

## Environmental Effectiveness of Greening Measures under the Common Agricultural Policy of European Union

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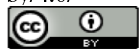
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### Abstract

The objective of this study is to evaluate the effectiveness of greening measures in the European Union during the period of 2014-2020. Studies carried out in various EU Member States by the European Court of Auditors and other independent authors estimated changes in farming practices as a result of greening over the period of 2014-2020 to be between 2% and 5% of the EU's agricultural area. The widest audit of greening performed by the European Court of Auditors in 2017 shows that the greening process induced changes of approximate 5% were divided as follows: 1.8% for crop diversification, 2.4% for ecological area and 1.5% for permanent grassland. Contrary to the low efficiency of greening, the payments made were on an average €80 per hectare, while the costs for its implementation are on an average €25-30 per hectare. Although the payments far exceed the costs incurred, little benefits were achieved on improved soil quality, biodiversity conservation and a reduction in Greenhouse Gases (GHG) by 2% only at EU level. Had the European Commission's original and more ambitious proposal been adopted, GHG reductions would have reached 5% threshold level. Conclusively, greening is a complex measure having significantly low effectiveness in context of the degree of environmental protection offered by it.

### Keywords

Common agricultural policy; Greening; Greenhouse gases; European Green Pact 2030

### 1. Introduction

Global warming has intensified over the last two centuries due to the increase in Greenhouse Gas (GHG) emissions, representing one of the greatest threats to mankind. Agriculture is a major contributor to GHG emissions, accounting for 10% - 11% of total emissions in the European Union (EU) Member States. Globally, this share is higher where the food and agriculture sectors contribute about 30% of total GHG emissions (Wolfson *et al.* 2021). The main emissions from this sector are nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>). Europe is the main pillar involved in the fight against climate change and has adopted numerous strategies and policies to this effect in order to become a climate neutral continent by 2050. Of particular importance is the

Common Agricultural Policy<sup>1</sup> (CAP) of EU. It is a set of systems and processes that contribute to sustainable development, food security and the fight against climate change. The Common Agricultural Policy was established through Treaty of Rome 1957<sup>2</sup>. Before the CAP, a Stresa Conference 1958<sup>3</sup> was organized to establish the principles of single market in the EU, the principle of community preference and the principle of financial solidarity. The Common Agricultural Policy was the answer for the challenges that appeared after the Second World War, flagging the need for increasing the production of food and supporting the international competitiveness by granting subsidies on production, which turned the European Union into an agricultural hub.

The artisan of CAP was Sicco Mansholt<sup>4</sup>, who created a plan for a common market in Europe in 1950. This idea received more support since 1958 when he became the first Commissioner for Agriculture in the European Commission, and 4 years later, in 1962, the CAP came into force. This Policy produced the first impacts in 1964 through uniform prices. On the perseverance of Mansholt, in 1968, the European Commission forwarded the “Memorandum for the Reform of Common Agricultural Policy”, known as the ‘Mansholt Plan’. This plan set out the development of farms as an essential condition for modern agriculture. The quest of farmers for subsidies led to the appearance of the supra-production phenomenon and the increase in consumption of chemicals, thus amplifying the pressure on the environment. Therefore, since 1980 the rights of farmers to secured revenues were limited depending on the maximum level of production.

In the beginning, payments under this policy were linked to production; following Ray McShary’s reform of 1992 under which compensatory payments were decoupled from production and were fixed on per hectare and per animal bases. Following the 1999 Agenda and reform of 2000, the CAP was split into Pillar I (market and direct producer support measures) and Pillar II (structural and rural development measures). Since 2003, new directions were set out through the document ‘Towards Sustainable Farming’. This document represents a mid-term review of the CAP by the European Commission (EC), whereby environmental care and rural development received increased attention. The major changes were made by the reform of Fischler in 2003, when the payments were decoupled from production. The payments were introduced basing the observance of environmental conditions, and an increased attention was paid to the sustainable rural development measures.

The latest reform of 2013 provided a fairer targets of subsidies and differentiated itself through a feature called ‘greening’, which is a component of Pillar I. Through greening, farmers are rewarded for applying the practices beneficial to the climate and the environment. Such measures include maintaining permanent grassland, diversifying crops and introducing ecological focus areas. In addition to greening, there are other mandatory environmental benefits in Pillar I, namely cross-compliance with the standards of good agricultural and environmental condition (GAEG) and statutory management requirements

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<sup>1</sup> [https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance\\_en](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_en)

<sup>2</sup> <https://www.europarl.europa.eu/about-parliament/en/in-the-past/the-parliament-and-the-treaties/treaty-of-rome>

<sup>3</sup> <https://www.cvce.eu/en/education/unit-content/-/unit/02bb76df-d066-4c08-a58a-d4686a3e68ff/7928d22e-eb5f-4e34-8f08-2f8b3c129ca1/Resourses>

<sup>4</sup> [https://european-union.europa.eu/principles-countries-history/history-eu/eu-pioneers/sicco-mansholt\\_en](https://european-union.europa.eu/principles-countries-history/history-eu/eu-pioneers/sicco-mansholt_en)

(SMR). Pillar II includes voluntary environmental measures apart from rural development measures.

## 2. Methodology

The basis of this research is the Report 21/2017 of the European Court of Auditors, a vast report drawn based on the working documents of the European Commission and its correspondence with the Member States, to which we can add the legislation in force and the many visits on the field made by the European Court of Auditors in the main general directorates of the European Commission and in five EU Member States (European Court of Auditors, 2017)<sup>5</sup>.

The intervention logic in terms of costs in relation to changes in farming practices and environmental benefits was analysed on the basis of a needs assessment, the European Commission's initial proposal and the final version of the reform for the period of 2014-2020. The needs assessment was carried out by the EC through a very comprehensive study in 2011, looking at the best policy options in terms of their contribution to environmental protection for the period of 2014-2020 and is shown in figure 3.

The following methods were used to conduct this research: analysis, synthesis, logic, comparison and graph method.

### *Analysis*

Analysis represents the main method used in this research. By this method, the authors mainly analysed the result indicators provided by the European Commission regarding the impact of greening on environment and of the budget of Common Agricultural Policy, but also the impact determined by the European Court of Auditors.

### *Synthesis*

The role of synthesis in this study is the collection of information from the specialized literature regarding the greening effects on the environmental factors and their presentation under the form of a simple and focussed study from the point of view of information transmitted.

### *Logic*

This method represents the essence of this study and targeted the determination of the intervention logic of greening by evaluating the ratio between the payments made as subsidies to the farmers, the benefits brought to the environment and the costs incurred for implementation of greening.

### *Comparison*

Due to multiple studies analysed regarding the implementation of greening, some studies performed before and after implementation, this method consists of the basis of comparison of results from the specialized literature and the exact establishment of the impact resulted by its implementation. Also, by comparison, authors presented different forms of greening proposed and adopted, and the results obtained depend on the form adopted.

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<sup>5</sup> [https://www.eca.europa.eu/Lists/ECADocuments/SR17\\_21/SR\\_GREENING\\_RO.pdf](https://www.eca.europa.eu/Lists/ECADocuments/SR17_21/SR_GREENING_RO.pdf)

### *Graph method*

The interconnection and interdependence of research methods presented in this research were supported by the graphical representation of results obtained. Graphically represented were the situation of agricultural areas in EU, the changes produced after the implementation of this agricultural policy, the various legislative proposals for implementation of greening and the stages in which greening has lost a part of its complexity and ambition.

## 3. Results and Discussion

### Cost-benefit analysis following the implementation of greening measures

A key factor behind biodiversity erosion and ecosystem degradation is agricultural intensification. It contributes equally to the climate change (Diaz *et al.*, 2019; Shukla *et al.*, 2019). In this context, Pe'er *et al.* (2019) assessed that these measures are insufficient compared to the environmental impact of agriculture. As early as 2012, Westhoek *et al.* (2012) warned that crop diversification and grassland maintenance only apply to 2% of the EU agricultural area, insufficient to achieve notable climate and environmental results. Crop diversification is considered the most ineffective measure, according to Gocht *et al.* (2017), a fact also demonstrated by Vanni and Cardillo (2013) in a study conducted in Italy.

This study identified the agricultural area in the EU that was subject to greening, the number of farms that were targeted by one or more greening requirements, as well as the average payments paid to farmers and the cost incurred by farmers for the correct implementation of greening measures. A graphical representation of the number of holdings as well as the agricultural area subject to greening are highlighted in figure 1a and 1b.

As can be seen in figure 1a, out of total 150 million hectares, which represent the total agricultural area of the European Union, 129 million hectares made the object of Common Agricultural Policy and only 110 million hectares fall under the greening measures. A remarkable thing is that out of 10.2 million agricultural farms that exist at European Union level, about 6.8 million farms make the object of CAP and only 2.4 million farms fall under the greening project. This is analysed in figure 1b (European Court of Auditors, 2017). The difference between the share of holdings and the share of agricultural area results from the exemptions for small and organic holdings, but also for those who did not fill in the payment claims.

European Commission indicators reveal that 24% of farms were targeted for greening in 2015, totalling 73% of the EU's agricultural area. A year later, this area increased to 77% (European Court of Auditors, 2017). However, these indicators contradict the studies by the JRC (cited in European Court of Auditors, 2017).

When the European Court of Auditors estimates that changes in farming practices were about 2% in 2017, the Joint Research Centre (JRC), as cited by European Court of Auditors (2017), reports changes of approximate 5% of EU agricultural area in farming practices after the first 2 years of greening was (European Court of Auditors, 2017). These changes and overlaps are shown in figure 2. As can be seen in figure 2, the total agricultural area of the European Union is covered by 60% with arable land, 34% with permanent meadows and 6% by permanent crops. The permanent crops are exempted from the application of greening process. Thus, changes were made to agricultural practices by 1.5%

for the areas occupied by permanent meadows and 4.2% for arable land. Out of total changes of 4.2% for arable land, 1.8% was observed in the crop diversification measures and 2.4% was observed by the introduction of areas of ecological interest (AEI)<sup>6</sup>. Initially, this project was larger, but they noted overlapping between the two measures: areas of ecological interest and the diversification of crops.

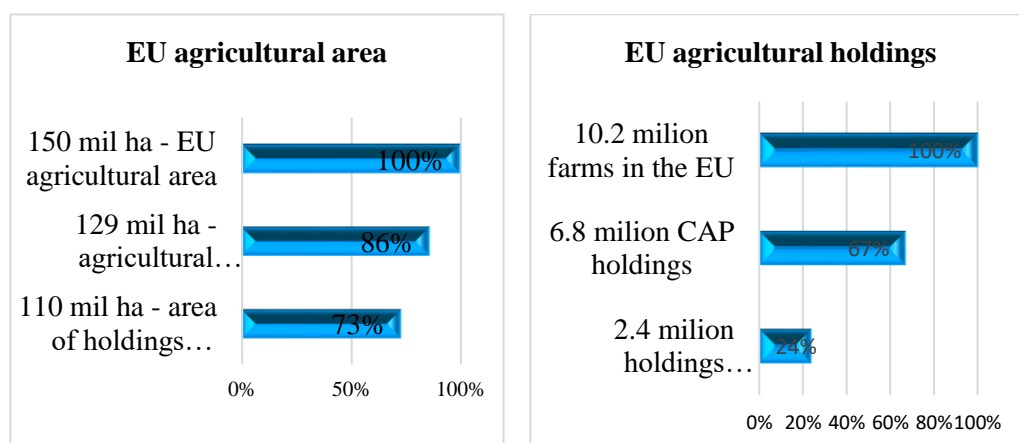


Figure 1a & 1b: Situation of farms and agricultural areas in the EU covered by greening [Source: European Court of Auditors (2017) based on the data transmitted by the European Commission]

Both the Court of Auditors and Join Research Centre, as cited by European Court of Auditors (2017), indicate 4.5% increase of the EU agricultural area under farming practices following the implementation of the three greening measures. However, these data contradict the European Commission's indicators which show an increase of 77% (European Court of Auditors, 2017). The huge difference between these two figures given by two different agencies can be explained on the basis of the way the two institutions have reported. Specifically, it depends on the calculation of the share of holdings targeted for greening in the total EU agricultural area and on the carry-over effect.

Regarding the share of targeted holdings, the European Commission, irrespective of whether a greening obligation concerns a single parcel or not, reports the area of the entire set of holdings. For example, if a farmer has 10 hectares of agricultural land (i.e., not subject to crop diversification or AEIs), of which only 1 hectare is covered by permanent grassland, the Commission considered the entire 10 hectares as being subject to greening, even though in reality only 1 hectare was subjected to greening measure, i.e. maintenance of permanent grassland.

Another negative contribution is the ballast effect, found in 4 out of 5 countries surveyed by the European Court of Auditors. Ballast effect refers to the overlap of greening with cross-compliance or management requirements. For example, in Poland, it was found that greening requirements were met before greening was introduced (hence it exceeded by 30%). Thus, in Poland, twice as many Areas of Ecological Interest (AEIs)<sup>7</sup> were identified as required by greening

<sup>6</sup> AEIs - Areas of Ecological Interest, see also

[https://www.eca.europa.eu/Lists/ECADocuments/SR17\\_21/SR\\_GREENING\\_RO.pdf](https://www.eca.europa.eu/Lists/ECADocuments/SR17_21/SR_GREENING_RO.pdf)

<sup>7</sup> [https://www.eca.europa.eu/Lists/ECADocuments/SR17\\_21/SR\\_GREENING\\_RO.pdf](https://www.eca.europa.eu/Lists/ECADocuments/SR17_21/SR_GREENING_RO.pdf)



(European Court of Auditors, 2017). The same opinion is given by Was, Majewski and Czekaj (2014) who consider that the majority of farms meet these requirements even before the application of the measures submitted for greening purpose.

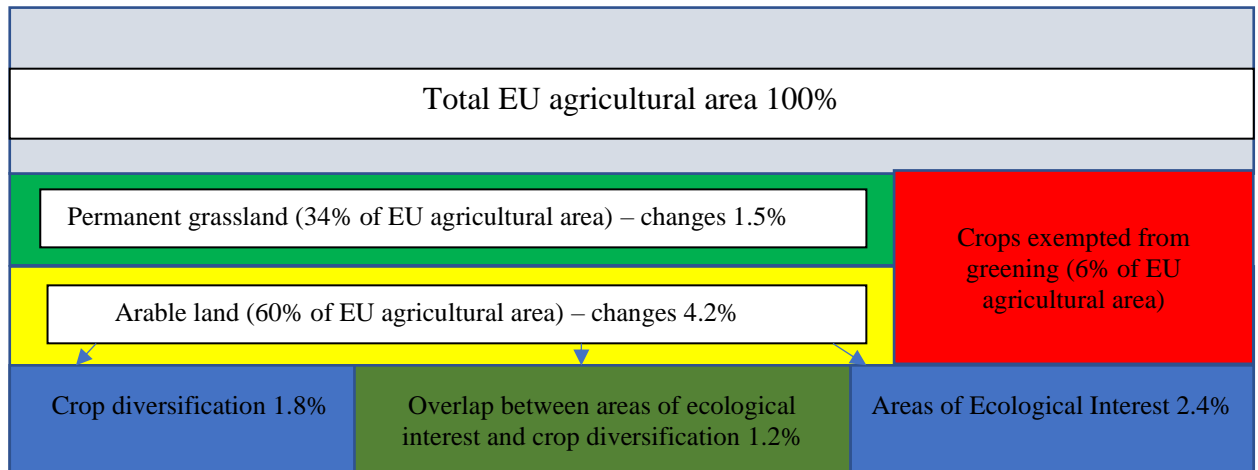


Figure 2: Changes in farming practices as a result of greening over the period of 2015-2017 [Source: European Court of Auditors (2017)]

The significantly reduced percentage of changes is also because the farms are considered green by definition and some are exempted from greening criteria. This category of farm holders includes small farmers, organic farms and farms with permanent crops. Farms with less than 10 ha of arable land are also exempted from crop diversification, and the introduction of green areas is for farms with more than 15 ha of arable land. The European Commission accepts these results, and, in explaining this, it also considers the maintenance of existing farming practices as a performance towards greening. According to Solazzo and Pierangeli (2016), changes in practices following the application of greening can be attributed mainly to farms in lowland areas. Cimino, Henke and Vanni (2015) claim that these changes are mainly found in farms specialised on monoculture. This fact is also supported by Helming and Tabeau (2018).

Research by Louhichi *et al.* (2018) demonstrate the reduced environmental benefits of greening. Similar studies showing reduced improvements in environmental indicators indicated the same (Cortignani, Severini and Dono, 2017; Solazzo, Donati and Arfini, 2015). A slight reduction in GHG emissions is observed in northern Italy, on an average by 0.2% (Gocht *et al.*, 2017). This is also confirmed by Solazzo *et al.* (2016), who showed a decrease of 2% for CO<sub>2</sub>, of 2.1% for NO<sub>2</sub> and of 0.4% for CH<sub>4</sub>. Likewise, Pelikan, Britz and Hertel (2015) showed a 1.8% reduction in EU GHG emissions from greening. Other authors have also identified contributions of greening in reducing GHGs or improving soil structure (Walker *et al.*, 2018; Cortignani and Dono, 2015). However, some authors have concluded that the cost-benefit ratio for these measures is unfair (Pe'er *et al.*, 2017). Even if these environmental benefits are small, Ciliberti and Frascarelli (2015) are of the opinion that these policies can be a bridge to the next reform.

Poor climate outcomes are accompanied by similar outcomes in biodiversity. Brown *et al.* (2020) state in their study that common agricultural practices have

failed to maintain farmland biodiversity despite massive investments in greening subsidies. For example, between 1990 and 2020, bird and butterfly populations declined by 30%. The results provided by the European Court of Auditors in their report on biodiversity on arable land demonstrate that the CAP has not halted the decline of biodiversity on arable land (European Court of Auditors, 2020). The studies do not seek to highlight the inefficiency of the measures, but their reduced effectiveness (Gocht *et al.*, 2017). In the view of Galán *et al.* (2015), greening needs to be rethought in order to achieve its environmental and climate targets.

Despite the reduced environmental benefits of implementing greening measures, the value of payments is very substantial. Payments to beneficiaries average €80/ha, while the costs of implementing greening are estimated to average €25-30/ha (European Court of Auditors, 2017). Therefore, the ratio between the subsidies offered to farmers by the implementation of greening and the expenses related to its implementation is unjustified. Thus, even if its purpose was to bring a higher complexity to the Common Agricultural Policy and to reward the farmers for the supply of green public goods, the greening remains, in essence, a payment scheme for enhancing incomes.

According to the JRC, quoted by the European Court of Auditors (2017), 71% of those targeted by at least one greening measure incurred no additional costs for implementation, while 29% of the remaining farmers incurred costs between €10 and €25 per ha. Of the farmers receiving subsidies for the implementation of greening, however, 2% incurred costs exceeding the subsidies, namely farms specialised in vegetable production. These activities generate high income. Similar results were obtained by Arfini, Donati and Solazzo (2013) in Italy, reporting an average expenditure of €21 per ha for the implementation of greening. The results provided by these authors may have a margin of error depending on the area analysed or the research model used in the study. The Court of Auditors answered all the questions in its 21/2017 report and concluded that greening is an ineffective scheme in terms of environmental benefits; the targets are not ambitious enough and are more of a direct payment to farmers, as most farms already met these requirements in the past (European Court of Auditors, 2017).

Referring to the changes brought about by the implementation of greening and the applicability of the measures provided for by it, also according to Majewski and Malak-Rawlikowska (2018), greening is not a complementary measure to the requirements of cross-compliance or environmental and climate measures, but a competing measure, in some cases overlapping with them. Instead, a notable performance of greening can be seen as banning the use of pesticides within areas of ecological interest, leading to a positive impact on biodiversity and the environment in general, including resource use.

The reduced benefits of greening are directly proportional to the legislative ambition of this reform. As can be seen in figure 3, the original proposal of the greening reform was much more ambitious than the version adopted and implemented during the period of 2014-2020. This is also supported by Vanni and Cordillo (2013). Concrete results are delivered by Solazzo *et al.* (2016), who show in a study the possibility of greenhouse gas reductions by 5% in case of adoption of the initial proposal, and reductions of only 1.5% for the properly implemented and enforced variant during the period of 2014-2020.

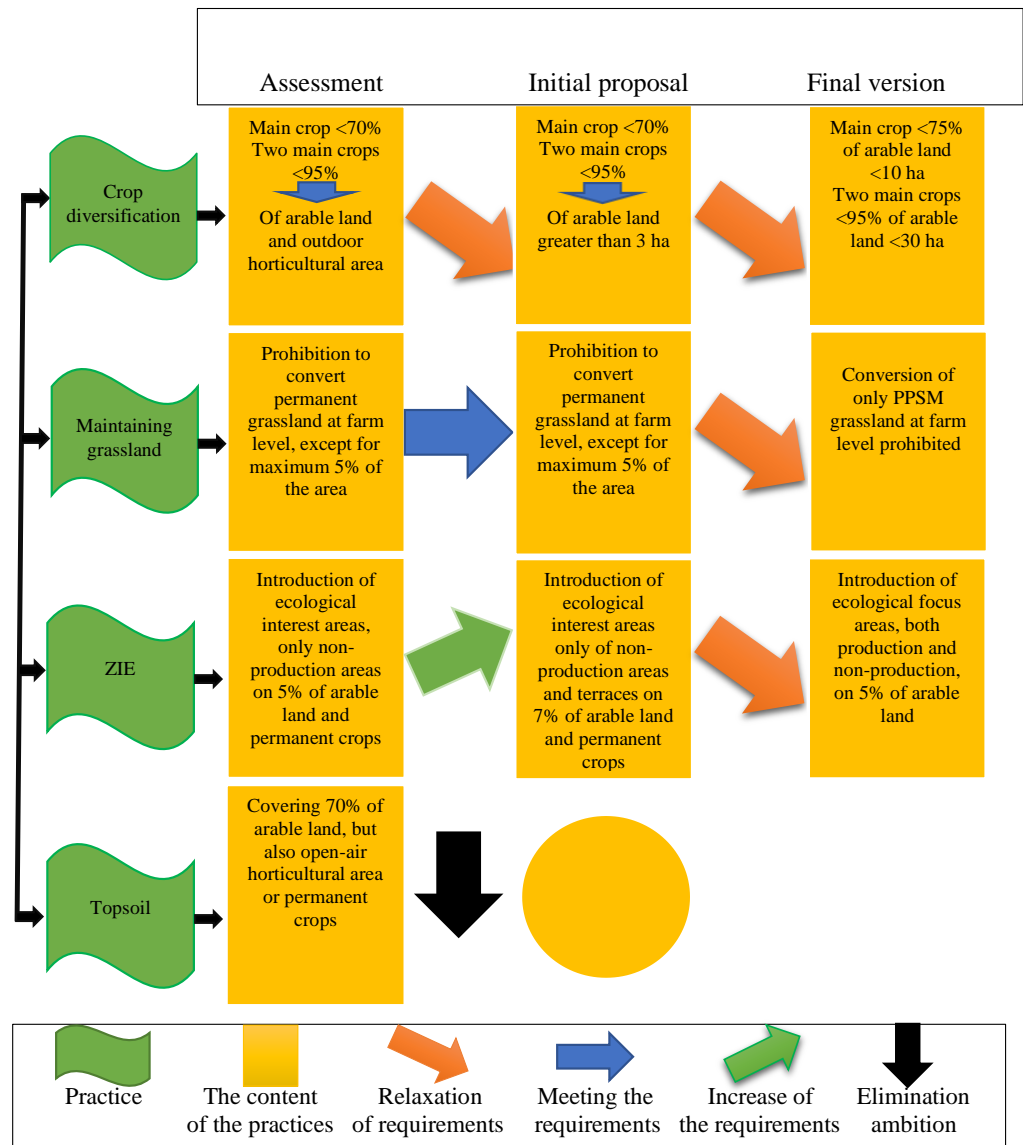


Figure 3: Preliminary greening assessment, EC initial proposal and final form of greening adopted by the co-legislators for 2014-2020 [Source: European Court of Auditors (2017), according to legislation and impact assessment made in 2011 by the European Commission and according to the legislative proposal.]

In the case of maintaining permanent grassland, the starting point was to prohibit the conversion of all permanent grasslands to arable lands, except for a maximum of 5%. In the end, this measure is only applied to environmentally sensitive permanent grasslands (ESPG)<sup>8</sup>. Given that environmentally sensitive permanent grasslands cover 18% of the EU agricultural area and 96% of ESPG are located in Natura 2000 sites and subject to certain environmental rules, the climate and environmental benefits are roughly the same after greening. The ambition was also high in the original reform proposal for areas of environmental interest. The original requirements were to include non-productive nature

<sup>8</sup> <https://circabc.europa.eu/sd/a/981ee0af-d1e3-49a1-b770-02e29f7d45ab/Doc%20NADEG%2017-11-06%20Environmentally%20Sensitive%20Permanent%20Grasslands.docx>



conservation areas existing on 7% of the arable land or the area under permanent crops, but the legislation adopted also includes productive nature conservation areas, though only 5% and only on arable land. This measure can have high biodiversity benefits when choosing non-productive nature conservation areas, but lower benefits when choosing productive nature conservation areas.

Weakening the greening ambition during the legislative process leads to the continuation of income support without any particular environmental significance (Czekaj, Majewski and Was, 2013; Mahy *et al.*, 2015). By implementing greening in the adopted form, no remarkable environmental results can be achieved because there are no point targets and they are not ambitious enough (Diotallevi *et al.*, 2015; Kirchner, Schönhart and Schmid, 2016; Louhichi *et al.*, 2018).

For greening to bring considerable benefits, investment in research is needed to identify and adopt the most effective measures through the Common Agricultural Policy (Singh, Marchis and Capri 2014). The lack of linkage of policy decisions with research in the latest reform is reflected in the absence of binding measures such as greening in the livestock sector as well. This sector is a large generator of greenhouse gases and environmental actions in this regard need to be applied at source. The agro-ecological approach can be a key factor in reducing fertilisers and pesticides, and preserving biodiversity, which is a primary objective for the next reform guided by the principles of the European Green Pact<sup>9</sup> (Maxim, 2019).

### A new green architecture during the period of 2021-2027

With the experience of the reform that has just ended in 2020, a new reform is needed that retains the strengths of the past, but also makes further improvements. The future Common Agricultural Policy for the period of 2021-2027 continues to build on the two pillars and proposes a new green architecture with even more emphasis on agro-ecological practices. Cross-compliance and greening, components of Pillar I, will merge into a new system called cross-compliance, plus new environmental eco-schemes. Pillar II, as in the past, will include voluntary environmental measures as well as rural development measures.

The new reform aims at greener farming with fewer pesticides, protection of wetlands and peatlands, more organic farmland, and the implementation of new environmental eco-schemes. Under the new requirements, agroecology will be the basis for implementing the new policies, and each farm will allocate 3% of its arable land to biodiversity areas, ensuring that farmers can be rewarded for reaching the 7% threshold.<sup>10</sup>

Following the model of the recently concluded reform, the requirements of the original proposal put forward by the European Commission for the forthcoming reform, as well as the budget, were substantially reduced during the legislative process. It was also proposed to reduce cumulative subsidies for various measures and paid from the CAP budget (€60,000- €100,000 per farm), which would have avoided over-funding of large farms.<sup>11</sup> This measure was subsequently

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<sup>9</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

<sup>10</sup> In this case, these are proposals from the European Commission, and nothing is approved. There are discussions for the new common agricultural policy. Each Member State will draw up a national strategic plan.

<sup>11</sup> In this case, these are proposals from the European Commission, and nothing is approved. There are discussions for the new common agricultural policy. Each Member State will draw up a national strategic plan. It was a proposal that was abandoned.

dropped. Thus, there is still a risk of small farms disappearing, in addition to the 4 million small farms that have disappeared in the last 10 years due to the misapplication of agricultural policies.

The final version of the legislative proposal accepted by the co-legislators foresees that 20% of direct payments during the period of 2023-2024 and 25% between 2025 and 2027 will be allocated to eco-schemes and at least 35% of Pillar II will be directed to environmental and climate measures.<sup>12</sup>

For the implementation of the next reform, each Member State will create a National Strategic Plan (NSP). This will be drawn up after consultation with the country's farmers, in line with the objectives proposed by the European Green Deal 2030, the EU Biodiversity Strategy 2030<sup>13</sup> and the Farm to Fork Strategy<sup>14</sup>. This plan will enter into force after its submission to and approval by the European Commission, with a transition period between 2021 and 2023. The implementation of the whole reform will take place during the period of 2023-2027.

#### 4. Conclusions

The latest reform of the Common Agricultural Policy has tried to put a strong emphasis on environmental protection by introducing greening and has been running over the period of 2014-2020. At the end of it, the European Commission delivers high results showing a greening coverage of 73% of the EU agricultural area after the 1st year of implementation, and after 2nd year it increases to 77%. The Commission's result indicators are at odds with the parallel studies. While the European Court of Auditors estimates changes in farming practices of around 2% only, the Joint Research Centre reports the changes of 4.5%. The changes reported by the Joint Research Centre are bifurcated as 1.8% for crop diversification, 2.4% for ecological focus areas and 1.5% for permanent grassland. The difference of 1.2% is due to overlaps between the three measures. The discrepancy between the data provided by the European Court of Auditors and Joint Research Centre is due either to different survey methods or to the areas surveyed. Contrary to the low efficiency of greening, the payments made are on an average 80 €/ha while the costs incurred for implementing greening are on an average 25-30 €/ha. Moreover, 71% of farmers incurred no additional costs for implementing greening.

Due to the lack of linking policy decisions with research in the adoption of Common Agricultural Policy, we are now in a situation where 80% of subsidies go to 20% of beneficiaries, 4 million small farms have disappeared in the last 10 years, and half of Europe's agricultural land is owned by 3% of farmers. In contrast to these losses, problems still persist and the progress on environmental and climate indicators is quite slow.

Ambitions in agriculture to care for the environment and climate should be realised through the new architecture of merging cross-compliance and greening into a system called cross-compliance, to which the new eco-schemes and other

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<sup>12</sup> It is a minimum percentage that must be allocated. Each Member State will decide how to do this. There are discussions for the new common agricultural policy. This aspect will be the subject of future research, after the creation of national strategic plans.

<sup>13</sup> [https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030\\_en#:~:text=The%20EU's%20biodiversity%20strategy%20for,contains%20specific%20actions%20and%20commitments.](https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en#:~:text=The%20EU's%20biodiversity%20strategy%20for,contains%20specific%20actions%20and%20commitments.)

<sup>14</sup> [https://ec.europa.eu/food/system/files/2020-05/f2f\\_action-plan\\_2020\\_strategy-info\\_en.pdf](https://ec.europa.eu/food/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf)

climate and environment-friendly measures will be added. The European Green Deal aims to reduce the use of pesticides by 50%, fertilisers by 20% and antimicrobials by 20% by 2030. Another major goal is to have 25% of the EU's agricultural area farmed organically. Analysing these targets against the measures outlined, it is highly unlikely that these targets will be met, as the new green architecture is left to Member States, who, with the experience of previous reform, will offer farmers menu-style measures. The new reform will take effect from 2023 because the new measures and eco-schemes are not finalised.

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## Author' Declarations and Essential Ethical Compliances

### *Authors' Contributions (in accordance with ICMJE criteria for authorship)*

Contribution	Author 1	Author 2	Author 3
Conceived and designed the research or analysis	Yes	Yes	Yes
Collected the data	Yes	Yes	Yes
Contributed to data analysis & interpretation	Yes	No	Yes
Wrote the article/paper	Yes	No	No
Critical revision of the article/paper	Yes	No	No
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During the research, the authors followed the principles of the Convention on Biological Diversity and the Convention on the Trade in Endangered Species of Wild Fauna and Flora. Yes

### *Research on Indigenous Peoples and/or Traditional Knowledge*

Has this research involved Indigenous Peoples as participants or respondents?  
No

### *(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)*

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### *Competing Interests/Conflict of Interest*

Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript. No

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