

Biodiversity, Rural Landscape and Environmental policy in Agriculture

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Abstract

Since the 1992 reform of the Common Agricultural Policy (CAP) recognized the need for contributing to an environmentally sustainable form of agriculture production and management. The increasing intensification of agriculture has involved the abandonment of zones historically defined as semi natural pasture lands and the decay of traditional rural landscape in the agriculture system. This constitutes a serious danger for the conservation of biodiversity and landscape.

The agri-environmental policies are a instrument which provide by subsidies to payments for commitments going beyond good agricultural practice, landscape and biodiversity improvement.

Key words: agri - environmental policy, biodiversity, rural landscape.

Riassunto

Dal 1992 la riforma della Politica Agricola Comune (PAC) sente la necessità di contribuire al perseguimento di un agricoltura ambientalmente sostenibile in termini di produzione e gestione. L'intensificazione eccessiva del processo agricolo ha riguardato in particolare l'abbandono di zone che storicamente erano terre semi-naturali a pascolo e il decadimento del tradizionale paesaggio agrario nei sistemi agricoli convenzionali. Questo ha costituito un serio danno per la conservazione della biodiversità e del paesaggio. Le politiche agro-ambientali comunitarie sono uno strumento che può incentivare attraverso dei sussidi l'impegno degli agricoltori verso pratiche agricole rispettose dell'ambiente tese al miglioramento del paesaggio e della biodiversità.

Parole chiave: biodiversità, paesaggio agrario, politica agro-ambientale.

Biodiversity and landscape in agriculture

During the last two decade European Agriculture has been dominated by the issues of overproduction and environmental degradation. The spread of labour - saving technology in agriculture has led to an increasing simplification of the landscape and to a considerable reduction in rural land quality.

Interaction between agriculture and environment can be classified to the following themes: soil quality; water quality and quantity, air quality, biodiversity and landscape. In particular the biodiversity of much of the EU is found on, or adjacent to farmland which accounts for more than 40% of the total land area in the EU, and thereby considerably affected by agriculture management and practice; the intensification of agriculture has led to the wide spread reduction or elimination of once common species and habitats.

Biodiversity is a complex, abstract concept. It can be associated with a wide range of benefits to human society. The United Convention on Biological Diversity

(UNEP, 1992) defines it as “...the variability among living organism from all sources, including terrestrial, marine and the ecological complexes of which they are part...” (art.2). The types of biodiversity can be explain such gene, species, ecosystem and functional (Nunes & Van den Bergh, 2001). A long-standing theoretical paradigm suggests that species diversity is important because it enhances the productivity and stability of ecosystem. Some authors underline the qualitative aspect of biodiversity and the dynamic character of it under the time (Biondi, 2000). In fact the optimal management of land use, for example in agriculture activity, become a *condicio sine qua non* to keep a biodiversity well-defined (Biondi, Baldoni & Loiotile, 1997).

Semi - natural habitats mainly include semi natural grassland and are maintained by low input agriculture. They are very important to biodiversity, both flora and fauna.

In the same point of view, the agriculture landscape, include the preservation of landscapes by farming

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systems with high nature value. Intensification of agriculture may lead to a general loss of landscape features such as hedges, ponds, field margins and woodlands and the replacement of traditional farm buildings. Besides, in the agricultural system the hedges and hedgerows are important features of the countryside. It's known that the hedges are valuable for wildlife and are one of the main sources of biological diversity in some landscapes. Unfortunately in many countries the intensification of agriculture has become to abandoning the safeguard of these natural elements.

Agriculture and Environmental Policy in the European Union

Against this background a number of proposals to reduce surpluses and protect the environment have been implemented. Between these, the agro-environmental policy have been one important instrument in order to reduce chemical input and increasing the biodiversity in the rural landscape.

In economic and policy terms the production of the positive benefits by sustainable agriculture can be defined "stewardship". The stewardships represent the externalities phenomenon: these no-food benefits can be regarded as positive spill-over effects, that is, as positive externalities that are external to the market transaction and thus are not reflected in the prices for agriculture goods (Perman *et al.*, 1999; Lankosky, 2000).

The externalities can be internalised in the market with the policy instrument and in this case with the subsidies which provide for payments for commitments going beyond good agricultural practice, landscape and biodiversity improvement. They constitute an important environmental tool, being compulsory in all rural development programmes and based on a conscious, voluntary commitment by farmers to greener agriculture. The environment is no longer seen as an "add-on" but as an essential part of agricultural and rural development and of the socio-professional life of farmers. Farmers, as the first link in the production chain, have a large responsibility for the sound management of environmental resources and that responsibility must be recognised (Brower & Lowe, 1998; Finco & Prestamburgo, 2000).

The agri-environmental policy is born in 1992 with the CAP reform, through the Accompanying Measures and in particular the Regulation (EEC) 2078/92 and (EEC) 2080/92 achieves in most recent year on the Rural

Development Policy (RDP) (Regulation (EC) 1257/99) intentional from Agenda 2000.

The RDP called as the "second pillar" of the CAP alongside the markets policy, includes special environmental measures, known as agri-environmental measures. This policy have been applied in the local system through the Rural Development Plans. In the following we can identify the effects of the agri-environmental measures application in the national rural land in connection with the biodiversity and to the conservation of the landscape, proposing moreover some results to the financings of the F measure (agro-environmental measures of the RDP) in the Marche Region.

Agri - Environmental measures adopted following Regulation (EEC) 2078/92 and Regulation (EC) 1257/99

Implementation of Council regulation 2078/92 began in 1993. Some Member States were able to develop new schemes rapidly or to adapt existing national measures.

It is obligatory on Member States to implement a national programme and to include within it all individual categories of measures listed in Article 2 of regulation. The measures may include financial aid for farmers who undertake: a) to reduce use of fertilizers and pesticide, or to introduce/continue with organic farming methods; b) to change, more extensive forms of crops or to maintain extensive production methods; c) to reduce the proportion of cattle and sheep per forage area; d) to use farming practice compatible with the requirement of protection of the environment and natural resources as well as maintenance of the countryside and landscape or to maintain a biodiversity; e) to ensure the upkeep of abandoned farmland f) to introduce the set aside farmland for at least 20 years with a view to its use purposes connected with environment (i.e. establishment of biotope reserves or natural parks); g) to manage land for public access. The Regulation has established the principle that farmers, for both environmental and production control benefits should be paid to de-intensity production and almost to manage the countryside and biodiversity.

The second regulation so called Rural Development Policy (RDP) start 8 years later. The RDP in the chapter VI include the same agri-environment principles of previous regulation 2078/92. Support for agricultural production methods designed to protect the environment and to maintain the countryside shall contribute to achieving the Community's policy objectives regarding

agriculture and the environment. Such support promote ways of using agricultural land which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic diversity.

The Results of Agri-Environment Policy Application in Italy and in the local system (Marche Region)

The main instrument used for agri - environmental policies is a contract between government agencies and farmers are paid to undertake or refrain from specified land management practices or environmental benefits (negative and positive externalities). The Regulation EEC 2078/92 and in the second step, the Reg. EC 1257/99 try to achieve this goal: the minimisation of negative agricultural impact trough reduction in the use of chemical inputs and the adoption of eco - compatible practices; on the other hand, countryside stewardship and environmental conservation. In the following it will address more attention on second point.

Each region in Italy has adopted a different Regional Zonal Plans focusing different goal or areas.

The figure shows the results of measures 2078 application during the period 1994-1998 in different areas of Italy in terms to hectares (Fig.1).

It's clear that the North Italy has adopted larger than the other areas. In the 1998, 1,2 million of hectares have supported by agri- environmental measures. The success of measure depends of the itself characterisation, i.e. horizontal under - measure. More details about the

potential environmental impact come from the analysis of different measures (Fig. 2-5). Measure D1, referring to environmental friendly farming and maintenance of countryside and landscape elements, covers 30-45% ha of total measure 2078, corresponding about 639,000 ha. It's interesting to underline that measure D1 is largely confine to the North Regions (95% of the total involved) while the Southern Regions have focused mainly on organic farming (A3/A4).

In fact the measures A, in complex, it has accounted for the largest share of participants and area. The measure B it's also important to improve/conservate the biodiversity level in agriculture means, for example, to manage the extensive grassland. Unfortunately this measure have not a great success, but in any case it lead about 10% in 1998 in terms of ha involved (Fig. 5).

Regarding the Marche Region we observe that in 1998 there are about 75 thousands ha involved by 2078 (14% of total rural area), which is a positive result also respect to rest of Italy. Concerning the measures application on biodiversity and landscape, Tab. 1 shows the trend of measures D1 and B which have had a evident improving after the last three years (Tab.1).

Tab. 1 - Reg. 2078/92 in Marche Region - Uptake by measure B and D1 (ha and %)

Anno	B	D1	% B	% D1
1998	15.638	1.980	21%	3%
1997	5.755	1.085	19%	4%
1996	2.769	506	17%	3%
1995	61	107	1%	2%

Source: INEA

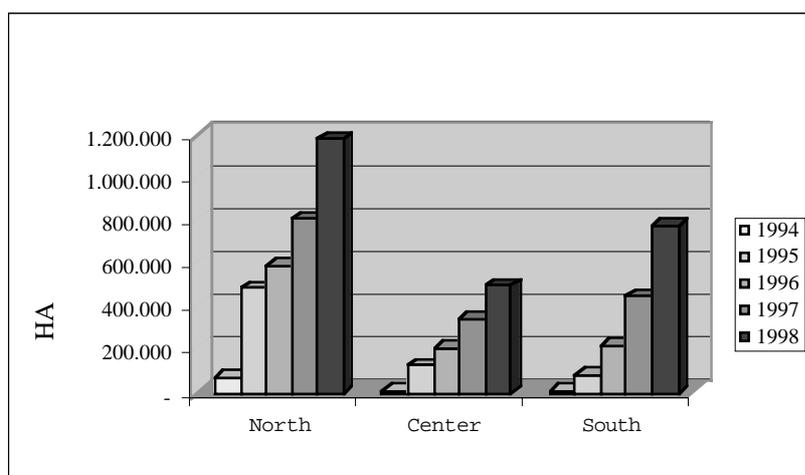


Fig. 1 - Application of Reg. EEC 2078/92 measures during the period 1994 al 1998 (hectares) in Italy by geographical areas (Source: INEA)

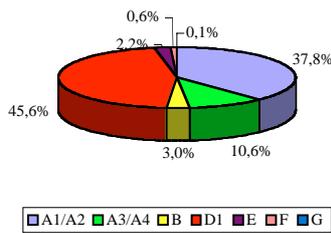


Fig. 2 - Percentage hectares 2078/92 of measure adopted 1995

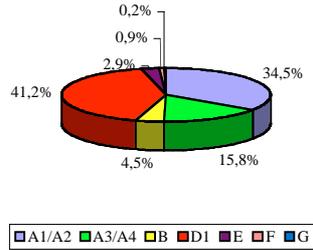


Fig. 3 - Percentage hectares 2078/92 of measure adopted 1996

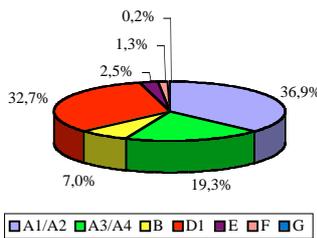


Fig. 4 - Percentage hectares 2078/92 of measure adopted 1997

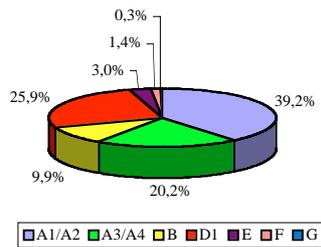


Fig. 5 - Percentage hectares 2078/92 of measure adopted 1998

The new step of agri - environmental policy, it's the RDP regulation, starts in 2000. The environmental measure has been called "Measure F". The new programme it's so similar of the last and provide four horizontal measures: F1- low input farming; F2- organic farming; F3 - rural landscape and biodiversity conservation; F4 - improving rural exploitation to fauna activity.

Only the first two measures have been activated from the local government during 2001 and 2002.

The financial expenditure of the Community and Member States have decreased. The Marche's rural land "environmental friendly" is 13 thousands ha (2002), lesser than 1998 (Tab. 2). In advance the local plan favours the measure F1 referring to reduction chemicals inputs and organic farming. Unfortunately never

countryside measure and landscape conservation have not been implemented (F3; F4). Besides it was concluded that we identify a basic problem of the policy strategy at the local system.

The regional case extension highlights that the F financings have been expenses for zones that perhaps deserved less than others the subsidy. They are the zones of the coastal hill. Internal hill, and mountain areas, including the natural Parks (Environmentally Sensitive Areas), have been hardly excluded from the financing (Fig.6). According to Countryside Stewardship Scheme adopted in UK, the high degree of success must be target on resources to landscape types and geographical areas that offered great potential for environmental improvement and public benefit (Philip Lowe *et al.*, 1998).

Tab. 2 - RDP Marche Region (Re. EC 1257/99) "Misure F1": ha and share of UAA and total agriculture land of Province (2002)

Province	UAA - Farms (ha)	UAA	% UAA
AN	4.542,96	116.594,88	3,9%
PS	994,17	137.833,02	0,7%
MC	3.085,18	145.961,97	2,1%
AP	4.804,52	103.586,71	4,6%
TOTAL	13.426,83	503.976,58	2,7%

Source: RDP Marche Region, 2002

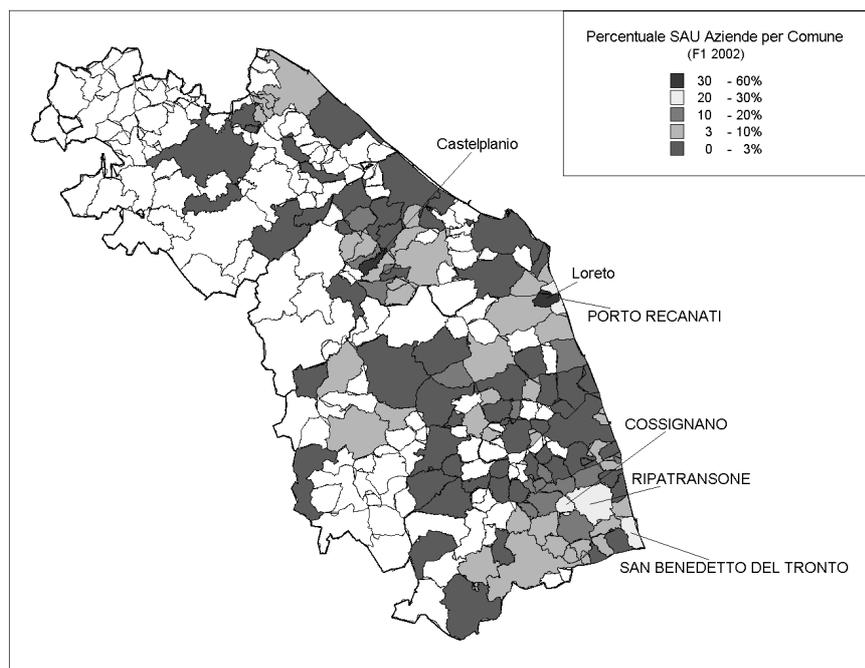


Fig. 6 – RDP Marche Region (Reg. EC 1257/1999) “Misure F1”: Map of % UAA of farmlands funded by government (Source: RDP Marche Region, ISTAT 2001)

Concluding remarks

Even though the relationship between intensification of agriculture and nature conservation is not well understood yet, consensus exists for the opinion that species diversity reduces with increasing intensification which has negatively affected the zone, in the first, that were historically preserved as semi-natural pasture lands, or traditional rural landscape of the agriculture systems. Such possible negative effects could be prevented by the implementation of certain environmental priorities as a more restrictive selection of the areas according to their ecological value or environmental conditions. In fact, the dispersion of the financings on all the territory turns out ineffective. It is necessary that the local government identifies the more sensitive zones and than greater in terms of landscape and biodiversity, orienting the subsidies on these zones.

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