

# Project *brief*

Thünen Institute of Rural Studies

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## Evaluation of the CAP from an environmental perspective: low impact, high costs

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- The GAP reform of 2013 has led to an increase in fallow land and permanent grassland through "Greening". However, this growth is not sufficient to achieve significant improvements in environmental protection and nature conservation.
- To mitigate the environmental risk from plant protection products, there would need to be a change in land use toward low-risk production practices in significantly higher proportions.
- For the most part, farms had to make only a few adjustments to receive the full greening subsidy. Yet, the targets were not ambitious enough to achieve significant improvements for the protection of biotic and abiotic resources.
- The subsidies for greening amounted to roughly eight times the additional operating costs.

### Background and aims

Despite numerous reform efforts, inputs of nutrients and plant protection products into soils and water bodies as well as an impairment of the quality of soils, water and air due to agriculture are as high as ever. The research project "Evaluation of the Common Agricultural Policy from an Environmental Protection Perspective 2" aimed to analyze the impact of the 2013 CAP reform for Germany. In particular, the Greening was the focus of the investigation. Furthermore, the costs of greening and possible alternative approaches to support were evaluated in monetary terms using an opportunity cost approach.

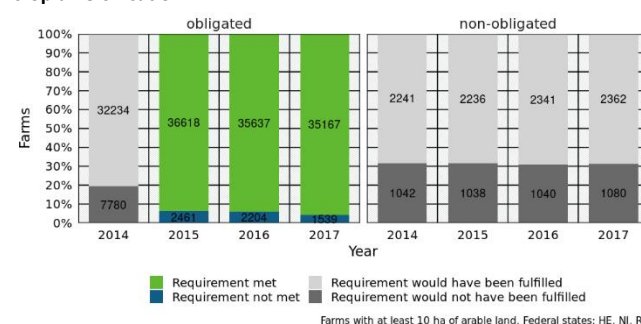
### Approach

In order to evaluate whether and how the 2013 CAP reform - and in particular Greening - has affected environmental protection, data from the Germany-wide agricultural structure survey, the main land use survey, and data from the Integrated Administration and Control System (IACS) of the states of Hesse, Lower Saxony, North Rhine-Westphalia and Rhineland-Palatinate were evaluated. Data from the agricultural structure survey were available at the municipality level for the years 1999, 2003, 2007, 2010, and 2016. Annual data from the main land use survey were aggregated and available at the federal level. These databases allowed for (a) nationwide evaluation of land use over time and (b) detailed analyses of how CAP reform was implemented and the environmental impacts. IACS data were available for 2010 through 2017.

### Results

Fallow land is of great ecological importance as a habitat and food source for numerous animal species. The proportion of arable land in Germany was as high as 7.9 % (2003) before the abolition of compulsory set-aside in 2007, and fell to 1.6 % by 2014. With the introduction of Greening in 2015, there was an increase to 2.6 %. In 2019, the percentage was 3.0 %. Although this is an increase in fallows compared to 2014, the amount is still significantly lower than in 2003. One reason for the low increase is the implementation of the ecological focus areas (EFA) requirements: farms established fallows and strips on only 18 % of all EFA areas (unweighted area shares of EFA), primarily using ecologically less valuable catch crops to meet the EFA requirements (68 to 74 %).

**Figure 1: Affectedness and implementation of Greening regulations for crop diversification.**



Source: Röder et al. (2022), page 113

For crop diversification according to greening requirements as introduced in 2015, 93 % of farms in the evaluated IACS countries were theoretically obligated in 2014 if the

requirements were already provided; 91 to 92 % were obligated in 2015 to 2017.

Figure 1 shows that only a few farms had to make changes in cultivation in order to receive the full subsidy from 2015. Of the farms obligated in 2015, 19 % would not have yet met the requirements in 2014. Since the majority of these farms changed their management in 2015, almost all obligated farms complied with the greening requirements after 2015 (2015: 94 %, 2016: 94 %, 2017: 96 %, see Figure 1 left). Even of the non-committed farms, 68% complied in 2014 to 2017 (see Figure 1 right).

**Table 2: Estimation of the economic costs of Greening for the agricultural sector (in millions of euros per year)**

Greening element	Direction of action	Costs (Mill. €)
EFA	Additional fallow land: perennial	15
	Additional fallow land: annual	52
	Fallow land with reduced funding AECM* (e.g., flowering areas)	8
	Cultivation additional catch crops	41
	Discontinuation of AECM funding for catch crops	9
	Cultivation of additional legumes	5
	<b>Subtotal</b>	<b>119</b>
Crop species diversity	Higher transport costs due to local shift in maize cultivation	19
Grassland protection	Lower value added potential on grassland areas that could not be converted to arable land	45
<b>Total</b>		<b>193</b>

\*AECM: Agri-environment-climate measures

Source: Röder et al. (2022), page 200

The business costs of greening were calculated considering (a) the additional management costs directly associated with the requirements, (b) the opportunity costs due to requirements that preclude more economically preferable management practices, and (c) the reduction or elimination of Pillar 2 payments as the reference (baseline) was raised by greening (Table 1).

Table 1 shows that it was mainly the implementation of EFAs, especially of fallow land, that was cost-effective. In total, in Germany the farm costs of greening amount to 193 million euros per year but the subsidies for the greening of 1.5 billion euros per year are 7.8 times higher than the costs.

## Conclusion and recommendations

The 2013 GAP reform led to minor improvements for environmental protection and nature conservation. The amount of ecologically valuable land was minimally increased compared to 2010, although the level of the early 2000s was not reached. Also, little positive changes were observed in the diversity of arable crops and the use of plant protection products as a result of greening. The design of the Greening components was not ambitious enough to bring about significant positive environmental effects.

Against the background of the various strategic plans of the EU, the results of the study serve as a basis for a national design of the GAP from the point of view of environmental protection. One of the goals of the farm-to-fork strategy, a halving of the use and risk of chemical pesticides, should not only be considered against the background of the quantity applied and its toxicity, but the hazard potential should also be differentiated according to land use. This is shown by the analysis on the environmental risk of plant protection products. With regard to the "Biodiversity Strategy for 2030", which also aims to reduce the damaging effects of plant protection products, synergy effects arise here.

## Further Information

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### Publications

Röder N, Ackermann A, Baum S, Böhner HGS, Laggner B, Lakner S, Ledermüller S, Wegmann J, Zinnbauer M, Strassemeyer J, Pöllinger Wegmann, J (2022) Evaluierung der GAP-Reform von 2013 aus Sicht des Umweltschutzes anhand einer Datenbankanalyse von InVeKoS-Daten der Bundesländer. Abschlussbericht des UBA-Projektes GAPEval II. [online]. Dessau: Umweltbundesamt, 288 p, Texte UBA 75/2022, <[https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte\\_75-2022\\_evaluierung\\_der\\_gap-reform\\_von\\_2013.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_75-2022_evaluierung_der_gap-reform_von_2013.pdf)>

Röder N, Ackermann A, Baum S, Wegmann J, Strassemeyer J, Pöllinger F (2021) Geringe Umweltwirkung, hohe Kosten : Ergebnisse und Empfehlungen aus dem Projekt "Evaluierung der Gemeinsamen Agrarpolitik aus Sicht des Umweltschutzes II" [online]. Dessau: Umweltbundesamt, 26 p, Texte UBA 71, <<https://www.umweltbundesamt.de/publikationen/geringe-umweltwirkung-hohe-kosten>>

Röder N, Ackermann A, Baum S, Wegmann J, Strassemeyer J, Pöllinger F (2021) Limited environmental impact and high costs: Findings and recommendations from the project "An Evaluation of the Common Agricultural Policy from the Perspective of Environmental Protection II" [online]. Dessau: Umweltbundesamt, 24 p, Texte UBA 76, <<https://www.umweltbundesamt.de/publikationen/limited-environmental-impact-high-costs>>

Pe'er G, Bonn A, Bruelheide H, Dieker P, Eisenhauer N, Feindt PH, Hagedorn G, Hansjürgens B, Herzog I, Lomba A, Marquard E, Moreira F, Nitsch H, Oppermann R, Perino A, Röder N, Schleyer C, Schindler S, Wolf C, Zinngrebe Y, Lakner S (2020) Action needed for the EU Common Agricultural Policy to address sustainability challenges. People Nature 2(2):305-316, DOI:10.1002/pan3.10080

Röder N, Ackermann A, Baum S, Böhner HGS, Rudolph S, Schmidt TG (2019) Small is beautiful? Is there a relation between farmed area and the ecological output? - Results from evaluation studies in Germany: paper prepared for presentation at the 172<sup>nd</sup> EAAE Seminar "Agricultural Policy for the Environment or Agriculture?" May 28-29, 2019, Brussels. 15 p

Birkenstock M, Röder N (2018) Gestaltung und Umsetzung der Gemeinsamen EU-Agrarpolitik ab 2021 - Übersicht über die politischen Debatten. Dessau: Umweltbundesamt, 66 p, Texte UBA 108

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