, mid- and long-term targets. Specifically we conclude and recommend as follows:

1. It is questionable whether climate change adaptation is a priority at European level because related threats and benefits are local or regional. Instead of stressing 'climate measures', mitigation and adaptation should be clearly distinguished.
2. GHG impacts of CAP measures have to be evaluated and negative incentives, such as support for intensive land use on carbon-rich

- soils, should cease in order to reduce GHG hotspots.
3. To promote climate change mitigation in all European regions, implementation of GHG mitigation measures with verifiable results should be made a mandatory part of the 2nd Pillar. Together with monitoring, this would foster a learning process about how to implement GHG mitigation on farms and in rural areas.
 4. Smart GHG reductions are needed in the whole food processing chain, involving measures to improve resource efficiency, appropriate investments, innovation and knowledge transfer; but would not necessarily be achieved through area-based measures.
 5. The CAP should provide incentives for Member States to implement mitigation measures targeted to LULUC, e.g. for rewetting of carbon-rich soils, based on monitoring and binding targets. A specific CAP budget should be allocated to LULUC, e.g. via a competitive, EU-wide bidding system to foster effective mitigation.
 6. The CAP Reform proposals implicitly assume that mitigation efforts in the agricultural sector have to be compensated through CAP payments. The future role of public aid and the implementation of the polluter pays principle (PPP) should be clarified in this context, i.e. who should be paid for public good provision and who should pay to reduce or clean up pollution?
 7. If mitigating climate change and providing public goods are to become the main rationale for future agricultural payments, direct payments of the 1st Pillar will need to be phased out; they are too general and uniform to reflect the regional diversity of costs and environmental priorities. Direct payments should be replaced by dedicated measures reflecting regional circumstances (Wiss. Beirat, 2010).

Further Reading

- COM (2010a) 546 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161, Brussels, EC.
- COM (2010b) 672 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *The CAP towards 2020: Meeting the Food, Natural Resources and Territorial Challenges of the Future*, COM(2011) 607 - 614 final. Brussels, EC. Available online at: http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/index_en.htm.
- European Commission (2011a). *Climate Action in the EU Budget*, Brussels, EC. Available online at: http://ec.europa.eu/clima/policies/finance/budget/index_en.htm.
- European Commission (2011b). *Proposal for a Regulation of the European Parliament and of the Commission on a Mechanism for Monitoring and Reporting Greenhouse Gas Emissions and for Reporting other Information at National and Union Level relevant to Climate Change*, Brussels, EC. Available online at: http://ec.europa.eu/clima/policies/g-gas/docs/regulation_20111123_en.pdf.
- Grajewski, R. (ed.) (2011). *Ländliche Entwicklungspolitik ab 2014: Eine Bewertung der Verordnungsvorschläge der Europäischen Kommission vom Oktober 2011, Arbeitsberichte aus der vTI-Agrarökonomie*. 08/2011, Braunschweig. Available online at: http://www.vti.bund.de/fileadmin/dam_uploads/Institute/LR/Lr_de/Lr_de_Downloads/Lr_de_Startseite/AB_08_11_Grajewski_et_al%20_2011_Laendliche_Entwicklung.pdf.
- KLU (2011). Stellungnahme der Kommission Landwirtschaft am Umweltbundesamt (KLU) zur Reform der gemeinsamen Agrarpolitik (July 2011). Für eine ökologisierte erste und eine effiziente zweite Säule Germany: Comment on CAP reform, July 2011. Available online at: <http://www.umweltdaten.de/publikationen/fpdf-l/3981.pdf>.
- Reiter, K., Dickel, R., Roggendorf, W. and Sander, A. (2011). Ausgestaltung der Agrarumweltmaßnahmen in den deutschen Bundesländern und ausgewählte Umweltwirkungen. *Agrarpolitischer Arbeitsbeheft*, 39: 34–40.
- Wissenschaftlicher Beirat für Agrarpolitik beim Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz (2010). *Gutachten. EU-Agrarpolitik nach 2013 - Plädoyer für eine neue Politik für Ernährung, Landwirtschaft und ländliche Räume*.
- European Environment Agency (2012). *Annual European Union greenhouse gas inventory 1990–2010 and inventory report 2012*. Submission to the UNFCCC Secretariat, Technical report No 3/2012, 27 May 2012. Available online at: http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/6598.php
- SCAR (2011). European Commission – Standing Committee on Agricultural Research: The 3rd SCAR Foresight Exercise. *Sustainable food consumption and production in a resource-constrained world*, February 2011. Available online at: http://ec.europa.eu/research/agriculture/scar/pdf/scar_feg3_final_report_01_02_2011.pdf.
- Hsuan, H., Legg, W. and Cattaneo, A. (2010). Climate change and agriculture: The policy challenge for the 21st century? *EuroChoices*, 9(3): 9–15.

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summary

The CAP post 2013: Ineffective for Mitigating Climate Change

 Agriculture emits more than 11 per cent of the greenhouse gases (GHG) from the EU-27. In this article we point out the shortcomings of the European Commission's Reform Proposals for the Common Agricultural Policy (CAP) towards effective climate change mitigation and present some specifications to be included in the main text or the implementing regulations to support European agriculture in its transition towards climate-friendly production. The Proposals set the aspiration to respond to climate change but fail to provide incentives to make a quantifiable step. Yet the CAP Reform Proposals can still set enabling framework conditions for mitigation, define binding targets and produce verifiable mitigation results. This article proposes *inter alia*: (1) to evaluate the GHG impacts of CAP measures and stop negative incentives e.g. support of intensive land use on carbon-rich soils; (2) fostering a learning process by making GHG mitigation measures with verifiable results a mandatory part of the 2nd Pillar; (3) implementing measures along the food processing chain via improved resource efficiency, investments, innovation and knowledge transfer, and not just through area-based measures; and (4) providing a separate CAP budget for mitigating CO₂ emissions from agricultural soils, which are outside the EU Climate and Energy Package.

La PAC après 2013 : inefficace pour réduire le changement climatique

 L'agriculture émet plus de 11 pour cent des gaz à effet de serre (GES) de l'Union européenne à 27. Dans cet article, nous relevons les limites des propositions de réforme de la Commission européenne pour la Politique Agricole Commune (CAP) en matière de réduction réelle du changement climatique et nous présentons quelques éléments à inclure dans le texte principal ou dans les réglementations de mise en oeuvre qui pourraient aider l'agriculture européenne à évoluer vers une production respectueuse du climat. Les propositions annoncent l'intention de réagir au changement climatique mais n'apportent pas les incitations nécessaires à une avancée quantifiable. Pourtant, les propositions de réforme de la PAC peuvent encore apporter un cadre permettant d'atténuer le changement climatique, définir des objectifs contraignants et apporter des résultats probants. Cet article propose entre autre de: 1) évaluer les incidences des mesures de la PAC sur les émissions de gaz à effet de serre et de supprimer les incitations négatives comme par exemple le soutien à l'utilisation intensive des terres riches en carbone; 2) renforcer les processus d'apprentissage en rendant obligatoire dans le pilier 2 des mesures de réduction des gaz à effet de serre dont les effets sont vérifiables; 3) mettre en oeuvre des mesures tout au long de la chaîne alimentaire en améliorant l'efficacité de l'utilisation des ressources, les investissements, l'innovation et le transfert des connaissances, et pas seulement par le biais de mesures fondées sur l'utilisation des terres; 4) fournir un budget séparé au sein de la PAC pour réduire les émissions de CO₂ des sols agricoles, qui soit extérieur au programme européen sur l'énergie et le climat.

Die GAP nach 2013: Ineffektiv für den Klimaschutz

 Die Landwirtschaft ist für mehr als elf Prozent der Treibhausgase in der EU-27 verantwortlich. In diesem Beitrag legen wir die Defizite innerhalb der Reformvorschläge der Europäischen Kommission für die Gemeinsame Agrarpolitik (GAP) zur effektiven Abmilderung des Klimawandels dar und zeigen einige Spezifikationen auf, die in den Haupttext oder in die Durchführungsbestimmungen aufgenommen werden sollten, um die europäische Landwirtschaft auf ihrem Weg hin zu einer klimafreundlichen Produktion zu unterstützen. Die Vorschläge haben den Anspruch, auf den Klimawandel zu reagieren, setzen jedoch keine Anreize für einen quantifizierbaren Schritt nach vorne. Dennoch sind die Reformvorschläge der GAP nach wie vor in der Lage, effektive Rahmenbedingungen für Klimaschutz zu schaffen, verbindliche Ziele zu definieren und verifizierbare Ergebnisse für den Klimaschutz zu liefern. Dieser Beitrag schlägt unter anderem vor: (1) die Auswirkungen von Treibhausgasen bedingt durch Maßnahmen der GAP zu evaluieren und negative Anreize zu unterbinden, z.B. die Förderung intensiver Landnutzung bei kohlenstoffreichen Böden; (2) einen Lernprozess einzuleiten, indem Maßnahmen zur Senkung von Treibhausgasen mit verifizierbaren Ergebnissen als Pflichtbestandteil in die zweite Säule aufgenommen werden; (3) Maßnahmen entlang der Lebensmittelverarbeitungskette zu implementieren mit Hilfe von besserer Ressourceneffizienz, Investitionen, Innovationen und Wissenstransfer – statt nur flächenbezogener Maßnahmen; und (4) einen separaten Haushalt innerhalb der GAP einzurichten zur Reduktion von CO₂-Emissionen, die auf landwirtschaftliche Nutzung von Boden zurückzuführen sind und die aus dem Klima- und Energiepaket der EU herausfallen.