



HAL
open science

Agri-environmental programmes : convergence and difference between the EU and other countries

Francois Bonnieux, Pierre Dupraz, Karine Latouche

► To cite this version:

Francois Bonnieux, Pierre Dupraz, Karine Latouche. Agri-environmental programmes : convergence and difference between the EU and other countries. 90. EAAE seminar : Multifunctional agriculture, policies and markets : understanding the critical linkage, Oct 2004, Rennes, France. 1 p. hal-01594032

HAL Id: hal-01594032

<https://hal.science/hal-01594032>

Submitted on 7 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License

Agri-environmental programmes: Convergence and difference between the EU and other countries*

François Bonniex, Pierre Dupraz and Karine Latouche
INRA, Economie et Sociologie Rurales, Rennes

Neither reduction of negative externalities nor simulation of positive ones can be achieved at a satisfactory level on the basis of market activities, there is therefore a need for agri-environmental programmes. The primary difference between agri-environmental programmes is they do not address the same problems. But, are there differences when environmental concerns are close?

Convergence between programmes reducing negative externalities

Soil erosion problems

- associated with grain production and sheep breeding,
- experienced by major exporting countries.

Conservation programmes rely on voluntary approaches. They combine:

- persuasion and education,
- with financial compensation to farmers applying approved soil conservation practices.

Menus vary with society's willingness to pay for conservation

- Modest compensations (Argentina),
- Ambitious initiatives (USA).

Water pollution from intensive livestock farming is mainly a European problem but concerns some places in the other countries, especially Canada and the USA.

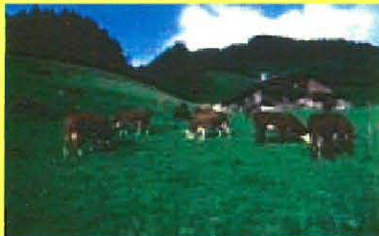
Programmes against water pollution rely on a command and control approach. They combine:

- Land use control & easements,
 - Permits & standards,
 - Cross-compliance,
- with cost sharing for complying with regulation. Programmes are complex and poorly enforced. The use of environmental taxes remain marginal.

Difference between programmes promoting positive externalities

Programmes result from two contrasted views of nature:

- A man-made countryside (Europe & Japan),
- Pristine nature & wildlife (Americas & Australia).



They combine regulation, cross-compliance and voluntary-payment schemes.

Management agreements with financial compensation originated in the EU and are going to be applied in Japan. Recent initiatives in the USA must be mentioned.

These programmes assume that either separate provision of commodity and non-commodity outputs is not physically possible or economies of scope exist. Their objective is to achieve the levels of benefits that society desires.

Agri-environmental programmes are far from the implementation of the polluter-pays principle since they involve subsidisation of the farm sector by tax payers and are likely to result into trade distortions. Main differences result from the acknowledgment of multifunctionality as a concept to rationalise a public policy and therefore to comply with WTO provisions. Agriculture has been somewhat indulged and favoured in comparison with other activities, especially concerning polluting emissions. Implicitly, agriculture benefits presumptive property rights that have distorting effects.

*This document presents results obtained within the EU project SSPE-CT-2003-502070 on Integrated tools to design and implement Agro Environmental Schemes (<http://merlin.lusignan.inra.fr/ITAES/website>). It does not necessarily reflect the view of the European Union and in no way anticipates the commission's future policy in this area.





**90th EAAE Seminar
Multifunctional agriculture,
policies and markets:
understanding the critical
linkages
October 27-29, 2004
Rennes, France**

**Agri-environmental programmes:
convergence and differences between the EU and other countries¹**

François Bonnieux, Pierre Dupraz and Karine Latouche
INRA-ESR Rennes, 4 Allée adolphe Bobierre, CS 61103, 35 011 Rennes cedex
itaes@rennes.inra.fr

Questions and issues

Agricultural production affects the environment in many ways, generating negative and positive effects. Neither reduction of negative externalities nor simulation of positive ones can be achieved at a satisfactory level on the basis of market activities, there is therefore a need for agri-environmental programmes. They are often considered as a means to both support farm income and comply with WTO provisions. Indeed, there is a shift from price support towards agri-environmental programmes.

A number of countries have experienced agri-environmental programmes targeting the reduction of negative externalities. In contrast there is a few programmes whose goals are related to the provision of benefits. Most of them are applied in Europe under the umbrella of multifunctionality. This concept stems from the fact that agriculture generates many beneficial effects which are not easily measurable and are not valued in the market place. Since they have a social value, it is justified on economic grounds to compensate farmers for providing these non-commodity outputs. Multifunctionality therefore allows the integration of agricultural, environmental and rural policies.

The primary difference between agri-environmental programmes is they do not address the same problems. Key explanatory factors are related to the resource base and to society preferences for the environment as well as political considerations as it is emphasised in a

¹ "This document presents results obtained within the EU project SSPE-CT-2003-502070 on Integrated tools to design and implement Agro Environmental Schemes (<http://merlin.lusignan.inra.fr/ITAES/website>). It does not necessary reflect the view of the European Union and in no way anticipates the commission's future policy in this area."

comparison between the EU and the US (Baylis *et al.*, 2003). But, are programmes similar when environmental concerns are close?

A comparison between the EU and a sample of countries allow to clarify differences and similarities between agri-environmental programmes. This sample includes among others the US, countries such as Argentina whose agriculture and food sector have an important contribution to the overall economy, and countries such as Switzerland and Japan where agriculture is marginal from an economic perspective. The support to farming, assessed by the producer subsidy equivalent, ranges from about zero up to 75%.

Overview of possible policy instruments

Agri-environmental programmes provide either a response to the pressures of farming on the environment or a means to encourage opportunities that agriculture creates for the environment. The wide variety of specific policy instruments ranges from voluntary to mandatory approaches (Claassen *et al.*, 2001; Gatto and Merlo, 1999; OECD, 2003a).

Voluntary approaches include persuasion (information, advise, extension, education) and market creation, pure marketing needing some institutional change. Labelling standards for private goods helps create efficient markets for goods produced with environmental sound practices. Certification standards will generally be effective only where private gains from participation can be captured in a market setting. Organic farming as well as a number of AOCs provide examples where farmers are remunerated by selling commodities with the price being positively influenced by the technology which is applied.

In contrast, a command-and-control approach to public policy is one where political authorities simply mandate the behaviour in law, then use whatever enforcement machinery (courts, police, fines) is necessary to get people to obey the law. In the case of farming, this approach consists of relying on a number of standards of various types to bring about improvements in environmental quality. Zoning, restrictions and bans on certain substances as well as well as prescribed practices are very popular worldwide.

As a matter of fact, politicians and the general public prefer regulation while economist are more inclined to recommend economic incentive-based policies. They can provide payments to encourage environmentally beneficial activities, or levy charges designed to discourage environmentally harmful activities. Liability is a third type of economic incentive. The basic idea is that if a farmer harms someone, it must compensate this person for damage. The important issue is that the farmer take all potential damage from his activity into account when deciding how carefully to operate. This creates an incentive and allows to internalise external effects as subsidies and taxes do.

Cross-compliance mechanism refers to the linking of environmental conditions to agricultural support payments (Baldock and Mitchell, 1995). Compliance with a series of restrictions related to the environment, food safety or animal welfare is required to be eligible for other programmes. Thus *ex ante*, each farmer has to compare additional costs involved by the compliance mechanism to the additional benefit from the support scheme. This instrument indirectly results into the provision of positive externalities. Nevertheless the voluntary nature of cross-compliance mechanism may be questioned. Indeed, where support payment are high, it is very close to a mandatory tool (OECD, 2003b).

Finally, from a positive perspective, the real nature of AESs has to be acknowledged. Most are voluntary in nature and involve farmers entering management agreements in return for financial compensation (Ozanne *et al.*, 2001). Compensation takes into account profit foregone and the need to provide an economic incentive to change farming practices. There is some evidence that participation rate is increasing with the level of compensation. They have been developed by policy-makers and lobbyists to provide pragmatic responses to new policy problems.

Overview of agri-environmental programmes

The main environmental impacts of agriculture on the environment are related to soil erosion, water quality degradation and wildlife habitats. Soil erosion is mostly associated with grain production and sheep breeding. It is traditionally linked with the use of marginal land including highly erodible soils and drained wetlands, and generates adverse effects both on-site and off-site. Major exporting countries have experienced soil erosion problems which in some cases threaten long-term soil productivity. Encouraging farming practices which prevent land degradation due to erosion, salinity, continuous cropping or deforestation is then a key issue to achieve a sustainable agriculture. Conservation programmes have been designed and implemented in a number of countries such as Australia, Argentina, Canada and the US, where a large share of cropland is impaired by erosion. These voluntary programmes combine persuasion with financial compensations to farmers applying approved soil conservation practices. Those programme menus vary with society's willingness-to-pay for the conservation of environmental resources. It is limited to extension effort and modest compensations in Argentina, while more ambitious initiatives exist in the US. Australia favours training and extension through local committees thanks to the *landcare program*.

Water quality protection has been a major component of environmental policies since the sixties. Most of the focus of clean water legislation has been on point sources, primarily the discharge from factories and municipal waste treatment plants. Attention has turned quite recently to non-point sources, primarily nitrogen and phosphorus runoff from agricultural operations. This is an issue, at least locally, in all countries which have been reviewed. It is more serious in areas with a high population density where the ratio of land to other inputs is low. There is a correlation between the most serious water problems and large-scale livestock enterprises. Indeed harmful effects resulting from manure spreading add to those due to an overuse of mineral fertilisers and chemicals. This is illustrated by many high polluted spots in the EU but also in some places in Canada and the US. Otherwise, intensive cropping on irrigated land also leads to nitrate and pesticides problems as shown by cotton production in Australia. The recent growth of irrigated corn in the Argentinean Pampas will likely lead to water quality degradation.

Policy responses to environmental damage resulting from intensive livestock farming mainly rely on command-and-control. Land-use controls including zoning, public purchase of land and easements targeted at critical areas for protecting water resources are widely implemented. In addition, permits for the largest installations and standards related to manure storage on the site and disposal of manure are commonly used. In a number of cases operators are committed to produce a farm level nutrient management plan that demonstrates that waste is being safely collected and disposed of. Economic incentives primarily take the form of cost-sharing with grants and low-rate loans for complying with regulations related to housing and manure storage installations. The Netherlands have experienced a more ambitious scheme with a tax put on nitrogen and phosphorus surpluses. The use of environmental taxes as an

agri-environmental mechanism remains very limited, though a few tax programmes do exist. For instance, a number of States in the US have input taxes, mainly on fertilisers. But these are applied for revenue generation rather than environmental protection. Since their rate is low they lead to a modest diminution of fertiliser demand.

In contrast to pollution from point sources, programmes for reducing pollution from agriculture are mostly based on voluntary approaches providing education, technical and cost-sharing assistance. They therefore involve a transfer payment from tax payers to farmers. Otherwise they are very complex to implement, control and enforce, and finally water problems persist. In spite of a growing public concern about runoff from agriculture, public policy still remains inefficient. A series of lawsuits illustrate the disagreement of citizens who suffer disamenities from livestock farming or defensive expenditures involved by nitrate contamination of water. Paradoxically in our developed societies, agriculture maintains a profound political influence, the practical consequence of which is that agriculture has been somewhat indulged and favoured in comparison with other activities, especially concerning polluting emissions. Implicitly, agriculture benefits presumptive property rights that have distorting effects (Bromley, 1997).

Distorting effects are also generated by water-pricing policies. They do not provide adequate incentives for farmers to use water resources efficiently and therefore do not ensure a balance between abstraction and recharge of groundwater. This market failure results in a decrease of production costs and contributes to exhaust the resource. Several examples illustrate this case in Argentina, Australia and the US. In the long run the implementation of the water framework directive of 23 October 2000, is likely to result in more efficient water programmes which should be consistent with the polluter-pays principle in the EU. Indeed, according to the principle of recovery of the costs of water services, including environmental and resource costs, farming should be charged for both water consumption and negative externalities. A similar decision has been made in Australia.

Europeans as well as Japanese view the countryside and to some extent the natural environment as man-made while a number of people, including Americans and Australians, see nature as being undisturbed by any human activity (Hodge, 2000). These contrasted sensibilities are rooted in a long history and are exacerbated by the pressure of a high population density on natural resources. They lead to very different preferences related to the balance between commodity and non-commodity outputs. In the former case, farmers are subsidised to pursue traditional practices and maintain pastures on lands that would otherwise be abandoned, while in the latter case farmers are paid to return farmland to wilderness.

EU agri-environmental schemes focus on the positive environmental externalities generated by agricultural production. They assume that either separate provision of commodity and non-commodity outputs is not physically possible or economies of scope exist. Since prices do not exist for non-commodity outputs, there is no market mechanism that ensures that social optimum is achieved. Farmers do not have incentives to internalise the environmental benefits into their activities when decisions are made. If commodity and non-commodity outputs are substitutable then the agri-environmental performance is likely to be sub-optimal (Bonnieux and Weaver, 1996). If there is no adequate scheme or regulatory framework, there is an under-supply of positive environmental externalities relative to the levels that society desires.

Agri-environmental programmes are justified on conventional economic grounds once the positive externalities generated by agriculture are considered. Compensation takes into

account profit foregone and the need to provide an incentive to change farming practices. Do they significantly impact commodity supply leading to trade distortions or not still remains an open question. There are however the non-commodity output supports a market activity such as agri-tourism. In particular a beautiful landscape maintained by traditional farming practices is an input to tourist trade. The policy agenda include similar initiatives in Japan and Korea while Switzerland relies on compliance mechanisms which tie the receipt of benefits from unrelated programmes to some level of environmental performance (Bonnieux and Rainelli, 1999). The high level of farm support is mainly justified by multifunctionality arguments in Switzerland.

Concluding comments

According to the existing national or local situations, agri-environmental programmes address the reduction of negative externalities or focus on the positive externalities generated by agricultural production. Alternative explanations for the observed differences between the EU and other countries can be related primarily to differences in factor endowments and national contexts including stakeholders' preferences, cultural and institutional aspects, and secondarily to the pressure to liberalise international trade.

There is a convergence between programmes targeting the reduction of negative externalities. They are far from the implementation of the polluter-pays principle as far as they involve subsidisation of the farm sector by tax payers and are likely to result into trade distortions. The enforcement of programmes targeting pollution from livestock farming is very costly, thanks to their complexity. In addition penalties for cheating are generally low and do not induce operators to behave appropriately. Finally public authorities may be benevolent with trespassers.

Main differences result from the acknowledgment of multifunctionality as a concept to rationalise a public policy. The bias of European countries and Japan towards agri-environmental programmes favouring beneficial effects reflects society's needs. The appeal of rural areas for recreation and tourism is directly linked to the increase in income and urbanisation process. Higher incomes encourage the demand for environmental quality and countryside amenities, since they are accompanied by higher education increasing the awareness of pollution and its harmful effects. In a longer run, this may result into a shortage of supply of nature and boost the countryside resources.

References

- Baldock, D., Mitchell, K. (1995). Cross-compliance within the Common Agricultural Policy: a review of options for landscape and nature conservation. London: Institute for European Environmental Policy.
- Baylis, K., Rausser, G.,C., Simon, L., K. (2003). Agri-environmental programs in the United States and European Union. Department of Agricultural and Resource Economics, University of California at Berkeley.
- Bonnieux, F. and Rainelli, P. (1999). Agriculture et environnement: bilan et perspectives. Final Report: INRA and Ministère de l'Agriculture et de la Pêche.

- Bromley, D.,W. (1997). Environmental benefits of agriculture: concepts. In OECD. (ed.); *Environmental benefits from agriculture: issues and policies*. The Helsinki Seminar. Paris: OECD.
- Claassen, R., et al, 2001. Agri-environmental policy at the crossroads: guideposts on a changing landscape. *USDA-ERS Agricultural Economic report N° 794*, January. Washington DC: USDA.
- Gatto, P. and Merlo, M. (1999). The economic nature of stewardship: complementarity and trade-offs with food and fibre production. In Huylensbroeck and Whitby, 21-46.
- Hodge, I. (2000). Agri-environmental relationships and the choice of policy mechanism. *The World Economy*: **23**: 257-273.
- OECD, (2003a). Multifunctionality: the policy implication. Paris: OECD
- OECD, (2003b). Agri-environmental policy measures: overview of developments. Joint Working Party on Agriculture and the Environment. Paris: OECD.
- Ozanne, A., Hogan, T. and Colman D. (2001). Moral hazard, risk aversion and compliance in agri-environmental policy. *European Review of Agricultural economics* **28**: 329-347.