Greening – Anything but green paint?

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***Abstract* - In autumn 2013 finally the European institutions achieved a consensus regarding the implementation of the Common Agricultural Policy (CAP) from 2014 onward. The so called "greening" of the 1st pillar payments was one of the highly debated issues. The greening is intended to improve the environmental performance of the CAP. It consists of three compulsory elements: crop diversification, protection of grasslands, and establishment of ecological focus areas. The paper analyses the likely consequences on the potential of farmland biodiversity of the greening for German agriculture. We use remote sensing and farm level data to assess the implications. We conclude that given the national implementation, as discussed in spring 2014, the greening will barely have an impact on agriculture.**

Introduction

It is well acknowledged that Europe's farmland biodiversity is under pressure. This is indicated by the continuous downward trends of the farm land bird index (Eurostat, 2013) or the grassland butterfly indicator (EEA, 2013). This decline is largely attributed to the on-going intensification of agricultural production throughout Europe (e.g. Donald et al., 2001).

The new CAP (EU/1307/2013) (DP-Regulation) introduces the so-called greening as a new instrument to improve its environmental performance. The Member States must reserve 30% of their national ceiling for this instrument. Farmers receive only the full amount of payments if they respect the following three different obligations: A minimum crop diversification, the maintenance of grassland and the establishment of ecological focus areas (EFA). The intention of these obligations is to have a set of measures which is easily applicable for farmers and administrations throughout Europe and has some climate and environmental benefits.

The following paragraph depicts the greening obligations in a stylized manner. With respect to crop diversification the share of a single crop must not exceed 75% of the farm's arable area and the combination of any two arable crops must be less than 95% of the respective area. Farmers must provide a share of land as EFAs which is equivalent to at least 5% of their arable land. The calculation of these shares might take into account weighting factors which differ between different types of EFAs. The obligation to maintain grassland consists of two obligations. First, so-called environmental sensitive grassland must not be ploughed, even for re-seeding. Second, the share of grassland within a designated area must not decline beyond 5%.

In the following paper we analyse which implications these obligations have for Germany's agricultural sector. In particular we are interested in the following questions: How many farms are affected by the specific obligations? How large is the area for which some adaptation of the management can be anticipated? Can a significant impact on farmland biodiversiy be expected?

Material and Methods

This paper is based on the analysis of the relevant legal documents at EU-level (EU/1307/2013, COM (C(2014) 1476 final)) for direct payments (DP) and the state of discussion regarding the national implementation of this regulation in Germany in spring 2014.

With the help of the Central IACS (Integrated Accounting and Control System) database we determine for each single German farmer whether and how he would be affected by the greening. The Central IACS database stores the land-use data of all farms applying for agricultural support payments in Germany. The analysis is based on the data from the year 2012. This data set was sufficient for the analysis of the implications of the crop diversification and the grassland conservation requirement.

To assess the effects of EFA we opted for a different approach and aggregated the data at municipality level. This was due to two reasons. First, most existing landscape elements (i.e. hegdes, field margin, ditches,…) are not explicitly recorded in IACS. Second, the precondition that landscape elements are accounted as EFA is that they are located adjacent to arable land. However, the arable land and the adjacent EFA need not to have the same proprietor. For this analysis, we assess the extent existing landscape elements situated within or adjacent to arable fields using the digital landscape model (BKG, 2013). These areas would be eligible as EFA but are up-to-now frequently not recorded in the IACS. Second, we determine the extent and distribution of the cultivation of catch crops and green cover from the Agricultural Census of 2010 (FDZ, 2013). We linked these two data sets on the municipality level.

Results

The DP-regulation exempts several types of farms from the greening obligation. Small farms (according to Art. 61) and organic farms are defined as Green-

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by-definition. Furthermore, farms cultivating only permanent crops or less than 10 ha of arable land and no grassland are de-facto exempted from the greening obligation, as not a single obligation is applicable to them. As a consequence nearly a quarter of the German farms do not have to fulfil any greening obligations (Table 1). These farms manage roughly 7% of the German utilised agricultural area (UAA). With respect to the area the organic farms are by far the most important group.

Table 1. Number of farms and cultivated area exempted from the greening obligations.

	UAA (in 10^6 ha)	Farms (in 1'000)
Total	16.68	321.9
Small farms (Art. 61)	0.11	47.3
Organic farms	1.03	22.9
De facto exempted	0.05	8.1

About 8% of the farms do not comply with the obligation due to the crop diversification requirement. These farms must adjust their land-use on 125.000 ha or 1% of Germany's arable land. The farms affected by this regulation are frequently arable forage cropping or intensive cash cropping farms. These farms often have high share of maize as feedstock for dairy cattle or biomethane digesters or wheat in their crop rotation.

With respect to the provision of EFA the existing regional endowment is generally more than sufficient to fulfil the obligation. An equivalent of about 12% of the German arable land can be classified as EFA if all options for their implementation are used, calculated with the default weighting factors (Table 2). This exceeds clearly the requirement of 5% of the arable land.

Table 2. Area of existing ecological focus areas (EFA) (in 1'000 ha).

	real	weighted	(of arable land)
Fallow	214.6	214.6	1.8%
Hedges & Buffer Stripes	106.6	177.6	1.5%
Other Field margins	79.7	119.5	1.0%
Catch Crops/Green cover	1'228.5	386.6	3.3%
Grain legumes	74.7	52.9	0.4%
Other Legumes (clover/clover mixtures)	634.2	462.1	3.9%
Total			11.9%

Catch crops and other Legumes, two types of land uses with limited biodiversity value, contribute strongly to the provision of EFA.

If all grassland within Natura 2000 areas are considered to be environmental sensitive ploughing would be banned on 18% of the German grassland. Regarding the allowed decline of the regional grassland share the proposed limits are in the magnitude of the historic trend.

Conclusion

We expect that the greening will have barely an effect on the agricultural land use in Germany. For this reason we do not anticipate any positive impact on biodiversity.

With respect to crop diversification and the preservation of the regional grassland share the greening obligations are largely equivalent to the state-of-the-art or the current legal situation. EFA could be a reasonable instrument to improve the provision of biodiversity in agriculturally used landscapes. However, if a wide range of options is available to the farmers, the additional provision of EFA will be limited. The existing regulation may even lead negative effects on biodiversity. These negative effects can be traced back to two loopholes a) EFA (might include areas cultivated with clover) can be established on recently converted grassland and b) only landscape elements adjacent to arable land count as EFA. This last requirement induces an incentive to convert grasslands next to landscape elements.

Looking at the sanctioning algorithm we expect that the greening will not capable to effectively protect grasslands if the European regulations are supported by regional regulative law (Schmidt et. al, 2014). According to the proposal for the delegated act the conversion of grassland to arable land will lead to reduction in the direct payment of less than 190 € per ha.

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