

SUCCESS OF AGRI-ENVIRONMENT SCHEMES IN CONSERVING BIODIVERSITY: REVIEW OF MID-TERM EVALUATION REPORTS OF SELECTED MEMBER STATES ON THE RURAL DEVELOPMENT REGULATION

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Summary: Integration of environmental and biological diversity conservation considerations into agriculture is a fast developing priority in European agricultural policy. Agri-environment schemes (AESs) are the main vehicles to deliver this integrative approach at the moment. Member States' mid-term rural development review reports (2003) and within that Member States' response to the European Commission's Common Evaluation Questions (CEQs), in particular, are seen as being the most recent official information source to get an overall picture on the status and environmental efficiency of AESs in contributing to biodiversity conservation. The objectives of this paper is to provide an overview of the results and quality levels of AES monitoring and evaluation with special regard to biodiversity conservation in some Member States (MS) and to summarise some best practice examples. It is concluded that Member States had short time so far to assess and quantify the environmental outcomes of agri-environmental (AE) measures of the 2000–2006 programming period. Overall, based on indirect assessments and some actual research there are signs of positive effects of AE measures on biodiversity but in many case these do not always fully meet the scientific criteria. More comprehensive environmental monitoring systems should be based on adequate scheme administration and procedures that also record aspects to be used as basis for environmental monitoring, proper monitoring data management system and techniques linked to planned and representative monitoring research and regular fieldwork.

Introduction

Integration of environmental and biological diversity conservation considerations into agriculture is a fast developing priority in European agricultural policy. Agri-environment schemes (AESs), designed to encourage farmers to protect and enhance the environment on their farmland, are the main vehicles to deliver this integrative approach at the moment.

Why focus on biodiversity? Over the last few decades biodiversity on farmland in Europe has declined seriously (Donald et al. 2006, Hoogeveen et al. 2004). Large scale rationalisation and intensification of agricultural production has taken its toll. Conservation of biodiversity on agricultural land therefore is now high on the political agenda involving several conservation efforts at EU level such as the habitats and birds directives and the biodiversity action plan for agriculture.

The political document of the European Union, the Agenda 2000 identified the new multifunctional model of European agriculture in 1999 and gave a new basis for agricultural and rural development policy development. As a result the Rural Development Regulation (EC/1257/99) made compulsory for Member States to develop national rural development programmes for the period 2000–2006 and introduce agri-environment schemes in order to counteract the negative effects of contemporary agriculture.

The run and so-far results of rural development support schemes were evaluated by Member States in their mid-term rural development review reports to DG Agriculture by early 2004. Member States' response to the European Commission's Common Evaluation Questions (CEQs) in these mid-term review reports, in particular, are seen as being the most recent official information source to get an overall picture on the status and environmental efficiency of AESs in contributing to biodiversity conservation.

Based on the first available mid-term rural development review reports of Member States (MS) at the time of the analyses in early 2004 the objectives of this paper is to provide overview on the results and quality levels of AES monitoring and evaluation with special regard to biodiversity conservation and to summarise problems and best practice examples.

Materials and methods

In many countries already the second generation of AE measures was implemented with the 2000–2006 rural development programming period.

The Common Evaluation Questions, set by the European Commission, serve as a guideline for Member States in preparing their mid-term evaluation reports and concern matters relevant at EU-level. They examine programme effects (i.e. results, impacts) that can be expected thanks to the means and objectives of Regulation 1257/99.

The biodiversity CEQs (Table 1) contain three groups of questions covering to what extent species diversity, habitat diversity and agricultural genetic diversity has been maintained or enhanced thanks to AE measures. The structure and headings of the analyses this paper also follow this structure.

Table 1: Common evaluation questions with criteria and indicators for evaluating the impacts of agri-environmental schemes on biodiversity

1. táblázat: A közös értékelési kérdések kritériumokkal és indikátorokkal az agrár-környezetgazdálkodási intézkedések biodiverzitásra történő hatásának értékeléséhez

VI.2.A. Species diversity: To what extent has biodiversity been maintained or enhanced thanks to agri-environmental measures ... through the protection of flora and fauna on farmland?

VI.2.A-1. Reduction of agricultural **inputs** (or avoided increase) benefiting flora and fauna has been achieved

VI.2.A-1.1. Area with assisted input-reducing actions (**hectares**)

VI.2.A-1.2. Reduction of agricultural input per hectare thanks to **agreement (%)**

VI.2.A-1.3. **Evidence of** a positive relationship between assisted **input reduction** measures on the targeted land **and species diversity** (description, where practical involving estimates of species abundance)

VI.2.A-2. **Crop patterns** [types of crops (including associated livestock), crop rotation, cover during critical periods, expanse of fields] benefiting flora and fauna have been maintained or reintroduced

VI.2.A-2.1. **Area** with beneficial lay out of crops [types of crop (including associated livestock), crop-combinations and size of uniform fields] maintained/reintroduced thanks to assisted actions (hectares)

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- VI.2.A–2.2. Area with beneficial vegetation/crop-residues at **critical periods** thanks to assisted actions (hectares)
-
- VI.2.A–2.3. **Evidence** of a positive relationship between the **layout of crops or cover** on the farmland under agreement **and** the impact on **species diversity** (description, and where practical, estimates of numbers of nest (of birds, mammals, etc) or species abundance (or observation frequency)
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- VI.2.A–3. **Species in need of protection** have been successfully targeted by the supported actions
-
- VI.2.A–3.1. **Area** of farmland under agreements **targeting particular wildlife species** or **groups of species** (hectares and specification of species)
-
- VI.2.A–3.2. **Trend in populations of target species** on the specifically targeted farmland (cf., indicator 3.1) (where practical involving estimates of *population size*) *or* other **evidence for a positive relationship** between the supported actions and the abundance of the targeted species (description).
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- VI.2.B. **Habitat diversity** To what extent has biodiversity been maintained or enhanced thanks to agri-environmental measures ... through the conservation of high nature-value farmland habitats, protection or enhancement of environmental infrastructure or the protection of wetland or aquatic habitats adjacent to agricultural land?
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- VI.2.B–1. “**High nature-value habitats**” on farmed land have been conserved
-
- VI.2.B–1.1. **High nature-value** farmland habitats that have been protected by supported actions (*number of sites/agreements; total hectares, average size*)
-
- VI.2.B–2. **Ecological infrastructure**, including field boundaries (hedges...) or non-cultivated patches of farmland with habitat function have been protected or enhanced
-
- VI.2.B–2.1. **Assisted ecological infrastructure** with habitat function or nonfarmed patches of land linked to agriculture (*hectares and/or kilometres and/or number of sites/agreements*)
-
- VI.2.B–3. **Valuable wetland** (often uncultivated) or aquatic habitats have been protected from leaching, run-off or sediments originating from adjacent farmland
-
- VI.2.B–3.1. **Area** under assisted farming systems or practices that reduce/prevent leaching, run-off or sedimentation of farm inputs/soil in **adjacent valuable wetland or aquatic habitats** (hectares)
-
- VI.2.B–3.2. **Adjacent valuable wetland** or aquatic habitats that have been protected thanks to the assisted actions (hectares)
-
- VI.2.C. **Genetic diversity**: To what extent has biodiversity been maintained or enhanced thanks to agri-environmental measures ... through the safeguarding of endangered animal breeds or plant varieties?
-
- VI.2.C–1. **Endangered breeds/varieties** are conserved
-
- VI.2.C–1.1. Animals/plants reared/cultivated under agreement (number of individuals or hectares broken down to breed/variety)
-

Mainly due to size of the country and institutional arrangements, member states announced rural development measures either at national or regional level. Mid-term evaluation reports were prepared at national level in many member states but there are also a number of countries (e.g. Spain, Italy, Belgium) where reports were prepared at a regional level.

Results

At the time of analysis (February 2004) not the full spectrum of mid-term reviews was available yet. This has limited the scope of this review to 10 reports covering a part of Belgium (Wallonia), Ireland, parts of Italy (Sicily, Toscana, Venice Region), Luxembourg, Portugal, a part of Spain (Navarra) and parts of the UK (England and Northern Ireland). Beyond language constraints, the selection of reports and in-depth analyses, in the case of regional reports in particular, was limited to those either containing information on agri-environment all (e.g. in the case of Spain only the regional report on Navarra contained agri-environmental evaluation) or those containing relatively the largest volume of information on agri-environmental (AE) evaluation among the regional reports of a Member State. This latter was the case when selecting three regional reports from Italy when at the same time also considering the geographical representation of the reports.

Table 2 shows that there is a great diversity in the scope and implementation of AE measures of the investigated Member states and regions.

Table 2: The number of agri-environmental measures (AEM) in selected Member States (MS) and regions
 2. táblázat: Agrár-környezetgazdálkodási intézkedések száma a vizsgált tagállamokban és régiókban

MS and region	MS and region
Belgium, Wallonia	More than 20 measures
Ireland	ca. 8 sub and supplementary measures
Italy, Sicily	10 (old) + 6 (new)
Italy, Toscana	7 (old) + 5 (new)
Italy, Venice	4 measures with 13 actions
Luxembourg	ca. 10 measures with many options
Portugal	19
Spain, Navarra	6 (old) + 3 (new)
UK, England 3 UK, Northern Ireland	3

The variability in the breadth and quality of information on potential and actual impacts and effects of AE measures on biodiversity among reports of Member States is considerable.

Despite the pre-defined list of Common Evaluation Questions not in all reports were this structure followed. Under the biodiversity section of the Sicily report there is only a general text describing the importance of biodiversity conservation covering information on national conservation efforts of habitats. However, detailed recommendations for a regional methodology grounding AE biodiversity indicators (monitoring birds and plants) is given in the annex of the report. This suggest progress in the matter though not having accompanied with actual monitoring implementation plans this issue seems to remain theoretical in Sicily. Similarly, bird surveying methods as potential tools for the evaluation of effects of AE measures on biodiversity are described in the methodology annex of the report but not followed by actual implementation plans.

In the case of Portugal a detailed overall evaluation of the Zonal Programme of Castro Verde (PZCV) is available in the report. The biodiversity evaluation of PZCV considers effects on bird diversity using survey of indicator species and calculating bird species richness, previous evaluations suggested positive effects.

Biodiversity conservation in Luxembourg is well covered by a nationally financed separate measure (Reglement Grand-Ducal Biodiversite) approved by the Commission, therefore this theme is less emphasized in the RDP.

The Rural Environment Protection Scheme (REPS) in Ireland provides a basic level of protection, which can be built upon in terms of broader biodiversity goals. There is considerable regional variation, however, with the majority of REPS land being found in the generally more extensive western and south-western counties.

Species diversity CEQ responses

The Venice region report states that there is no consolidate network of quantitative monitoring of animal and plant species. However, an indirect assessment deduced from relevant physico/chemical parameters and causal relations drawn from literature, suggests an increase in biodiversity according to the authors.

There is no quantified reference situation available in Portugal to comment on impacts on species diversity. Relevant AE measures on input reduction, crop patterns and targeted species are identified.

In Northern Ireland the report concludes that no research through the monitoring programme took place after 2000 to assess the impact of AES on species diversity; the shortcomings of short run monitoring in exploring longer period effects are highlighted.

Input reduction

In general, the decrease of chemicals use is beneficial for the conservation of the fauna and the flora. The effects of herbicides on flora are well known and demonstrated. Spontaneous decrease of flora as a result of herbicide use has impact in the communities of invertebrates, as much in the diversity, as in the abundance. The decrease in diversity and abundance of invertebrates then has impact on bird communities e.g. in agro-forestry systems. Applications of some fungicides and insecticides have direct effect on the abundance and diversity of vertebrates and invertebrates. The efficiency of these measures depends on the local conditions of its application. For this reason the conservation value of the measure depends heavily on the type of plant communities at present and on the situation of species that constitute them.

The Wallonian report suggest that for the indicator “reduction of agricultural input per hectare” the collection of data requires farmers to keep input accounting that should be included into scheme requirements.

In Sicily and Toscana the area covered with assisted input reducing actions (CEQ criterion VI.2.A–1.1.) by relevant old and new measures are calculated with support from a GIS aided database.

In Ireland there are grounds for asserting that the REPS measures have had definite positive impacts on soil and water quality but a longer timeframe is required to arrive at definite conclusions in relation to species diversity.

In Northern Ireland the average input reduction due to scheme participation is between 30–40 %. However, previous research had shown no evidence of direct relation between species diversity and input reduction on the short run but the survey suggest a link between input reduction through the schemes and increased wildlife.

In England income foregone was used, specifically data for plant protection products and fertilisers, to quantify the area with assisted input-reducing actions and to estimate the overall amount of nitrogen input reduction for those measures where it is known that on average the level of use will decrease as a result of the agreement. Also income foregone data (for inorganic and organic fertilisers) used to estimate the reduction of nitrogen (estimated kg/N/ha) was then combined with area of land with measures restricting the use of inorganic fertiliser to specific periods of the year to answer VI.2.A– 1.1 (c).

There is no direct evidence in England that reduced inputs have influenced species diversity in Countryside Stewardship Scheme (CSS) and Environmentally Sensitive Areas (ESA) agreements. The actual impacts of the CSS scheme on species diversity and any causes of change are difficult to quantify, particularly as direct monitoring of changes in habitat condition have not been carried out. Sample desk-based appraisals of CSS scheme agreements suggest that about 70% are likely to maintain and enhance wildlife value and about 25% more likely to maintain wildlife value.. There has been sufficient botanical monitoring to establish that ESAs have been successful in maintaining wildlife value on agreement land but there has been little monitoring of non-agreement land to provide a counterfactual. No monitoring of area under Organic Farming Scheme (OFS) agreement for species diversity was carried out.

Crop patterns

In Sicily and Toscana the area covered with assisted beneficial layout of crops by relevant old and new measures are calculated with support from a GIS aided database.

In the report of Northern Ireland species rich grasslands and arable fields managed for wildlife are focused in Q VI.2.A–2. but no research relate the layout of crops or cover with impact on species diversity.

In England evidence of a positive relationship between the layout of crops or cover on the farmland under agreement and the impact on species diversity relates to organic farming on mixed and arable farms. On the other hand it was difficult to quantify the effect of ESA agreements and there is no direct evidence of a positive relationship between the layout of crops and the impact on species diversity.

Targeted species in need of protection

There is some evidence in Ireland from sample surveys that REPS has contributed to improved species richness and diversity of both flora and fauna, particularly on field margins and in hedgerows. The the report refers to research evidence that shows conclusively an improvement in bird numbers and diversity. In designated areas there is specific targeting of Red list bird species in REPS through specific actions. There is some experience with hen-harrier (*Circus cyaneus*) protection through REPS.

In England under the Countryside Stewardship Scheme (CSS) in general there is some evidence of a positive effect. The report mentions, for instance, that Cirl bunting (*Emberiza cirlus*) populations increased by 82% on land where CSS agreements were targeted at managing the habitat. There are 795 special projects in CSS, some of which specifically target specialist species.

Habitat diversity CEQ responses

In Wallonia the measures 2 „Headlands and stripes of extensive meadows“, 3 „Maintenance of hedges, extensive old fruit trees, ponds“, 9 „very late mowing“ and 10 „conservation measures in wetlands“ contribute to the conservation of habitats with high natural value on arable lands and contribute to the development of the ecological network.

In Luxembourg a constructive methodology for habitat diversity effects monitoring is put forward during the mid-term evaluation work to take account of the length and the number of the landscape elements. The suggested methodology, basically using photo interpretation in test zones and cartography of the structure of elements in vineyards, could also serve for the collection of follow-up indicators. The methodology seems to get favourable response from the ministry and this work will be carried out. Thus no result is available at this moment.

High nature-value farmland habitats

In Portugal AE measures have a particular importance in Natura 2000 areas, 39.4% of all AE area is within Natura 2000 areas. In case of many measures the share of AE area is clearly higher in Natura 2000 sites than in the rest of the territory. There is a recognized relationship between the management of these areas and their floristic and faunistic diversity, however, an evaluation to affirm that AE contributes to the conservation of HNV farmlands via comparison with counterfactual situation was not possible.

In Northern Ireland traditionally managed hay meadows are considered HNV. There are specific conservation measures against encroachment within new Environmentally Sensitive Areas (ESA) and Countryside Management (CMS) schemes for controlling scrub, rhododendron, bracken though these seem to be insignificant as only taken up on less than 60 hectares. The Natura 2000 overlap with AE managed areas is not measured. Areas of Special Scientific Interest (ASSI) that are partly covered by AE schemes are marked but not measured. There is no data for satisfactory answer for habitat fragmentation alleviation in HNVs. Habitat management in favour of particular species exist in the form of breeding wader, winter feeding and chough option on around 2000 hectares.

In England for the indicator the total area of HNV farmland habitats located within Natura 2000 areas are calculated from the agri-environmental spatial database overlaid with the Natura 2000 boundaries (digitised from 1:10,000 scale maps). In the case of the ESA and CSS schemes 14% of agreements, 22% of agreement areas lie within Natura 2000 areas. However, sources of error to be found in geo-referencing of fields under agreement and hence the positional accuracy is 100 m.

In England HNV habitats that in particular benefit specific species or groups of species include lowland heath land (heather based dwarf gorses, and cross leaved heath plant communities with associated specialist animal communities) and inter-tidal habitats (salt marsh vegetated shingle ridges, saline lagoons and mud flats with associated specialist animal communities) within the CSS.

Ecological infrastructure

In Ireland one of the key actions under REPS is the maintenance of farm and field boundaries (Measure 5). In particular, the functions of field margins and hedgerows as important habitats for flora and fauna have been identified in research. One research study concluded that on the grassland farms the collective species richness of all REPS grassland field margins was higher than that of non-REPS field margins. Another research has established a positive link between bird species richness and hedgerow quality on REPS farms.

In Northern Ireland in terms of ecological infrastructure the ESA baselines were surveyed in 1995 and a resurvey is scheduled for 2005. The NI Countryside Survey in 2000 recorded overall declines in boundaries across NI.

In England a minimum estimate of assisted linear features, non-farmed or partly non-cultivated land, and agreements with renovation of isolated features are given.

Valuable wetlands around farmland

In Wallonia Measure 10 „conservation measures in wetlands“. The maintenance of farming in wet meadows through very late mowing or very late extensive grazing also contribute to the long-term conservation of fauna and wild flora through the maintenance of a good ecological grid. In Navarra, Spain, the measure erosion control is a relevant AE measure in Ramsar wetland zones. In terms of wetlands, no data is available in Ireland on habitat quality. To get a picture of wetland conservation through AE assisted farming in Northern Ireland extrapolated survey data are used to give a wide estimation on number of participants and hectares involved in land adjacent to lakes, buffer zones beside lakes and rivers. In England insufficient information available to answer this question or the sub parts as location of valuable wetland or aquatic habitats (hectares) is unavailable.

Genetic diversity CEQ responses

The relevant measures in Sicily (F4b Allevamento di specie animali in pericolo di estinzione), in Toscana (old measure D2 Allevamento di razze animali in via di estinzione, new measures 6.3 Allevamento di razze locali a rischio di estinzione, 6.4. Coltivazione di varietà vefetali a rischio di estinzione), in Venice (Allevamento razze in via di estinzione) are not evaluated.

In Portugal the number of endangered breeds represent about 10% of total livestock units. 11 cattle, 8 sheep, 3 goat and 2 pig breeds are supported by a separate AE measure. An important fraction of the Portuguese cattle breeds are supported through AE, contributing to the maintenance and improvement of genetic diversity.

In Navarra, Spain there are two animal breeds supported (1 cattle and 1 equine) but the performance of the scheme seems to be very weak.

In Wallonia there are two genetic diversity conservation AE measures covering both crop varieties and animal breeds but their success is very limited as by its definition has low interest from farmers.

In Luxembourg measure F5 „Conservation of local endangered races „, targets the Ardennes draught horse with only 8 agreements and 29 animals in 2002.

In Ireland there are three animal species (2 cattle and 1 equine) on the FAO List of Endangered Species that are protected under a supplementary measure. This measure, however, seem to be losing significance compared to the baseline data of the previous programming period (200 animals was supported in REPS1) shows considerably low participation (78 animals) and therefore has little impact in conserving genetic diversity.

This indicator is not applicable in Northern Ireland and England as there are no relevant AE measures available.

General observations

Data management problems and area quantification

The clean cut quantification of AE areas for the various CEQ indicators or by objectives proved to cause difficulties in many reports.

In Wallonia there are difficulties with proper area accounting by related questions partly because AE measures do not mutually exclude each other, meaning that a farmer can hold several different AE contracts even for the same plot, therefore the areas calculated for certain CEQs and the final number of beneficiaries contain bias.

In Luxembourg the main challenges associated with answering the CEQs to help measuring the impact on biodiversity included the issue that the RDP spans over many administrative domains (different ministries), the existing data was not in a form or structure to enable calculation of the required indicators, and the development of GIS aided scheme administration was not yet available at the time when the report was prepared.

Relevance of biodiversity CEQs

For some questions no answer was possible in the mid-term review report as the rural development plan of Member States did not contain relevant AE measures (Table 3).

Table 3: Omitted or not relevant issues
3. táblázat: Elhagyott vagy nem releváns témakörök

MS or region	Issues not relevant / omitted
Belgium, Wallonia	Evidence of positive relationship between layout of crops and species diversity, valuable wetlands,
Ireland	Valuable wetlands
Italy, Sicily	Valuable wetlands
Italy, Toscana	HNV farmland benefiting specific species, HNV farmland as rare habitat, valuable wetland conservation
Italy, Venice	Valuable wetlands, evidence of positive relationship between input reduction and species diversity
Luxembourg	HNV habitats, valuable wetlands
Portugal	HNV habitats, valuable wetlands
Spain, Navarra	Species protection: area targeting particular wildlife species (except for widespread species), trends of populations of target species
UK, England	Valuable wetlands, genetic diversity
UK, Northern Ireland	Valuable wetlands, genetic diversity

Some CEQ indicators are omitted, modified, adjusted or sub indicators added to be applicable to the RDPs in some reports which then actually remain unanswered, for instance in the case of Toscana.

The evaluators in Northern Ireland recommend that the ability of future evaluations in assessing scheme impact should be improved. For further monitoring of AE schemes attention should be given to conducting research in light of what impact indicators now known to be of interest to the European Commission in the form of the CEQs. Also a greater attention should be paid in monitoring reports to aggregating the results both for the individual schemes in the case of the ESA scheme in particular but also the impact of the overall scheme upon NI.

Problematic issues

Targeting

In Portugal it is believed that zonal programmes can help to increase targeting and the efficiency of interventions.

The Wallonian (BE) evaluation recommends that the targeting of schemes should be improved through adjustments to eligibility zone definitions, payment levels and prescriptions.

In England it is noted that there is a need to continue the integration of CSS with other key environmental policies such as Biodiversity Action Plans and Habitat Action Plans, and eventually encourage the setting up of similar appropriate policies for landscape and historical features.

Contract renewal

Low contract renewal rates seem to threaten long term environmental gains in Wallonia (BE), therefore it is suggested that a special premium for those who renew their contracts should be introduced. This would be particularly important in some schemes (measures 1 et 9 „fauches / pâturages tardifs et très tardifs“, 10 „mesures conservatoires en zones humides“, 2 „tournières“, et 3 „maintien et entretien des éléments du paysage“).

Current levels of contract renewal appear to be low and falling in England, too, that give concern for the long term sustainability of scheme environmental gains and outputs achieved so far.

Short time period to quantify environmental impacts

At the time of the analysis the Wallonian RDP had been running for less than 3 years, the short period did not allow for quantifying the *overall* impact of AE measures on biodiversity. However, some positive impacts on flora diversity and wildlife quality of the “Late and very late mowing” measure in meadows were confirmed via surveys (of e.g. plant species in meadows) taken by an interuniversity research group in applied biology (GIREA, Groupement Interuniversitaire de Recherches en Ecologie Appliquée) that will continue research in this field. A table of potential indicators to be collected also covering input reductions and biodiversity are demonstrated in the report. With regard to the yet limited success of the programme the environmental efficiency of the AE measures remain relatively weak and localised. Still, AE measures have an important indirect effect to sensitize farmers to consider the environment.

For measuring progress and impact in Ireland it also seemed to be *too early* in some instances to provide meaningful indicator data especially where anticipated environmental improvements are long term in nature.

Northern Ireland also reported that it was not possible to isolate impacts so early on in the programme as CMS, new ESA and OFS have only been underway, from standing starts, for just over two years at most.

Commitment baselines

Reassuring that the commitment level of popular AE schemes go beyond the GFP requirements and compliance is appropriately controlled are highlighted in the Wallonia report as an important factor of success of AE come from the fact that farmers mostly enrol to those schemes (e.g. „conservation des haies“, „couverture du sol pendant l’interculture“, „faible charge en bétail“) that require the fewest modifications to their practices.

Discussion and conclusions

Assessments are a critical element in a learning process that can continuously improve the effectiveness and environmental performance of AESs.

There are many agri-environment measures throughout the EU whose objective is to enhance biodiversity. However, measuring the impacts of agri-environment measures efficiently (i.e. to get representative results both over space and time) on biodiversity are complex to analyse and likely to be expensive. The classical approach to evaluation would be to relate each measure to its environmental impacts and then draw more general conclusions about the impacts of the measure. This is often not possible either due to lack of monitoring data or rather due to the difficulty in isolating the effect of AE measures from many other factors that influence environmental outcomes. This is often reflected in the analyzed reports.

The available mid-term rural development evaluation reports suggest that the three years of the programming period was very short period to quantify environmental outcomes. The evaluation of environmental benefits of AE schemes therefore, on biodiversity in particular, are based on assumed environmental impacts and expert opinion in many cases.

A great part of the immediate effects could be better assessed if some monitoring requirement aspects are taken into account during the scheme administration. For the assessment of immediate effects of a scheme the role of farm level information is inevitable. It is suggested that a very basic survey of farms on their input use and cropping patterns etc. before entering a AE scheme be part of the application procedure. This could give a very useful information for later comparison when changes in farming practices are evaluated.

It is of paramount importance that proper co-ordination is established between scheme administration and monitoring and there is congruence between databases that are also supported by adequate spatial data management techniques. GIS tools are becoming widely used in an increasing number of countries for scheme administration but environmental monitoring aspects are hardly considered at present.

In general, there seem to be a lack of planning of and coordination between different evaluation administration, research and fieldwork.

It is difficult to measure/assess classical additionality of different AE actions that seek to protect existing environmental capital against loss or degradation, especially if we do not know the degree of loss and clearly see the causalities of factors lying behind (difficulty in establishing causality). These gaps should be filled with research for finding appropriate methodologies and research design adapted to particular issues.

In species diversity research there is huge bias to monitoring birds. This might be explained by the relatively abundant methodologies and literature available but also to the strong bird conservation environmental lobby. Other animal groups, such as insects and invertebrates, however, could shed light from a different point of view on the quality of the environmental outcomes of AE measures.

Identifying HNV habitats covered by AE measures and investigating scheme effects on these areas, in valuable wetlands in particular, also need resources.

Agricultural genetic resource protection of traditional animal breeds and crop varieties through AE measures generally shows poor uptake. Research resources should be put to investigate how these measures could be run more effectively.

It is concluded that Member States had short time so far to assess and quantify the environmental outcomes of AE measures of the 2000–2006 programming period. Overall, based on indirect assessments and some actual research there is evidence of positive effects of AE measures on biodiversity, although this evidence does not fully meet the scientific criteria .

More comprehensive environmental monitoring systems should be based on adequate scheme administration and procedures that also records aspects to be used as basis for environmental monitoring, proper monitoring data management system and techniques linked to planned and representative monitoring research and regular fieldwork.

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AZ AGRÁR-KÖRNYEZETGAZDÁLKODÁSI INTÉZKEDÉSEK SIKERE A BIODIVERZITÁS
VÉDELEMBEN: A VIDÉKFEJLESZTÉSI RENDELET VÉGREHAJTÁSA FÉLIDŐS JELENTÉSEINEK
ELEMZÉSE NÉHÁNY TAGÁLLAM PÉLDÁJÁN

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A környezet- és biodiverzitás védelmi megfontolások mezőgazdálkodásba integrálása gyorsan fejlődő prioritás az európai mezőgazdaság politikában. Jelenleg az agrár-környezetgazdálkodási intézkedések ennek az integratív megközelítésnek a legfőbb megvalósítási eszközei. Az uniós tagállamok 2000–2006 közötti vidékfejlesztési programjainak félidős értékelési jelentései (2003) és azon belül különösen a tagállamok válasza az Európai Bizottság ún. közös értékelési kérdéseire tekinthetők a legfrissebb hivatalos információnak, amely alapján képet nyerhetünk az agrár-környezetgazdálkodási intézkedések helyzetéről és környezetvédelmi hatékonyságáról a biodiverzitás védelme tekintetében. A cikk célja, hogy áttekintést adjon néhány tagállam agrár-környezetvédelmi intézkedései monitoringjainak eredményeiről, minőségi szintjéről különös tekintettel a biodiverzitás védelemre és kiemeljen néhány jó gyakorlati példát. Az eredmények tükrében megállapítható, hogy a tagállamoknak a programok kezdete óta rövid időtartam állt rendelkezésére a 2000–2006 közötti programozási periódus agrár-környezetgazdálkodási intézkedései környezeti kimeneteinek számszerűsítésére és becslésére. Összességében elmondható, hogy közvetett értékelések, és bizonyos mértékű tényleges kutatási eredmény alapján van jele az agrár-környezetgazdálkodási intézkedések biodiverzitásra gyakorolt pozitív hatásának, noha a bizonyítékok sokszor merítik ki teljesen a tudományos követelményeket. A cikk felhívja a figyelmet arra, hogy olyan átfogó környezeti monitoring rendszerekre van szükség, amelyek megfelelő program-adminisztráció és eljárások mellett nyilvántartják a környezeti monitoring alapjaként használható tényezőket, valamint tervezett és egyben reprezentatív monitoring kutatáshoz illetve rendszeres terepmunkához kötött megfelelő monitoring adatkezelő rendszereket és technikákat alkalmaznak.