

GAEC implementation in the European Union: situation and perspectives

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Introduction

The concept of Good Agricultural and Environmental Condition (GAEC) was introduced by the Common Agricultural Policy (CAP) reform in 2003 within the framework of cross-compliance and has been implemented by the Member States since 2005. It includes the purposes of maintaining agricultural activities, avoiding the abandonment of the agricultural land and sustaining the environment.

While Statutory Management Requirements (SMR), second component of the cross compliance, have introduced the link between CAP payments and the respect of existing legislative acts in the fields of environment, public, animal and plant health and animal welfare, the GAEC represent a new piece of legislation that farmer shall be compliant with (in order to receive full CAP payments) in strategic areas as soil, land management and, more recently after the Health Check in 2009, water management.

The implementation of GAEC is thus a process where Member States play a decisive role as the European legislative framework leaves flexibility to them to define the precise content of a GAEC minimum requirement taking into account local conditions. In fact, the definition of GAEC requirements should take into account the objectives that GAEC is expected to introduce in the CAP such as avoiding the abandonment of agricultural land, assuring a minimum level of sustainability of farming practices, recognizing the strict link between agriculture activities and the management of land and landscape. Since 2005, requirements defined by Member States have undergone changes following clarifications given by the European Commission (e.g. all standards should be implemented), results of audit missions of the European Commission services and specifications established

by the Member States in order to make them more effective and linked to local conditions. Over the years it has become clear that in order to avoid grey areas in the interpretation of the requirements, Member States have to define their contents precisely, e.g. what the farmer is supposed to do to be compliant, what the Member States judge as good farming in the framework of GAEC.

Following the first observed positive feedbacks obtained via the wide spread enforcement of environmental practices through the first CAP pillar, more and more emphasis is given to cross-compliance, and especially to its GAEC component. Indeed, in the second pillar, where cross-compliance is also applicable for some measures of rural development programmes, GAEC have replaced the baseline level previously represented by good agricultural practices and support for agri-environmental schemes can be given only for environmentally-friendly practices whose level of environmental commitment goes beyond cross-compliance requirements.

This paper describes major approaches used in the different Member States in defining minimum requirements for GAEC standards and then discusses main issues and perspectives for a more effective and valuable implementation in the future.

Current status of GAEC implementation in the EU

The analysis, provided in this paper, is made for standards related to soils issues (erosion, organic matter, soil structure) and standards related to the minimum level on maintenance (landscape features, protection of permanent pasture, avoiding encroachment, livestock stocking rates). The issue protection and management of water, introduced by the Health Check in 2008, has not been considered since it will be completely implemented in the whole European Union only in 2012.

Soil issues

Soil degradation has been retained as a major issue since many problematic phenomena are linked to it such as: water and wind erosion, depletion of organic matter, contamination and pollution, soil compaction and physical degradation, loss of productivity and biodiversity, salinization or even the occurrence of mud/land slides.

In order to cope, avoid, limit, mitigate these phenomena, Member States have defined minimum requirements meaning different farming practices depending on the local conditions.

Within the issue *protection of soil from erosion*, the main practices retained are: limiting the presence of bare soils, reducing soil depth tillage, prohibiting some farming practices on sloppy areas, or even limiting livestock density.

To limit the presence of bare soils, minimum soil cover measures were introduced for maintaining a permanent soil cover or at least for having a bare soil situation not exceeding a two-three months period. In general, permanent cover shall consist in grass, clover or other legu-

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Key words: good agricultural and environmental condition, cross compliance, Common Agricultural Policy, farming practices, sustainable agriculture.

Received for publication: 24 March 2011.

Accepted for publication: 16 May 2011.

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Italian Journal of Agronomy 2011; 6(s1):e2

doi:10.4081/ija.2011.6.s1.e2

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minous crops or in crops with limited erosion vulnerability (all cereals but maize, etc.). In some Member States, with both wind and water erosion risks, this obligation concerns all cropped and fallow lands. In some Member States the obligation focuses on non-productive areas (former set aside obligations). Finally, in some Member States the obligation is limited to parcels located on sloppy areas (often when the average gradient is exceeding 10%). Moreover, in these sloppy areas, minimum soil cover should be combined with other measures such as contour line ploughing, prohibition of cultivating/ploughing according to the slope, terracing, prohibition of row crops and adopting only minimum tillage practices (conservation agriculture). These measures are linked also to the *standard minimum land management reflecting site-specific conditions*. One has to note that, considering the high effectiveness of subsoil tillage for preventing erosion, in Italy this standard has been amplified by applying such practices to all agricultural areas subject to cross compliance, included permanent crops.

Some practices/measures may have effects on several environmental issues. For instance, in Northern Ireland, in addition to the impact on soil structure and damage to semi-natural habitats, a limit is set on livestock density above a certain slope (5%) to prevent severe poaching leading to soil erosion.

Also, retaining terraces, which has benefits, such as preserving traditional landscapes and improving microhabitats for the wildlife, is considered an effective provision and it is generally applicable to help reduce the slope effect and thus erosion.

The issue of maintaining a good level of *soil organic matter* is underlined by the positive effects on the quality and soil ecology: improvement of soil structure, increase of water storage capability (with reference to the sandy soils), reduction of erosion, important source of nutrients (for plants and soil life) and carbon sequestration function, in order to contribute to climate change mitigation.

The main measures implemented to tackle the soil organic matter issue are the stubble burning prohibition and crop diversification management. Stubble burning prohibition is characterised by a homogeneous implementation in Member States. For crop diversification management, four different approaches have been used: continuous cropping, crop diversification and/or rotation, soil analysis and remedies, compulsory cover crops. As an example, in Germany, the annual crop ratio on arable land must comprise at least three crops, whereby set aside and unfarmed arable land count as one crop. Each crop shall cover at least 15% of the arable land and a soil humus assessment must be carried out in accordance with a scientifically recognised method.

The objective of *maintaining the soil structure* is dealt in GAEC with a specific standard on appropriate machinery use aimed at avoiding soil compaction, which represents a deterioration of soil structure by mechanic pressure, predominantly from agricultural practices. Soil can have a different susceptibility to compaction in relation to clay fraction, excess of salts, water regime, low pH etc. Compaction may be induced by man factors like always ploughing the soil at the same depth or use of heavy machinery in rainy weather conditions. Minimum requirements or measures are defined in the Member States following two main approaches. One is the complete ban of the use of machinery when the soil is flooded, covered with snows, frozen or generally excessively humid; the other is to avoid the use of heavy machinery when soil conditions are not suitable in order to avoid soil compaction (e.g. in Estonia a field can be cultivated only when machinery do not leave traces deeper than cultivation depth and ruts deeper than 30 cm are not allowed). There are also some generic recommendations given to limit soil compaction such as using large tyres with low inflation pressures, driving tractors with all wheels on the untilled land, concentrate wheel loads on permanent traffic lanes. One has to note that, except for the effects that their infringement can produce (e.g. traces on the soil), the respect of these measures is difficult to control.

After the CAP Health Check modification, this standard is currently

optional but as most Member States have already defined it before 2009, it then applies in almost all Member States with some exceptions (e.g. in Denmark and Sweden the topic is not addressed as it is considered not relevant).

Minimum level of maintenance

Minimum level of maintenance is also a major issue gathering standards aiming at avoiding land abandonment, assuring the maintenance of the agricultural land and landscapes and avoiding the deterioration of habitats.

The content of the standard to *retain landscape features* has not changed with the CAP Health Check, but a list of features to be taken into consideration has been provided. Landscape features at risk due to agricultural activities should be defined by Member States, identified and not be removed. Their importance can be related to their physical functions (water fluxes, soil conservation, windbreak, buffer against nitrates), biological functions (habitat for plant and animal species, corridors between the different zones enabling movement of animal species and seeds) and cultural functions (part of the historic heritage, element of the character of the landscape related to its visual quality which may depend on uniqueness, harmony, variety, familiarity etc.). Landscape features to be maintained should be located and described for their characteristics. The definition varies in the Member States (what feature, how long, how large, how dense, how many species etc.). In Germany for instance, the categorization is based on the type and dimension of the features. Member States apply this standard either with a ban of destruction of small elements like hedges, unless permission is granted (e.g. Flanders), or with a total prohibition of removal for features that for instance are listed as natural monuments (e.g. Austria). In addition, in some Member States some activities like tilling or fertilising are forbidden within a certain distance from the feature (e.g. Wallonia, Denmark).

A set of CAP instruments has been developed to protect and support *permanent pastures* for their environmental value. Permanent pastures are recognised as having a positive effect on habitat and biodiversity and they constitute a huge carbon storage. So, Council Regulation (EC) No 73/2009 imposes their maintenance and forbids mass conversion to arable land. In the framework of cross compliance two measures specifically focus on permanent pasture: the total amount of permanent pasture area shall not decrease by more than a defined threshold compared to the total utilised agricultural area; specific requirements shall be defined in order to protect and maintain permanent pasture.

For the latter, Member States have defined different measures that can be classified in four categories (with obligations sometimes varying according to the type of grassland areas): definition of a restrictive period for grazing and/or cutting, removal of unwanted vegetation such as bushes or wooden plants, ban of burning and preclusion of ploughing or other soil working operations.

In some Member States, farmers have to compensate with new grassland areas the permanent pasture land that has been ploughed (with permission) in order to have the permanent pasture ratio maintained. In some Member States (e.g. Austria, Scotland and Wales) there is a great restriction if not a total interdiction of ploughing permanent pasture. This restriction generally aims at preserving high nature-value grassland or permanent pasture in environmentally sensitive areas; in both cases the environmental role of these permanent pasture areas would be eliminated by ploughing and cannot be compensated with new grassland in different areas. Finally, in some Member States, some operations on permanent pasture are possible but subject to prior authorisation such as drainage works, levelling or reseeded (e.g. Northern Ireland and Scotland).

Within the specific standard referring to *minimum livestock stocking rates or/and appropriate regimes*, measures are taken by Member States in a view of avoiding both undergrazing and overgrazing of grassland.

To avoid undergrazing, provisions are taken for land where a concern exists that abandonment could lead to the spreading of invasive vegetation which would be difficult to remove or which would make difficult to bring land back into production (Northern Ireland, Scotland and Wales). Among these provisions, fixing a minimum stocking density or obligation of mowing are often seen as alternatives. On the contrary overgrazing is the situation where too many livestock can adversely affect the growth, quality or diversity of natural or semi-natural vegetation. Measures should be taken by the farmer with a view of avoiding soil compaction caused by trampling or poaching. These measures may impose supplementary feeders (England) or putting feeders away from watercourses (Wales).

Finally, for what concerns the minimum level of maintenance of agricultural land farmers are requested to *avoid encroachment of unwanted vegetation*. The implementation of this standard varies among Member States. There can be a general obligation to avoid invasion of weeds, shrubs, bushes etc. Sometimes there is a focus only on non-productive land. Sometimes there is a list of noxious species, which shall be avoided and sometimes even eradicated.

Current outcomes and comments

It is clear from the review of GAEC standards that strong positive progress has been made since the first year of implementation of GAEC by the Member States. GAEC requirements have been regularly amended, fine-tuned and better detailed through the years. GAEC implementation has induced changes in agricultural practices and CAP management. Indeed, it has permitted to introduce new pieces of legislation on agricultural/environmental matters where legal constraints did not exist before (e.g. soil). Farmers had to adapt to it and certainly succeeded in doing so. Some Member States have developed methods and tools to support a sound definition and implementation of requirements according to local conditions (e.g. GIS based methods to identify risk areas at farm level according to slope, soil types etc.) and to help farmers apply them correctly (e.g. providing risk maps of their farm).

It is often difficult for Member States to define the baseline introduced with the GAEC minimum requirement. They have to find a balance between the compulsory cross-compliance and voluntary agri-environment schemes for which incentive payments are calculated to compensate for the extra costs of practices going beyond this baseline. In fact, after the Health Check modification of the GAEC framework, the specification of the standard on landscape features and the introduction of the issue on water management have obliged some Member States to reconsider some agri-environmental measures (AEM). Thus, some practices like the non-removal of hedges and the management of buffer strips currently funded in rural development schemes can become part of compulsory cross-compliance and therefore be excluded from agri-environmental support. Furthermore, it must be noted that even if agri-environmental schemes are supposed to have greater benefits on the environment than GAEC, GAEC applies to the total agricultural area of all farms receiving direct payments while AEM, as voluntary tools, are often implemented in limited and scattered areas which may partly neutralise their positive effects.

Perspectives for the future

After several years of GAEC implementation and the experience acquired so far, there is a need of a *common understanding* that can help Member States in fine-tuning minimum requirements and identifying a common playfield in the implementation of GAEC. A *common*

understanding does not mean a good practice to be used as a minimum level of GAEC implementation for all the Member States, as local conditions are different and must be taken into account in defining GAEC minimum requirements, but at least an identification of the minimum effect that the application of a GAEC standard should have. A way to identify this is to assess the effect that some practices can have on the environment on the basis of scientific and practical research. Interesting research is being carried out in some Member States where the effect of the practices is evaluated and concrete data are provided for an effective implementation. Carrying out this research and sharing their results can be an issue where efforts should be concentrated in the future. This, in a view of promoting a more effective link between research and cross-compliance policy and helping to give scientifically based answers to specific questions on precise environmental issues asked by policy makers.

For what concerns GAEC control activities, remote sensing represents a promising and essential tool to perform this task. Some studies currently carried out are demonstrating that many GAEC requirements can be effectively controlled using remote sensing techniques. The matter of visual checking versus registration of elements to be used in cross compliance checks remains an open issue that should be assessed case by case with a cost-benefits approach also in the medium-long term. Information acquired by remote sensing can also be used to identify elements with GAEC relevance, such as landscape features and river networks. These elements can possibly be registered in the Land Parcel Identification System (LPIS) together with all elements of land eligibility for direct payments. Later on, farmers could be provided with this information in order to make them aware of practices that should be undertaken (e.g. not removal of features identified as GAEC landscape features). In wider future prospective remote sensing information combined with GIS tools has a potential for the fine-tuning of GAEC requirements as well as for management of rural areas (e.g. in the definition of buffer strips along water courses by overlaying different layers produced with satellite information). Anyway, in order to be practically implemented, these models should be supported by results coming for field experience. In the current European Commission proposal for the new CAP reform some practices currently included in GAEC such as permanent pasture, green cover and crop rotation are considered as a possible mandatory *greening* component of direct payments. Their pertinence, which is motivated by the need of strengthening both climate and environment policy goals, should be considered also taking into account the feasibility of controls, the need of avoiding an increase of the administrative burden for farmers, and its sound implementation through payments and/or incentives.

Considering the complexity and knowledge associated to cross compliance, attention should be drawn on a significant need of communication about cross compliance policy. This includes the need of explaining to the European citizens the concept of GAEC and stressing the role of the farmer in providing public goods through some GAEC standards. At the same time GAEC concept needs to be better explained to farmers with a pro-active approach able to provide them with the information not only on the practices to be implemented but also on their scope and their effectiveness.

Finally, in order to give positive and concrete answers to some of the issue presented, the role of the Farm Advisory System should be highlighted together with the need of strengthening it and making it more accessible to the farmers.

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