European Commission

JRC SCIENTIFIC AND POLICY REPORTS

GAEC workshop 2012 technical report

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2012

Joint Research Centre

European Commission
Joint Research Centre
Institute for Envinronment and Sustainability

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This publication is a Reference Report by the Joint Research Centre of the European Commission.

JRC77323

EUR 25735 EN

ISBN 978-92-79-28138-9

ISSN 1831-9424

doi: 10.2788/78016

Luxembourg: Publications Office of the European Union, 2012

Printed in Italy

REPORT
GAEC workshop 2012 technical report

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Co-author:		***Circulation:***	Public
Approved:			
Date:	18/10/2012	***Int. ref:***	file://S:\FMPArchive\P\15469.doc

Contents

1. Introduction

1.1. Scope

1.1.1. The aim of this report is to describe the main technical findings and results of the GAEC workshop 2012 organised by the Joint Research Centre (JRC), GeoCAP action.

1.1.2. The workshop was held at the JRC in Ispra from 8th-10th October 2012. 110 delegates attended the workshop representing 24 European Union Member States (all but Cyprus, Sweden and Bulgaria) and two candidate countries (Croatia and Iceland). The European Commission was represented by six experts from the Directorate-General Agriculture and Rural Development (DG AGRI D1, D3, J3 and H4), one from the Directorate-General Environment (DG ENV B1) and several experts from the Joint Research Centre (Monitoring Agricultural Resources and Land Resources Management Units). The list of participant can be downloaded at:

http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/List-of-participants/New-file

2. Outcomes

2.1. Background

2.1.1. Good Agricultural and Environmental Conditions (GAECs) have been implemented by Member States since 2005. Since then, minimum 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 and specifications established by the Member States in order to make them more effective and linked to local conditions. After the modification introduced by the Health Check of the Common Agricultural Policy (CAP), the current GAEC framework is composed of 5 issues and 15 standards of which 8 compulsory and 7 optional (Annex III of Council Regulation (EC) No 73/2009).

2.1.2. A proposal for the CAP after 2013 is currently under discussion. This proposal introduces new elements in the GAEC framework[1] (a new GAEC standard on protection of wetland and carbon rich soils) and introduces a so-called "greening" component[2] in the direct payments.

[1] Proposal for a Regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy, COM(2011) 628 final/2, Brussels, 19.10.2011

[2] Proposal for a Regulation of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy, COM(2011) 625 final/2, Brussels, 19.10.2011

2.1.3. The aim of this workshop was to have open and constructive exchanges about the practical implementation of the Good Agricultural and Environmental Condition (GAEC). This year the workshop focussed on:

- Implementation and control issues related to the identification and measure of landscape features and buffer strips,

- Scientific references for definition and mapping of soil related issues (e. g. soil erosion or soil organic matter).

2.2. Session: Soils references and mapping: a support to soil related GAECs?

2.2.1. Soil issues are an important component of GAEC. Methodologies and mapping can support a better implementation of the different GAEC standards related to soil. The proposed new GAEC framework for the CAP after 2013 introduces a focus on carbon-rich soils.

2.2.2. Panos Panagos of the JRC Soil-Action presented the European Soil Data Centre (ESDAC)[3]. He illustrated various models to assess soil erosion at European scale (PESERA, RUSLE) and the data used to assess erosion factors (LUCAS soil data, CORINE land cover). Erosion Maps of Europe at NUTS 3 level were shown. The European Environment Information and Observation NETwork (Eionet) collect data from Member States to map erosion and soil carbon.

2.2.3. Francesca Bampa gave an overview on functions, trends and records of organic carbon in European soils[4]. In the European Soil Data Base a map of peat land is available at 1 km x 1 km resolution, at 1:1,000,000 scale. An estimation of changes in SOC (Soil Organic Carbon) has been produced by the Land Use Modelling Platform for NUTS2 regions covering 27 Member States over 10 years (from 2010 to 2020). The European Environment Information and Observation NETwork (EIONET) collects and organises data concerning organic carbon and erosion in Europe. It represents the network for official reporting of Member States to the European Environmental Agency; within this framework seven countries provided datasets (Austria, Belgium, Bulgaria, Denmark, Netherlands, Poland, Slovakia) and five countries partial datasets (Estonia, Italy, Norway, Serbia, Switzerland).

[3] Presentation: “Pan-European assessments of soil erosion data within the European Soil Data Centre (ESDAC)”, Panos Panagos, European Commission - JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/panagos_presentation

[4] Presentation: “Monitoring, mapping and predicting Soil Organic Carbon in Europe under different Land Uses and Managements”, Francesca Bampa, European Commission - JRC, accessed at: http://mars.jrc.ec.europ a.eu/mars /News-Events/GAEC-workshop-2012/Agenda-and-presentations/bampa_presentation

2.2.4. Spatial data layer of estimated OC (Organic Carbon) content in the upper 30cm of the surface horizon of soils in Europe is obtained by a model of 1km spatial data layers of soil, land cover and climate. LUCAS soil survey provides soil data of selected points, based on a master grid 2 km x 2 km. 20.855 soil samples were analysed, data stored are in ESDAC and soil samples stored in JRC. Spatial interpolation of LUCAS SOC (Soil Organic Carbon) data is used to get a map of SOC estimates.

2.3. Session: Water issues

2.3.1. Livio Rossi's presentation focussed on the results obtained in a test for buffer strips calculation using a 2m DSM (Digital Surface Model) generated by the same airborne stereo-couples at 0,5m resolution used for LPIS, without additional costs[5]. Effective area with high vulnerability can be calculated and a pollution risk maps can be produced. This map shows maximum trap efficiency of 5 m buffer strips and calculates the land cover present in these 5 m buffer strips.

2.3.2. A validation test of the 2m DSM automatically generated was also shown. DSM (by airborne imagery stereo couples) vertical accuracy and precision on the ground versus GPS data were assessed under the Agriculture Ministry officers supervision in May 2012. Results of the 58 checked points in the Chienti basin (Marche) showed a very good correspondence, in terms of precision (and basically in accuracy) compared with the real geographic values, defined by GPS and permanent topographic stations. The DSM 2m altitude outputs can be therefore used as true values for any relative measuring and processing (sloping, aspects, buffer, landscape features extraction, High Nature Value Farming etc.).

2.4. Session: GAEC database and studies on GAEC

2.4.1. Article 140 of Council Regulation (EC) No 73/2009 establishes that Member States (MSs) shall inform the Commission in detail about the implementation of GAEC. Since this year the notification has been done through the JRC GAEC database. Member States were requested to complete data for 2011 and 2012 notification. Vincenzo Angileri (JRC) presented[6] the current status of this notification procedure and gave figures about the use of the GAEC database.

[5] Presentation: "Accuracy test of 3D modelling for buffer strip calculation and land monitoring", Livio Rossi, SIN spa, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/rossi_dsm

[6] Presentation: "Current situation of the use of the GAEC database for notification", Vincenzo Angileri, European Commission – JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations

2.4.2. All MSs have asked and obtained writing rights for the database and 71 persons are accredited with writing rights (generally two people for each Member State, with a maximum of seven in the Czech Republic). At the time of the workshop, all Member States but 4 had finalised the notification process for 2011 and 2012. Numbers of log-in per month and notifications registered showed that the periods when the database was most used was immediately after the presentation at the cross-compliance expert-group meeting in November, as well as immediately after the MSs had received the official letter which starts the notification process throughout the database.

2.4.3. MSs seem to use the database smoothly and no specific problem on its use were raised. Improvements can be obtained by a more appropriate description of the minimum requirements for the different standards by the MSs (e.g. avoiding repetition, writing only appropriate actions meeting the scope of the standard).

2.4.4. Marco Bertaglia's presentation[7] focused on a new section of the GAEC database that has been developed and can be accessed through the same interface as the GAEC database. This new database sets up a web portal of studies related to GAEC implementation. Access to this has been given to all users with rights to access the GAEC database. It is important to notice that access can be differentiated not only according to the general user permissions for access to the GAEC database but also separately from access rights to the official GAEC notification database.

2.4.5. The aim of the studies database is to be a space for collaboration and for exchange of information on good practices among the Member States and the Commission, with the possibility to extend it to other stakeholders if needed or desired. At this stage, the database is not open to the internet. It is a tool that is restricted to key stakeholders of GAEC implementation and control and that has a very specific objective, namely to select key, high-quality sources of information that are relevant for the specific implementation, monitoring, and evaluation, of GAECs in the EU.

2.4.6. Relevant sources include academic papers, differentiated in high-level review of the academic literature and single studies of relevant interest, JRC scientific and technical reports, monographs or books, working papers, good-quality and relevant websites, government guidelines.

2.4.7. Sources can be in any EU language, hence there is a need for collaboration and help from each Member State to select the appropriate sources and input a summary of the content in English. The structure of the summary was detailed in the presentation, as well as the steps to input it in the database. The steps to

[7] Presentation: "Web database on GAEC related studies", Marco Bertaglia, European Commission- JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/bertaglia_data_base

follow in order to query the database and retrieve the available studies were also presented, with an online demo and screenshots.

2.4.8. Good collaboration is not limited to the need for translation. It was also discussed that it is important to use the tool in order to select from the vast amount of available information, and how each administration or other user in each Member State is better informed of the most relevant information. Moreover, although not strict, a division of labour was also shown as a possibility to collectively enrich the database, with, e.g., JRC staff being mainly oriented to selecting academic studies, while some stakeholders could be better positioned to provide sources that are legal or geared towards practical implementation at the farm level. There is of course no strict limitation to the type of sources each and every user with writing rights can input, only a possible richer database could be built by different perspectives of the different users.

2.4.9. Finally, possible future developments were also presented, highlighting that summaries of available studies present in the database for each GAEC could be input in the WikiCAP portal. It was also discussed how this would link to the (new, or evolved) Farm Advisory System, also in the context of the European Innovation Partnership on Agricultural Production and Sustainability[8] aimed at promoting "…successful bridge-building between cutting-edge research & technology and key stakeholders…"

2.4.10. In conclusion, the GAEC study database is a working tool, and one that is intended to be dynamic and which can be constantly improved, a collaborative space that can provide useful insight for better GAEC implementation throughout the EU.

2.5. Session: Identification and measurement of landscape features

2.5.1. Pablo Zarco's presentation[9] focused on the potential application of very high resolution (VHR) imagery acquired from Unmanned Aerial Vehicles (UAV) platforms for agricultural policy management. Within the context of the Common Agricultural Policy (CAP) there is a need to develop methods for the correct identification of landscape features (LF). It is required to identify, quantify and measure these features (isolated trees, ridges, stone walls, etc). On 2D VHR imagery often one misses a correct detection / identification of these features. VHR imagery linked to 3D RS products is required to aid the detection of LF (height, length, shapes...). Current methods are based on VHR satellite imagery that in some cases do not provide the resolution required.

[8] COM(2012) 79 final

[9] Presentation: "Identification of landscape features using VHR unmanned aerial vehicle (UAV) imagery", Pablo J. Zarco-Tejada, European Commission – JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations

2.5.2. The presentation described new micro-sensors and cost-effective UAVs currently available worldwide which enable the acquisition of VHR imagery. They enable flexible revisit periods, low-cost operation, off-nadir viewing angles when necessary, but limited coverage, compromising the geometric quality of the imagery, and they require sensor calibration to meet standards at the European level. Examples of the state-of-the-art methodologies using datasets acquired from UAV platforms for feature extraction, monitoring of landuse / landcover information were presented.

2.5.3. Other operational issues regarding the use of UAVs for a range of platform sizes, endurance and payloads with high flexibility of operation were discussed. Main disadvantages are that a need for miniaturizing the instrumentation is required, the need for trained personnel to operate UAV systems, as well as legal issues which vary within the EU depending on the country. The presentation gave an overview of current UAV systems available, aerial extent feasible for imagery acquisition as well as the legal issues involved in the operation of these unguided systems in Europe.

2.5.4. Diaz et al. first presentation[10] was focused on the modelling of Landscape Feature (LF) areas from linear values. The presentation is based on the fact that retention of such features is one of the compulsory standards included in the Council regulation (EC) 73/2009 in order to keep the agricultural land in Good Agricultural and Environmental Condition (GAEC) and it is also included in the proposal for the greening of direct payments (COM(2011)625). Therefore there is a current and future need for developing methods to measure the area of such Landscape Features in a cost-effective, repeatable and accurate way at the holding scale. In the context of the implementation and control of GAEC and greening, the measurement of landscape features as lines (length) or points (number) is foreseen, particularly in the case of field surveys. It is therefore necessary to convert such linear or point measures to area estimations.

2.5.5. Having analysed this background, an experiment was conducted comparing the result of two approaches for the "ad hoc" estimation of Landscape feature areas from linear measures by calculating a multiplicative factor. The analyses were based on a sample of 297 holdings in the Province of Macerata (Marche, IT) which containing a total of 3308 landscape feature patches according an extended LPIS land cover map. Following the overall definition of LF patches belonging to the class isolated trees, tree groups, hedgerows, riparian vegetation, scrubland or ponds, and located inside agricultural land (excluding the permanent pastures) were selected. The average LF area in this sample was

[10] Presentation: "Modelling landscape features: from polygon to line and back", Ramon Diaz-Varela, Vincenzo Angileri, Marco Bertaglia and Philippe Loudjani, European Commission- JRC, accessed at: http://mars.jrc.ec. europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/diaz_linear_modelling_final

404 m², whereas the average area of LF aggregated at holding level was 4484 m².

2.5.6. The first stage of the analysis consisted in converting the original patches (polygons) to their central line. This central line was computed following a GIS vector approach based on the interpolation of Thiessen (Voronoy) polygons from the patch boundaries and a subsequent cleaning of the polygon skeleton. In the second step the width values were calibrated by a trial-error approach and also by fitting linear models. In the first case the disagreement between the original polygon area and the area computed as [length x width] was evaluated in order to identify the most suitable width values, whereas in the second case the slope of the linear fit was taken as width value.

2.5.7. Results showed differences between approaches and between feature and farming scale. In the trial-error approach, the lowest difference model vs. reference was obtained for a width of 5 m, while at holding level the most suitable width value was 6 m. A Wilcoxon signed rank test showed that the hypothesis of equal medians just for the latter can be accepted. In the linear model approach, robust models were used due to the violation of the assumptions of the standard minimum squares method, and were obtained statistically significant values of 4.5 m of width at feature level and of 5.9 m at holding level. A 5-fold cross validation showed an estimated prediction error of 128 and 698 respectively.

2.5.8. Results also confirmed that it is quite unlikely that one standard could fit all the heterogeneity across Europe, so polygon measurements or modelling at local scale are advisable. Indeed it was found an important effect of the LF and holding heterogeneity on the modelling of LF width, even in a small sample and relatively small geographic setting. It is also worth to point out that the measurement of the LF length is not trivial (both geometrically from GIS polygons and in the field) and in some cases more than one correct output is possible, so there is a need for clear guidelines to avoid ambiguity in its quantification.

2.5.9. In the framework of cross compliance, and in application of art. 6 of Council Regulation (EC) No 73/2009 and the related Annex III, Member States have since 2005 implemented the Good Agricultural and Environmental Condition (GAEC) standard "Retention of landscape feature" and therefore identified the landscape feature types that shall not be removed by the farmer in compliance with this standard. The area occupied by the landscape features defined in GAEC can be considered as eligible in the calculation of the direct aids that farmer receives (art. 34.3 of the Commission Regulation (EC) No 1122/2009).

2.5.10. Vincenzo Angileri presented an analysis that was carried out using the information sent by MSs to JRC for the implementation of the LPIS (Land Parcel Identification System) quality assessment[11].

2.5.11. The analysis, done on the eligibility profiles of the LPIS quality assessment exercise, was carried out for 23 Member States, 4 countries (England, Wales, Scotland and Northern Ireland) and 15 regions (Flanders and Wallonia and 13 German Länder), for a total of 42 files. In 30 cases landscape features are included in the eligibility profile. The number of landscape features types in the eligibility profile for each Member State varies from 1 such as in Finland (only single trees) up to 11 in many German Länder. In 12 cases (national/regional) landscape features are not part of the eligibility profile. Among landscape features types found in the eligibility profile, single trees are the most recurrent (in 26 cases), followed by trees in rows (24).

2.5.12. Eighteen Member States/regions reported the existence of data sets with landscape features. Most of them are the German Länder (11 out of 18). German Länder are also the ones with the highest number of landscape features types recorded in data sets. When one considers the types of landscape features which are more frequently collected in datasets, the elements which are listed in the GAEC European legislation framework are the most recurrent: trees in line, in group or solitary, hedgerows and ponds. Information in datasets often exists also for wetlands and habitats.

2.5.13. From the analyses of the information provided by the Member States it is pointed out that twelve Member States did not include any landscape feature type in the eligibility profile, even if all of them implement the GAEC standard related to landscape features and define some categories of elements that cannot be removed by the farmer. This should be further investigated.

2.5.14. Pavel Trojáček focussed on how the information on landscape features is managed in view of their protection[12]. He highlighted the reasons why landscape features shall be protected and gave examples on how the information is stored in the LPIS in Czech Republic, Malta and Germany.

2.5.15. From the analysis it appears that some LFs that meet the definitions are not registered in the LPIS (omission, farmer's initiative required, unclear methodology, etc.), it is unclear whether these features are subject of GAEC on-

[11] Presentation: "Analysis of landscape features in the LPIS: eligibility profile and presence of datasets", Vincenzo Angileri, Ramon Diaz, European Commission – JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations

[12] Presentation: "Original motives for landscape features protection compared with GAEC practical implementation: harmony or tension?", Pavel Trojáček, EKOTOXA s.r.o., accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/Trojacek_landscape_features

the-spot checks, and sometimes LPIS fails to provide reliable information to both the farmers and the inspectors. If LFs are classified according to their size or proportion on the area of reference parcel, the way how the features are represented in the database can lead to their exclusion (simple shapes / complicated structures). Furthermore, polygons are not always suitable for the representation of LFs (e.g. single trees, tree lines, narrow hedges or field margins).

2.5.16. He finally proposed the registration of all identifiable LFs together with the registration of all farmers who can affect the feature by their agricultural activity, the assessment of particular LFs according to their function in the landscape, a compulsory spatial database of landscape features with a complete and homogeneous data coverage fully integrated in the LPIS. This could be a source of reliable information for both the farmers and the administration. It could form an open data source widely re-used for CAP-related issues such as the prevention of soil loss from water and wind erosion, the design of small-scale anti-erosion measures, as well as for biodiversity issues, the protection of high-nature-value farmland, and for environmentally-linked advice to farmers.

2.5.17. Bernadett Csonka presented the results of a research activity exploring the benefit which can be obtained with the use of the spatial data already available in the LPIS and IACS GIS in order to comply with the EFA criteria foreseen[13]. The exercise is centred on the Hungarian physical block based LPIS. The study was carried out on the LPIS eligible areas.

2.5.18. Landscape features can be selected with GIS tools based on the Land Cover type, surrounding Land Cover, size, shape, among the already delineated non-eligible objects, based on information already approved by the LPIS interpreter (on image). For the definition of EFA most elements are already present in thematic layers of the LPIS such as landscape features, water buffer strips and wetlands.

2.5.19. After the analysis of the data available and the calculation of the areas of the elements included in the EFA in relation to the agricultural area excluding permanent grassland, she proposed to differentiate the time in the application of the 7% area, leaving more time to intensive crop areas to adapt to this threshold.

[13] Presentation: “Delineating features valuable for the ecological network with the use of the LPIS data”, Bernadett Csonka, Fömi, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/Csonka-s-presentation

2.5.20. The second presentation of Diaz et al.[14] focussed on the identification and evaluation of GAEC and greening features at the province and at the holdings level. This presentation takes into account the current EU proposal on the "greening" of direct payments (COM 2011 625), which includes a measure related to the maintenance of Ecological Focus Areas (EFA) in agricultural land. According to this proposal, a part of direct payment received by the farmer is linked to the fact that at least 7% of the farm's eligible ha, excluding areas under permanent grassland, is maintained as EFA. EFA refer to a set of elements in the agricultural land that deliver habitat and water protection. Beyond landscape features in the same terms of the GAEC standards in the Council regulation 73/2009, EFA includes other elements, namely land left fallow, terraces, buffer strips along rivers and certain afforested areas.

2.5.21. There is however a general lack of geodata meeting the requirements of spatial and/or thematic resolution for the identification, mapping and measurement of the above-mentioned GAEC/Greening elements and for the assessment of the required percentage of EFA in agricultural areas, permanent pastures excluded. In this context, an experiment was presented on the use of extended LPIS land cover data to quantify landscape features (LF) and buffer strips (BS) at local / farm scale and also to assess the current proportion of such elements both at overall NUTS-3 level and at the holding level. The analyses were done on the province of Macerata (Marche, IT) using as basic datasets the land cover LPIS and hydrographical network maps along with the boundaries of a sample of 695 farms evenly distributed in the province.

2.5.22. In a first analysis stage, the land cover maps were reclassified in order to label both the classes semantically corresponding to landscape features, and the land cover considered as agriculture land excluding permanent pastures. This dataset was then spatially queried to locate patches belonging to classes thematically matching landscape features and located (sharing a fraction of its boundary) in a matrix of agricultural land excluding permanent pastures, and were henceforward considered as landscape features at the effect of GAEC/greening computation. Buffer strips were calculated by buffering a set of water courses with a width of 3 or 5 m according the regional normative specifications. The resulting buffers were then overlaid on the land cover classes to obtain the final set of buffer strips on agriculture areas.

2.5.23. At this point four different datasets were compiled in a GIS:

- Landscape feature on agricultural land not permanent pasture (for the whole province)

[14] Presentation: "Assessment of ecological features at farm level", Ramon Diaz-Varela, Vincenzo Angileri and Marco Bertaglia, European Commission- JRC, accessed at: http://mars.jrc.ec.europa.eu/mars/News-Events/GAEC-workshop-2012/Agenda-and-presentations/diaz_landscape_feature_final

- Agricultural land not permanent pasture (including also the landscape features, for the whole province)
- Buffer strips on agricultural land following the regional normative specifications (for the whole province)
- Boundaries of a sample of holdings

2.5.24. These datasets were then integrated in two different scales of analysis, namely province and holding level, so as to calculate the percentages of LF and buffer strips against the overall agricultural area not permanent pasture.

2.5.25. At province level, results showed that LF occupied 3 475 ha (2.40 % of the overall eligible area not PP) while the BS covered 12 ha (0.01 % of the agricultural area potentially subject to this measure). At farm level, despite the high share of holdings including LF or BS (617 out of 695) its quantitative importance remained low (around 2 % of the holding area on average). As a consequence only 15 (2%) of the holding sample would reach the 7% of EFA just relying on LF and BS.

2.5.26. These results show a low percentage of Landscape features and Buffer Strips for this particular study case, so it suggests the search for alternatives to increase the GAEC/Greening elements area. We also found a low contribution of the Buffer Strips to the overall surface of GAEC/Greening elements.

2.6. Field visit

2.6.1. A field visit was carried out on 9th October. Participants had the opportunity to see the typical holdings and landscape in the Valle del Ticino Regional Park. The visit was organised thank to the active involvement of Parco Lombardo della Valle del Ticino, of the Directorate-General for Agriculture of the Lombardy Region and the Lombardy Paying Agency and of SIN spa experts.

2.6.2. Two farms were visited. A typical small size (15 hectares) mixed farm (crops and livestock) and a farm specialised in rice cultivation with significant environmental management of large parts of the farm area.

2.6.3. The visit focussed on the exams of how GAEC is implemented in the area as well as on related agri-environmental schemes. The discussion among participants was particularly lively and covered almost all GAEC issues, with landscape features featuring as the main concern of participants. Some of the topics of the discussion are reported in the conclusion chapter of this report.

3. Conclusions

3.1. Main outcomes

3.1.1. At this stage, GAEC implementation seems to have become well-established in the Member States for most issues, and Member States interest is now focussed both on new GAEC standards foreseen in the proposal for the CAP 2014-2020 and GAEC related issues in the "greening" of the CAP anticipated in the same proposal.

3.1.2. The importance of carbon soil issues has increased also in the view of the proposed new GAEC on the "protection of wetland and carbon rich soils including a ban of first ploughing". The availability of mapping and monitoring tools are crucial for the effective implementation of this GAEC standard, as well as for the development of the conceptual framework for a clear definition of the soils and ecosystems targeted by this GAEC.

3.1.3. GAEC Member States notification through the JRC GAEC database is appreciated both by DG AGRI and Member States. The process is considered easily handled with no main drawbacks. It is important that once the notification has been registered by the Member State, an amendment in the current year (always possible) shall require a demand to JRC to re-open the procedure.

3.1.4. The extension of the GAEC database with a session dedicated to studies related to GAEC topics is appreciated. This is a way for exchange of information on good practices among the Member States and the Commission, with the possibility to extend it to other stakeholders, especially advisory services. Its specific objective is to select key, high-quality sources of information that are relevant for the specific implementation, monitoring, and evaluation of GAECs in the EU.

3.1.5. Much interest was raised by technical aspects related to the future CAP. The Ecological Focus Area measure included in the proposed "greening" of the direct payments of the CAP draws lot of attention. Member States expressed their concerns on an effective implementation without much administrative burden and on the controls tools to be applied.

3.1.6. Technical aspects related to definition and control of landscape features were frequently part of the discussion during the workshop and field visit. The main issues related to them are: which definition can be used for identifying landscape features in GAEC and in the calculation of the ecological focus area, how these features shall be acquired and possibly registered in the LPIS, how they can be counted in the calculation of the ecological focus area.

3.1.7. New remote sensing tools currently available to identify and control landscape features were described during the workshop. Particularly the potential application of orthoimages and digital surface model (DSM) derived from very high resolution (VHR) imagery acquired from Unmanned Aerial Vehicles (UAV) seem very

promising for identifying features that cannot be detached by two-dimensional imagery of current satellite sensors. Particularly, this is the case of small landscape features such as terraces, hedges, ditches, walls, which require centimetre resolution in some cases. JRC is carrying out research on the use of these UAV data, assessing the validity of the methods for DSM generation and landscape feature identification from available VHR satellite imagery and stereo-pairs currently available to cover larger areas in Europe.

3.2. Future JRC activities

3.2.1. The workshop allows setting up and fine-tuning future major JRC activities taking into account DG AGRI and Member States inputs.

3.2.2. For GAEC:

- Survey methods for the identification of landscape features and proposal of solutions for the integration of these elements in the LPIS;
- Dataset availability and mapping of carbon rich soils and permanent pasture with high environmental value;
- Development of the web portal on good farming practices and facilitation of its use also for the future advisory services;
- Development of surveying methods to monitor and control the effectiveness of GAEC, also linked to the definition of indicators.

3.2.3. For the greening:

- Studies in support of the implementation of the Ecological Focus Area with respect to the definition of an equivalent area for landscape elements.
- Technical implementation of the measure related to permanent pasture foreseen in the "greening" of the CAP and its relations with the IACS GIS.
- Assessment of environment quality indicators (biodiversity value, environmental services, etc.) to be used as weighting factors for a realistic estimation of such equivalent area.
- Development of control methods.
- Calculation of the contribution of landscape features and buffer strips to EFA in selected test areas. Modelling of potential land use-land cover future scenarios driven by the EFA implementation.

- Tests on tools and survey methods for the identification and evaluation of landscape features which will be part of the Ecological Focus Area with a focus on their three dimensional characteristics.

4. Annex

4.1. Agenda of the workshop

Monday, 8th October 2012

12:00-13:30 Registration and sandwich lunch

13:30- Welcome, Neil Hubbard, Head of Unit MARS

13:45- 15:00

Session: Soils references and mapping: a support to soil related GAECs?

- Pan-European assessments of soil erosion data within the European Soil Data Centre (ESDAC) – Panos Panagos, JRC Soil-Action

- Monitoring, mapping and predicting Soil Organic Carbon in Europe under different Land Uses and Managements – Francesca Bampa, JRC-Soil Action

- Discussion with Member States

15:00- 15:45

Session: Water issues

- Accuracy test of Digital Surface Model (DSM) for buffer strip calculation and land monitoring, Italy, Livio Rossi, Paolo Tosi and Daniele Biscontini, SIN spa, IT

15:45- 16:15 Coffee break

16:15- 17:30

Session: GAEC database and studies on GAEC

- Current situation of the use of the GAEC database for notification, Vincenzo Angileri, JRC

- Web database on GAEC related studies, Marco Bertaglia, JRC

- Discussion: GAEC database possible improvements

17:30- Presentation of the field trip

17:45- End of the first day

Tuesday, 9th October 2012

8:00- 19:00 Field trip in co-operation with Parco Lombardo della Valle del Ticino, Paying Agency and DG Agriculture of Lombardy Region and AGEA-SIN

Wednesday, 10th October 2012

9:00- 10:30

Session: identification and measurement of landscape features

- Identification of landscape features using VHR unmanned aerial vehicle (UAV) imagery, Pablo J. Zarco-Tejada , JRC

- Modelling landscape features: from polygon to line and back, Ramon Diaz, JRC

- Analysis of landscape features in the LPIS: eligibility profile and presence of datasets, Vincenzo Angileri, JRC

10:30- 11:00 coffee break

11:00- 12:30

Session: landscape features management concerns

- Original motives for landscape features protection compared with GAEC practical implementation: harmony or tension?, Pavel Trojáček, EKOTOXA s.r.o., CZ

- Delineating features valuable for the ecological network with the use of the LPIS data, Bernadett Csonka, FÖMI, HU

- Assessment of ecological features at farm level, Ramon Diaz, JRC

12:30-13:00 Closing remarks, JRC and DG AGRI

13:00: buffet lunch

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Luxembourg: Publications Office of the European Union

2013 – 18 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424

ISBN 978-92-79-28138-9

doi: 10.2788/78016

Abstract

The report describes the main technical findings of the Good Agricultural and Environmental Condition (GAEC) workshop 2012 organised by the Joint Research Centre (JRC). 110 delegates from 24 European Union Member States, two candidate countries (Croatia and Iceland) and Commission services took part.

The workshop focused on implementation and control issues related to the identification and measure of landscape features and buffer strips, as well as on scientific references for definition and mapping of soil related issues (e. g. soil erosion or soil organic matter). Participants showed much interest on technical aspects related to the implementation of the future CAP with particular reference to landscape features in the framework of the so-called Ecological Focus Area. The workshop allows setting up and fine-tuning future main JRC activities taking into account DG AGRI and Member States inputs.

LB-NA-25735-EN-N

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

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Key policy areas include: environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; safety and security including nuclear; all supported through a cross-cutting and multi-disciplinary approach.

Publications Office

ISBN 978-92-79-28138-9

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