THE EFFECTS OF CAP GREENING ON ITALIAN AGRICULTURE

JEL classification: Q18, Q24, Q58

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Abstract. *The greening of direct payments has been introduced into the first pillar of the CAP post-2013 with the objective of promoting sustainable agricultural practices more effectively through simple, generalised, non-contractual and annual actions that go beyond cross-compliance. The main objective of this article is to analyse the effects of this new policy instrument on Italian agriculture by evaluating, through the data from the 6th Agricultural Census of ISTAT, the number of farms and the areas potentially affected by these new environmental obligations. Even though the analysis is mainly focused on the greening obligations as have been agreed in the final regulation on direct payments, the article also looks at the main differences, in terms of farms and areas covered, between the final version of the greening measures and the environmental requirements as were proposed by the European Commission in 2011. The article shows that, in its final form, the greening has considerably diminished its potential in promoting sustainable practices on a large scale, since it will affect quite a small percentage of holdings concentrated in specific areas. This is particularly evident in Italy, where arable land is very fragmented and where the average size of farm is well below the thresholds established for the greening requirements. By starting from the Italian case, the article provides a critical discussion on the future CAP and on the main difficulties of implementing a coherent agri-environmental strategy through the direct payments of the first pillar.*

Keywords: *CAP, greening, Italy, arable farming, agri-environment.*

1. Introduction

During recent years the academic and institutional debate on the CAP has been strongly focused on the effectiveness of this policy in providing agri-environmental public goods on the required scale (see Cooper *et al.*, 2009; Hart *et al.*, 2011; Zahrnt, 2009). In particular, the majority of studies and position papers have acknowledged that, in order to increase their legitimacy and to meet the expectations of European citizens, direct payments of the first pillar of the CAP needed to be strongly re-oriented towards the provision of agri-environmental public goods. As a result of this debate, in 2011 the European Commission launched a legislative proposal for the future programming period of the CAP (2014-2020) where it was proposed to assign 30% of the national envelopes of direct payments to mandatory measures beneficial to climate and the environment. These measures, known as *greening*, have been amongst the most controversial aspects of the negotiations of the CAP post-2013, since they originated a very animated debate regarding both the environmental and the economic effectiveness of the proposed measures.

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The most criticised issues were related to the possible effects of greening on the competitiveness of European farms, and since then several alternatives have been proposed in order better to reconcile the environmental objectives with the market objectives and food security (Hart and Little, 2012; Matthews, 2012). In the context of this debate, the majority of Member States and the main producers' organisations proposed several amendments to the initial proposal, with the main purpose of reducing the economic impacts of greening and its effects on farming practices and on farmers' production choices. These changes were largely included in the final regulation on direct payments (European Parliament and Council of the European Union, 2013) which, compared to the initial European Commission proposal, includes much more flexible and lighter greening obligations.

The main objective of this article is to analyse the effects of greening in Italy in terms of areas and farms potentially affected by these new environmental obligations. Even though the analysis is mainly focused on the greening obligations as they appear in the final agreement, the article also looks at the main differences, in terms of farms and areas covered, between the final version of these measures and the environmental requirements as were proposed by the European Commission in 2011.

The paper is structured in five parts. After a short description of the greening of the future CAP, together with a brief overview of the related debate at Italian level (section 2), section 3 provides a short description of the article's objectives and methodology. The simulations on the number of Italian farms and on the related areas that are likely to be covered by the greening requirements are presented in section 4. By starting from the Italian case, section 5 provides a critical discussion on the main limitations of this agro-environmental strategy, also in the light of the overall structure of the CAP post-2013. As discussed in the conclusions (section 6), it is likely that the greening of direct payments, in its current form, will affect the farming practices of a limited number of European holdings and, for this reason, it is likely that it will not deliver the expected environmental benefits.

2. The greening of direct payments

One of the main objectives of the new CAP is increasing the provision of environmental public goods associated with agriculture. Among the policy tools that have been proposed to achieve this goal, the greening of direct payments plays a central role, since through a mandatory "greening" component of direct payments, the CAP aims at promoting both climate and environment policy goals on a larger scale compared to the voluntary agri-environmental measures (Povellato, 2012). Indeed, through the greening of direct payments, the CAP aims at promoting simple, generalised, non-contractual and annual actions that go beyond cross-compliance. At the same time, the new greening requirements follow the same approach as cross-compliance, which is based on a mechanism of "exchange" between the direct payments of the first pillar and selected environmental standards. These environmental rules will apply from January 2015 to farmers who are entitled to receive direct payments, and failure to comply with greening requirements may affect up to 125% of the share of green payments received by farmers. In order to finance the green payments, Member States will use 30% of their annual national ceilings.

The regulation provides exemptions for the area of farms cultivated with (certified) organic methods and also for farms that have opted for the small farms scheme. In addition, farmers who

adopt practices covered by agri-environment-climate measures or certification schemes that are similar to greening and that yield an equivalent or higher level of benefit for the climate and the environment are also exempted from the greening rules.

In greater detail, the greening of direct payments is structured in three environmental requirements[1]:

- *Crop diversification*. This requirement applies only to arable land exceeding 10 hectares and involves the presence of at least 2 crops on arable land between 10 and 30 hectares (with the main crop which cannot cover more than 75% of that arable land), and the presence of at least 3 crops on arable land exceeding 30 hectares (with the main crop that cannot cover more than 75% and the two main crops together cannot cover more than 95% of that arable land)[2];
- *Permanent grassland.* The ratio of the land under permanent grassland and the total agricultural land cannot decrease by more than 5% compared to a reference ratio which is to be established by Member States in 2015. Member States may decide to apply this obligation at national, regional or sub-regional level. Furthermore, they have to designate environmentally sensitive permanent grassland in areas covered by the Directives on the conservation of the natural habitats (Council Directive 92/43/EEC) and on the conservation of wild birds (Council Directive 2009/147/EC);
- *Ecological focus area*. This requirement is applied only to farms with at least 15 hectares of arable land. These farms must ensure an ecological focus area corresponding to at least 5% of the arable land[3]. The following land uses can be considered as ecological focus area: fallow land, terraces, landscape features, buffer strips, areas with short rotation coppice with no use of chemical products, afforested areas, areas with catch crops and areas with nitrogen fixing crops[4]. Member States may decide to implement up to 50% of the ecological focus area at regional level in order to obtain adjacent ecological focus areas and may also decide to permit farmers whose holdings are in close proximity to fulfil this obligation on the basis of a collective implementation.

Important details regarding the equivalent measures, the exemptions and the types of landscape features that can contribute towards the EFA areas will be contained in implementation rules and the delegated acts to be supplied by the Commission. These rules will be a crucial step for evaluating the effective environmental role of the greening measures. At the same time it is also evident that the environmental requirements as approved in the final Regulation differ to a large extent compared to those defined by the European Commission in 2011. This proposal comprised much more stringent measures, such as the application of crop diversification on farms with arable land of more than 3 hectares, the obligation for the maintenance of permanent grassland at farm level and the introduction of ecological focus areas on 7% of all agricultural

[1] For full details on these rules, see Chapter 3, articles 43-37 of the Reg. (EU) No 1307/2013 (European Parliament and Council of the European Union, 2013).

[2] This requirement does not apply where more than 75% of the eligible agricultural area is permanent grassland, used for the production of grasses or other herbaceous forage or crops under water or a combination of these uses, provided the arable area not covered by these uses does not exceed 30 hectares.

[3] In 2017, the Commission will present an evaluation report on the implementation of this requirement and the threshold could be increased from 5% to 7% as the result of a legislative act of the European Parliament and the Council.

[4] This requirement is not applied even where more than 75% of the eligible agricultural area is permanent grassland, used for the production of grasses or other herbaceous forage or cultivated with crops under water for a significant part of the year and where more than 75% of the arable land is used for production of grasses or other herbaceous forage, land lying fallow, cultivated with leguminous crops or a combination of these uses. The requirement is, however, applied in cases where the arable area not covered by these uses would exceed 30 hectares.

area, excluding permanent grassland. These requirements were widely criticised, especially by the main farmers' association (Copa-Cogeca, 2012) and by several Member States, since they were particularly concerned about the negative effects of greening on the competitiveness of the EU agricultural sector. More precisely, the main concerns were related to the reduction of farmers' production capacity, to the increase of production costs and the monitoring and enforcement costs of the new environmental obligations (Matthews, 2012; 2013).

The introduction of green payments has been a very much disputed issue also in Italy where, with the exception of the environmental organisations, all the national stakeholders involved in the debate agreed that the environmental obligations, especially those proposed by the European Commission in 2011, would have had a strong negative economic impact on Italian agriculture. This argument was based on the evidence that the Italian agricultural system, similarly to those of other Mediterranean countries, is characterised by small size and specialised farms (usually with permanent crops), where the availability and the productivity of land is a key factor for their economic sustainability. Nevertheless, recent analyses on the economic impacts of greening in Italy show a considerable variation amongst the different areas of the country and, above all, amongst the different types of crops (Arfini *et al.*, 2013; Vanni *et al.*, 2013). In general terms, these studies demonstrate that the economic effects of greening differ to a large extent according to the structural characteristics of the farms and the various territorial specificities.

Concerning the effects of greening measures in terms of the area and farms potentially involved, an initial assessment was carried out by Povellato and Longhitano (2011), who analysed the impact of the European Commission proposal by using the data of the Italian Institute of Statistics (ISTAT) survey on farm structure and production (FSS), referred to 2007. With regard to the impact of crop diversification on agricultural land, the results of this study show that about 4,6 million hectares would have been subjected to this measure of which 2 million hectares were cultivated with only one or two crops, with more than 190.000 farms involved. Moreover, the authors show that in Italy the presence of ecological focus areas is concentrated in 185.000 farms, which correspond to almost 2 million hectares.

As will be described in detail in the next section, the analysis presented in this article aims at up-dating the calculations currently available on the impact of greening on Italian agriculture (Povellato and Longhitano, 2011; Povellato, 2012), with the purpose of looking in more detail at the effects expected to derive from the new thresholds and exemptions as agreed in the final regulation of direct payments.

3. Objectives and methodology

The main objective of this article is to estimate the number of farms potentially affected by the greening requirements in Italy, as well as to identify the relative areas covered and their location. In order to achieve this goal, the data collected in the 6° national Census of Agriculture (ISTAT, 2010) were used, with an initial database composed of the micro-data regarding all the Italian holdings registered in this Census (1.620.884 units).

In order to estimate the farms and the areas potentially affected by the crop diversification requirement, organic farms (farms with all the agricultural area under organic) and farms with less than 10 hectares of arable land were excluded. The following step was calculating the percentage of land under different crops on the remaining farms, in order to exclude farms that had more

than the 75% of their agricultural area under permanent grassland, with crops under water, with fallow land or with a combination of these uses.

Finally, in order to identify more carefully the farms that will have to change their current practices as a result of the crop diversification measure, the remaining farms were split up in two groups: (i) farms with between 10 and 30 ha of arable land and (ii) farms with more than 30 ha of arable land. We then identified: (a) the number of farms (and the related arable land) of group (i) either cultivating only one crop or cultivating two or more crops but with the main crop covering more than 75% of the arable land; (b) the number of farms (and the related arable land) of group (ii) cultivating either less than three crops or cultivating three or more crops but with the main crop covering more than the 75% of the arable land. The number of farms (and the arable land) potentially affected by the crop diversification requirement were estimated on the basis of these groups of farms (a+b).

With regard to the estimation of farms potentially affected by the second greening requirement, we selected, amongst all Italian farms, those with permanent grassland and meadows, excluding the farms with all the agricultural area cultivated by organic methods.

Finally, as regards the introduction of Ecological Focus Areas, the first steps were similar to those of crop diversification, excluding the organic farms (farms with all the agricultural area under organic) and farms with less than 15 hectares of arable land. Amongst the remaining holdings, farms with more than 75% of their agricultural area under permanent grassland, with crops under water, with fallow land or with a combination of these uses were also excluded. In order to estimate, amongst the remaining farms, the land that can already qualify for EFA, we used the percentage of fallow land. In detail, the number of farms (and the arable land) potentially affected by the introduction of the EFA were estimated by adding the two following groups of farms: (a) farms without fallow land; (b) farms with a quota of fallow land lower than 5% of the arable land.

The use of micro-data also allowed us to cross-check the data, in order to estimate the number of farms that would be potentially affected by a single requirement or by a combination of two requirements: crop diversification and EFA. The requirement "maintenance of permanent grasslands" was not crossed with the other requirements because, as will be discussed later, it is likely that this measure will be applied at regional or national level and not at farm level.

In order to estimate the potential impacts of the greening requirements as were conceived by the European Commission proposal in 2011, the methodology described above was repeated. The main differences compared to simulation regarding the final regulation on direct payments are:

– crop diversification: a threshold of 3 ha of arable land was applied (instead of 10 ha); the number of farms (and the arable land) potentially affected by the crop diversification requirement was estimated by identifying the farms either with less than three crops or with three crops but with the main crop covering more than 70% of the arable land;
– EFA: all farms were included (instead of farms with more than 15 ha of arable land); the quota of EFA to be introduced was 7% of the agricultural area excluding permanent grasslands (instead of 5% of arable land).

Before discussing the results of these simulations, it is necessary to recognise the main limitations of this methodology, which may be synthesised in three main points.

First, the main limitation is due to the fact that, using the data from the Agricultural Census, all farms are considered, while the greening measures will involve only holdings receiving direct payments. In this regard, a more accurate analysis could be carried out by using the data from the national payment agency (AGEA). At the same time, while the simulation through ISTAT

data can over-estimate the number of farms subjected to the greening, it is likely that almost all farms analysed here (arable farms with more than 10/15 ha of arable land) are receiving direct payments from the CAP first pillar.

Second, the calculations only estimate the number of farms and the areas potentially affected by single requirement using a binary measure: each farm either complies with the single requirement or it does not. By using this approximation of course it is not possible to observe the different degree of non-compliance of farms with the new rules, while the required changes in farming practices will be very much influenced by the current farming practices. A more exhaustive estimation of the overall impacts of greening should also consider how far the current farming practices of farms are from the greening requirements.

Third, the calculation regarding the introduction of the EFAs was carried out using fallow land as proxy for EFA. We are aware that using only fallow land to estimate the number of the farms potentially affected by this requirement might lead to underestimation of the number of farms already complying with the requirement, since in many areas the presence of other land uses that qualify for EFA (such as terraces and other landscape features) is also relevant. At the same time all these land use areas are particularly present in the medium and small farms located in hills and in mountain areas, while fallow land may be considered a good proxy for arable land in the plains, where the larger farms are located and where the major impacts of the requirement are expected.

4. The effects of greening obligations in Italy

According to our calculations, the crop diversification requirement would affect only 3,8% of Italian farms (about 61.000 units), corresponding to approximately 1,9 million hectares of arable land (27,8% of the total) (Table 1). The small number of farms potentially affected by this obligation is mainly due to the application of the minimum threshold of 10 hectares of arable land, since only 9,7% of Italian farms (157.000 units) satisfy this requirement. From this quota of agricultural holdings it was also necessary to exclude all the farm typologies that are exempted from the crop diversification requirement, namely organic farms[5] and farms with more than 75% of land under permanent grassland, under other herbaceous forage crops, under water or under a combination of these uses. Amongst the remaining 135.710 farms, almost 75.000 were also excluded since they were already meeting the criteria of crop diversification[6]. As can be observed in the table, two thirds of the farms that are likely to be subjected to crop diversification have an arable land of between 10 and 30 hectares, while one third are larger farms that are not meeting the crop diversification requirement.

[5] To simplify the simulations, the organic farms were excluded from the greening while according to the regulation the greening does not apply only to the land where organic farming is practiced.

[6] In the data processing it was not possible to exclude from the sample farms that comply with agri-environmental schemes and/or to certifications other than organic farming.

Tab. 1 - Farms (n.) and arable land (ha) potentially affected by crop diversification

	Farms		Arable land	
	n.	%	ha	%
Total	1.620.884	100,0	7.009.311	100,0
Arable land > 10 ha	156.892	9,7	5.255.889	75,0
Conventional farms	144.172	8,9	4.692.924	67,0
< 75% of land under permanent grassland, grasses, crops under water or a combination of these uses	135.710	8,4	4.413.176	63,0
Affected by crop diversification	60.982	3,8	1.947.850	27,8
of which				
*arable land between 10 and 30 ha not diversified**	*40.667*	*2,5*	*693.137*	*9,9*
*arable land > 30 ha not diversified***	*20.315*	*1,3*	*1.254.712*	*17,9*

** with only one crop or with 2 or more crops but with the main crops > 75% arable land*
*** with less than 3 crops or with 3 or more crops but with the main crops > 75% arable land*
Source: calculations on ISTAT (2010), 6th Agricultural Census

With regard to the second environmental obligation, the data show that in Italy there are more than 3 million hectares under permanent grassland and pasture and, excluding the land belonging to organic farms[7], this type of land use is concentrated in 254.656 holdings (Table 2).

Tab. 2 - Farms (n.) and arable land (ha) potentially affected by the maintenance of permanent grassland

	Farms		Permanent grassland and pasture	
	n.	%	ha	%
Total	274.486	16,9	3.434.073	26,7
Maintenance of permanent grassland*	254.656	15,7	3.084.665	24,0

**organic farms were excluded*
Source: calculations on ISTAT (2010), 6th Agricultural Census

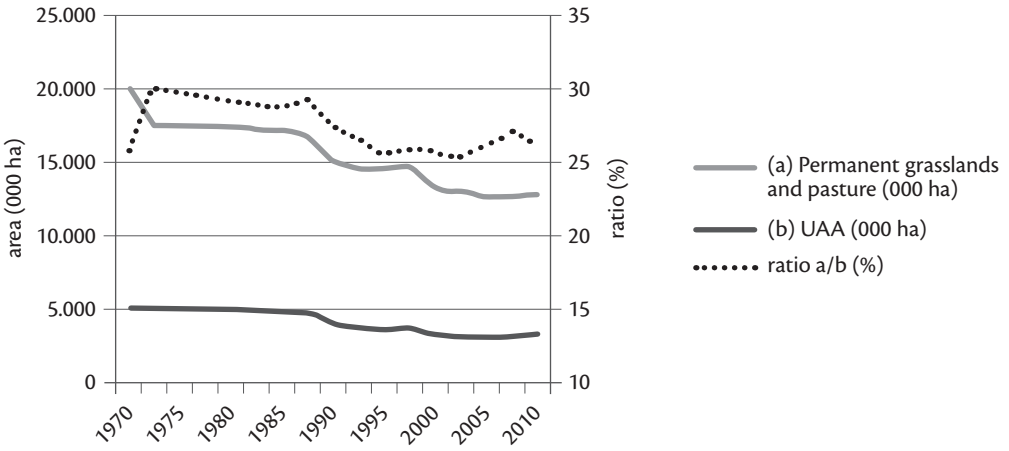
The land which is likely to be subjected to this obligation is about 90% of the total area under permanent grassland, corresponding to 24% of the total UAA. Since the ratio between permanent grassland and the total agricultural area must not be reduced by more than 5%, the total area to be maintained will be approximately 2,93 million hectares.

It must be noticed that the distribution of permanent grassland and pastures in Italy is quite uneven, reflecting the geographical features of the country, since these areas are mainly concentrated along the Alps and Apennines. When looking at the overall trend during the last four decades (Figure 1), a consistent decrease both in the agricultural area and the area with permanent grassland can be observed, resulting in a quite stable ratio between these two types of area, which has always remained between 25% and 30%. For this reason, it appears that this rule will probably not have a significant impact in Italy, especially if implemented on a national basis. Indeed,

[7] It was not possible to exclude farms located in ecologically sensitive areas under directives on the conservation of natural habitats and bird conservation, which are also excluded from the requirement, but it is likely that the number of these farms is quite small.

while the regulation will ensure a strict protection for permanent grassland in environmentally sensitive areas, in the remaining land the introduction of the 5% ratio rule between land under permanent grassland and agricultural land cannot ensure an effective maintenance of permanent grasslands, unless this rule were to be applied at an appropriate sub-regional level.

Fig. 1 - Overall trends in permanent grassland and agricultural area in Italy (1970-2010)



Source: calculations on ISTAT data

Finally, as in the case of crop diversification, the effects of the introduction of an ecological focus area (EFA) may be approximately estimated by looking at the application of a 15 hectares threshold. Indeed, in Italy, farms with an arable land of over 15 hectares represent only 6,7% of the total, and this quota decreases further, to 5,7% (corresponding to 93.190 farms), when considering the exemption of organic farms and farms with an area mainly under permanent grassland, grasses and crops under water or a combination of these uses (Table 3). However, it is necessary to point out that, unfortunately, at national level there is a lack of coherent and harmonised data on the extension and distribution of land uses that qualify for EFAs (fallow land, terraces, landscape features, buffer strips and afforested areas), which makes it difficult to carry out an accurate estimation of the probable impacts of this obligation. As shown in section 3, in our calculations fallow land was used as a proxy for EFAs.

According to our calculations, amongst the 93.190 farms potentially affected, there are 11.210 which have more than 5% of arable land as fallow land. Thus, it is expected that the most relevant impacts of this requirement would be observed among the remaining 81.980 farms (5,1% of the total), of which almost all (78.859 farms, 96%) are without fallow land. To the 5,1% of farms potentially subject to this obligation correspond 3,4 million hectares of arable land, and according these data, the EFAs would cover an area of 170.000 hectares (5% of arable land), which could be increased to more than 237.000 hectares from 2018 onwards[8].

[8] The share of 5% EFA can be increased to 7% in 2017, as a result of an impact assessment presented by the European Commission accompanied by a specific legislative proposal.

Tab. 3 - Farms (n.) and arable land (ha) potentially affected by the introduction of ecological focus areas

	Farms		Arable land	
	n.	%	ha	%
Total	1.620.884	100,0	7.009.311	100,0
Arable land > 15 ha	108.603	6,7	4.654.397	66,4
Conventional farms	98.569	6,1	4.125.303	58,9
< 75% of land under permanent grassland, grasses, crops under water or a combination of these uses	93.190	5,7	3.883.974	55,4
Affected by the introduction of EFA	81.980	5,1	3.393.081	48,4
of which				
without fallow land	*78.859*	*4,9*	*3.160.513*	*45,1*
with fallow land <5% of arable land	*3.121*	*0,2*	*232.568*	*3,3*

Source: calculations on ISTAT (2010), 6th Agricultural Census

As regards the implementation of EFAs, the regulation on direct payments for the CAP 2014-2020 (Reg.1307/2013, Art. 46) admits a certain degree of flexibility, by giving the possibility of fulfilling the requirement at a regional or collective level in order to obtain adjacent ecological focus areas. However, for the farms subject to this practice, the obligation remains to keep within the farm boundaries at least 50% of the EFAs which they would have introduced individually. Thus, with the exception of maintenance of permanent grassland, that is likely to be applied on a regional or national scale, the requirements of crop diversification and the introduction of EFA will determine, to some extent, direct effects on farms' production processes. As can be observed in Table 4, the number of farms potentially affected by at least one of these two obligations is more than 107.000 (6,6% of total), of which only 35.000 (2,2% of the total) must comply with both requirements.

Tab. 4 - The number of farms potentially affected by greening requirements

	Mountain	Hill	Plain	Total
Crop diversification only	2.271	13.707	9.814	25.792
EFA only	5.281	17.570	23.939	46.790
Both crop diversification and EFA	2.690	15.627	16.873	35.190
Total	10.242	46.904	50.626	107.772

Source: calculations on ISTAT (2010), 6th Agricultural Census

As can be observed in Table 5, the highest quota of these farms is concentrated in the plains (9,9%), while in the hills and mountainous areas the percentages fall respectively to 5,6% and 3,7%. When looking at the regional distribution of farms that are expected to be affected by greening requirements, the highest percentages may be observed in the Po Valley, with values particularly high in Lombardia and Emilia Romagna, where the largest farms specialised in arable crops (especially maize) are concentrated. A relatively high percentage of farms will be subject to greening requirements also in some central and southern regions, especially in the Marche, Molise and Sardegna regions.

Tab. 5 - Distribution % of farms potentially subject to greening requirements				
	Mountain	**Hill**	**Plain**	**Total**
Piemonte	1,6	6,2	29,0	13,3
Valle d'Aosta	0,1	-	-	0,1
Liguria	0,2	0,1	-	0,1
Lombardia	1,1	7,9	37,4	22,6
Trentino Alto Adige	0,3	-	-	0,3
Veneto	2,0	2,3	8,9	7,3
Friuli-Venezia Giulia	0,9	10,5	12,9	11,9
Emilia-Romagna	6,8	14,3	19,5	16,7
Toscana	3,4	9,4	7,7	8,1
Umbria	8,1	7,3	-	7,4
Marche	13,6	10,7	-	11,0
Lazio	1,6	3,7	9,6	4,3
Abruzzo	5,7	2,3	-	3,0
Molise	7,1	12,2	-	10,1
Campania	5,8	1,2	4,6	2,8
Puglia	15,2	6,1	3,3	4,4
Basilicata	4,8	12,8	4,3	8,9
Calabria	0,9	0,8	2,4	1,1
Sicilia	5,2	5,5	2,3	4,9
Sardegna	13,6	11,5	15,3	12,8
Total	3,7	5,6	9,9	6,6

Source: calculations on ISTAT (2010), 6th Agricultural Census

5. A weakened agri-environmental strategy

The institutional debate on green payments that arose after the European Commission proposal led to a final agreement which undoubtedly has weakened this policy instrument, especially in terms of the number of holdings and area covered by the three environmental requirements. The coverage of greening implementation has changed mainly as a result respectively of the 10 ha and 15 ha thresholds relative to crop diversification and EFAs. Furthermore, in a recent analysis carried out by the European Commission (2013), it has also been highlighted that the exclusion from greening of the farms with more than 75% of UAA under grassland, fallow land, leguminous crops and rice, would result in exemption of an additional 34% of UAA at EU-27 level, corresponding to 23% of all holdings.

At Italian level, due to the smaller average size of farms with arable land (8,5 ha) compared with the average of the EU-28 farms (12,8 ha), the effects of the 10 hectares threshold for crop diversification are even stronger. Indeed, as may be observed in Table 6, by raising the threshold for the arable land subject to crop diversification from 3 to 10 hectares, compared to the 2011 proposal the final agreement on greening results, in the exemption from the requirement for a very large number of farms (-73,3%). The area covered by crop diversification also decreases

from 3,2 to 1,9 million hectares (-39,6 %), with an inevitable reduction in the expected environmental benefits.

Similarly, when looking at the differences between the European Commission proposal and the final agreement regarding the EFA requirement, data show that the number of households involved falls dramatically (-94,2%), while the arable land involved decreases by 39,5%. These figures can be explained by the combined effect of several factors that have changed the nature of this requirement, and transformed this obligation into a very selective measure. Indeed, while, according to the European Commission proposal, the introduction of the EFAs would affect all farms and all land uses other than permanent grassland, as a result of the CAP negotiations EFAs will be introduced only on farms with arable land exceeding 15 hectares. Moreover, a much wider definition of EFAs was introduced (i.e. nitrogen fixing crops were also included) and the quota of EFA was changed from 7% of agricultural area (except permanent grassland) to 5% of arable land.

Tab. 6 - Greening coverage in Italy in two policy scenarios

	Final agreement 2013	EC proposal 2011	Difference	Var. %
Crop diversification				
Households (n.)	60.982	228.781	-167.799	-73,3
Arable land (ha)	1.947.850	3.222.490	-1.274.640	-39,6
Ecological focus areas				
Households (n.)	81.980	1.421.322	-1.339.342	-94,2
Arable land (ha)	3.393.081	5.612.183	-2.219.103	-39,5

Source: calculations on ISTAT (2010), 6th Agricultural Census

At national level all these changes were considered a very important achievement, since the Italian government, similarly to those of other Mediterranean countries, focused the negotiations on greening just on the objective of excluding permanent crops (vineyards, olive groves and orchards) from the EFAs. The main concerns of these Member States were related to the (negative) economic effects that could derive from taking out of production 7% of their agricultural areas, since their agricultural systems are mainly characterised by farms specialised in high value products and in permanent crops. Even though these concerns were not without foundation, it is evident that this requirement in its final form has decreased to a large extent its environmental role, also because, as observed by Baldock and Hart (2013), it is estimated that many arable farms in Europe already have around 3-4% of land that would qualify as EFA.

In the final agreement of the CAP a greater flexibility has also been introduced concerning the maintenance of permanent grassland. While in the initial proposal of the European Commission this obligation applied at holding level, according to the final regulation on direct payments Member States may decide to apply this requirement at national, regional or sub-regional level[9]. Thus, as discussed above, it is likely that in the majority of Member States (including Italy) this requirement would be applied at regional or even at national level, with very little change com-

[9] In the EC proposal farmers could not convert more than 5 % of their reference areas under permanent grassland, while according to the final agreement the ratio of the land under permanent grassland in relation to the total agricultural area declared by the farmers cannot decrease by more than 5%.

pared to the requirement that is already in place in the framework of cross-compliance[10]. At the same time it must be noted that if the ratio of area of permanent grassland to total agricultural area decreases by more than 5% at regional or national level, the Member states concerned must apply the requirement at farm level in order to reverse this trend, by reconverting land into permanent grassland.

Another element that will probably reduce the environmental benefits that greening could bring about is related to the equivalence mechanisms, since certification schemes and some voluntary agri-environment schemes can be considered to be "equivalent" to the three greening obligations[11]. The main constraints of the equivalence mechanisms are related to the vast array of environmental certification systems that are present at EU-28 level, as well as to the different models of implementation of agri-environmental measures. Indeed, as observed by Hart and Menadue (2013), even though there is a great range of management practices supported by agri-environmental and certification schemes with the potential for similar impacts to those identified for the greening measures, the main difficulties arise regarding the extent of take-up of these schemes at farm level and, more generally, regarding the different inspection and administrative regimes which are in place. Moreover, although it seems logical to acknowledge a role for the certification schemes and for the agri-environment-climate measures that have already been adopted by farms, this principle may also generate some problems of equity: while some Member States may pursue equivalent measures with the intention of improving environmental outcomes, others may be just interested in reducing the environmental obligations on their farmers.

However, in spite of all the specific changes on greening rules that have been introduced during the CAP negotiations, the most critical issue is whether these three requirements are the most cost-effective way to increase the provision of agri-environmental public goods. In this respect, many authors underline how greening obligations will probably add costs to the farmers, will increase the administrative burden and implementation costs for national authorities, while their environmental effects currently do not seem fully documented (Matthews 2012 and 2013; Bureau, 2013; Roza and Selnes, 2012).

Westhoeck *et al*. (2012) argue that the introduction of the greening measures will not have a significant impact on the quality of the natural environment, given that compliance applies only to 2% of the agricultural area in the EU. These authors show how the EFA requirement is potentially the most effective measure in providing highly valued public goods, but that this effectiveness could be increased by better tailoring this measure to local conditions and, above all, by better stimulating the establishment of green infrastructures at territorial scale through coordination and cooperation.

Thus, from a perspective of policy effectiveness, the majority of authors agree on the fact that increased environmental benefits could be obtained more effectively by using more targeted policies, namely by enhancing agro-environmental measures in Pillar 2.

In this respect, although the budget for the 2014-2020 rural development policy has been considerably reduced compared to the previous programming period (-13,5% at the EU-27 level - for details see Monteleone and Pierangeli, 2012), the new EU Rural Development Policy is strongly oriented to delivering more ambitious environmental objectives and commitments.

[10] According to the current regulation (Commission Regulation (EC) No 1122/2009) Member States must ensure that the ratio between the land under permanent pasture and the total agricultural area cannot decrease by more than 10% (at national or regional level).

[11] In an Annex of the Regulation on direct payments there is a list of measures that can be considered similar to greening and that yield an equivalent or higher level of benefit for the climate and the environment.

Indeed, Member States are required to spend a minimum of 30% of the total contribution from the EAFRD to each rural development programme on climate change mitigation and adaptation as well as environmental issues and, above all, these are considered the cross-cutting objectives to which all the Union priorities for rural development must contribute. Moreover, the rural development policy for the programming period 2014-2020 contains important innovations that could potentially enhance its environmental effectiveness and, to some extent, could also be complementary to first pillar policies. Indeed, the new regulation is based on more strategic and flexible frameworks that can potentially foster effective exchange of knowledge and stimulate innovation for pursuing agri-environmental objectives. The introduction of specific instruments to promote innovation (the European Innovation Partnerships) and to support cooperation (Art. 35 of the new Regulation on rural development) may represent significant opportunities to foster effective exchange of knowledge and may result in more integrated and coherent agri-environmental actions. The new rural development policy is also more focused on promoting a co-ordinated use of measures and on supporting collective and partnership-based modes of intervention that may improve the environmental performance of the CAP, mainly through the implementation of targeted and tailored actions more consistent with local needs (see Allen *et al.*, 2012; Dwyer, 2013; Vanni, 2014). This specific support to collective and territorial agri-environmental actions also has the potential of improving the effectiveness of greening measures, for example, by supporting a collaborative management of the ecological focus areas. On the contrary, the general approach of green payments, which is mainly based on compliance with the environmental requirements at farm level, has little potential for stimulating pro-active and collaborative attitudes of farmers.

6. Final remarks

The greening of direct payments was introduced with the main objective of increasing the provision of agri-environmental public goods through agriculture. This strategy is based on the assignment of 30% of the Member States' budgetary envelope to mandatory measures beneficial for climate and the environment. One of the main strengths of the initial proposal from the European Commission relied on the application of these measures to all farms receiving direct payments. The main objectives of these mandatory measures were achieving more cost-effective environmental outcomes compared to those achieved through the voluntary agri-environmental measures of the second pillar and, above all, promoting sustainable farming practices on a larger scale. Here it is argued that these objectives are very difficult to achieve through the new form of greening, since the environmental obligations introduced in the final Regulation on direct payments have changed drastically compared to those proposed in 2011.

It may be argued that, in the current form, the greening measure has a considerably diminished potential for promoting sustainable farming practices on a large scale, since it has been transformed into a much more selective tool, which probably would affect quite a small percentage of holdings concentrated in specific areas. The new thresholds and exemptions will probably affect only medium and large farms specialised in arable crops, excluding many medium or small farms and farms specialised in other agricultural products that may not adopt the sustainable agricultural practices that were deemed to be supported through the green payments. These limits are particularly evident in Member States like Italy, where arable land is very fragmented and where the average size of farms is well below the thresholds established for the greening re-

quirements. For this reason, at national level green payments seem not to have a great potential to change the agricultural practices adopted by the majority of farmers and, consequently, the potential of increasing the sustainability of Italian agriculture on the required scale.

Finally, the main limitation of greening is linked to the difficulty of implementing an effective agri-environmental strategy following the approach of cross-compliance. This type of approach is mainly determined by the need for legitimising the direct payments of first pillar, but it prevents the design and implementation of policy tools which could be effective in influencing farmers' attitudes and motivations towards the agri-environment. On the contrary, a pro-active attitude of farmers, together with an effective exchange of knowledge regarding more sustainable farming practices, are increasingly recognised as essential drivers for the success of agro-environmental policies. For these reasons the main instruments for reaching the ambitious environmental objectives and commitments of the new CAP will probably be the voluntary agri-environmental schemes of the second pillar, which, hopefully, will be increasingly based on co-ordinated and collective action, and above all, more tailored and targeted to the different environmental priorities across Europe.

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