

# Farmers' preferences for agri-environmental payment rules

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## *Abstract*

The European Commission is inviting member states to adopt competitive bidding procedures to allocate agri-environmental contracts to farmers. Such allocation mechanisms are expected to involve radical changes in the way agri-environmental payments are calculated. Instead of uniform payments per type of agri-environmental actions, they might involve differentiated payments, calculated for each farm in order to reflect differences in compliance costs, or differences in environmental contribution or differences in needs for income support. It is therefore crucial to measure the acceptability of different payment rules. The paper designs a choice-experiment like survey to assess farmers' relative preferences for different attributes of payment rules. It is conducted with a sample of farmers from Lozere (South of France): it highlights the way farmers perceive agri-environmental payments. A binomial logit model shows that farmers are in favour of differentiated payments especially when they reflect differences between farmers in environmental contributions and/or in compliance costs. Such result, if confirmed with a larger sample, could renew the debate on the acceptability of the reform of agri-environmental schemes in Europe.

## *Key Words*

Agri-environmental payments, choice experiment

## 1. INTRODUCTION

Agri-environment schemes were introduced into the Common agricultural policy (CAP) in 1992 as a financial instrument to support farming practices contributing to protect the environment and to preserve natural resources. They are based on the voluntary provision of environmental services (above and beyond the regulatory duty of care level) by farmers on their private land in return for a compensatory payment by the EU and the member state. Agri-environmental measures are the object of a contract between individual farmers and the environmental service purchaser (the state or the environmental public authority), specifying the actions that should be undertaken, the contract length, the control method and the payments made to farmers.

Since the environmental benefits of such contracts have no market price, the question of how much farmers should be paid to provide such services remains open. The European Commission has privileged an approach based on the compensation of farmers' compliance costs: member states are required to calculate a payment which covers the additional costs associated with the adoption of the environmental-friendly practice or action, both in terms of financial costs (more expensive inputs, additional labour, investments in new equipment) and in terms of potential revenue losses (due to lower yields, lower farming intensity or lower quality of output). This payment principle is therefore founded on the expected willingness to accept by farmers who are the suppliers of the environmental service. However, since the net costs of technology switching is farmer's private information, payments cannot be perfectly tailored to reflect the true compliance costs of each individual farmer. They are thus calculated on the basis of the estimated costs of a representative farm at the national level, sometimes adjusted to reflect regional characteristics. Therefore payments do not take into account cost heterogeneity across farmers due to nature of soils, location of farm plots, farmers' technologies and know-how. They are uniform payments per environmental action.

Another approach would be to calculate farmers' payments on the basis of the willingness to pay by society for the service provided. Farmers providing environmental benefits with greater value would thus get higher payments. Payments would reflect the environmental demand characteristics instead of the environmental supply characteristics. It is less easy to implement since it requires to measure or reveal such willingness to pay. However, it is worth mentioning that the European Commission has also partially adopted this demand-side approach in its recommendation to provide a premium payment over and above calculated costs to farmers who are located in environmentally-sensitive areas (such as Natura 2000 zones, and priority zones of the water framework directive). It is in effect a way of reflecting in agri-environmental payments the priority that society gives to environmentally vulnerable areas.

The third approach is disconnected from environmental supply or demand considerations. It consists in establishing agri-environmental payment rules on the basis of farmers' needs for income support. Agri-environmental payments often represent a non negligible –and secure– source of farm income and have contributed to maintain farming in less favourable areas. It is a fact that agri-

environmental policies have often been used by member States to supplement farm income, in a way which was compatible with the decoupling requirements of the World Trade Organization. This is easily revealed by the analysis of agri-environmental measures selected by regions: regions wishing to support farm income tend to design measures which require a minimum effort from farmers, therefore creating windfall income effects without generating much environmental gains.

Hence, although closely supervised by Brussels, payment rules vary from one member State to another, often reflecting the relative weights that national decision-makers give to these three approaches: the compliance cost rule (supply side), the environmental service rule (demand side), and the needs rule (income support). The ambiguity about the true objectives of agri-environmental scheme (genuine environmental concerns or income-support) explains partly the disappointing results of the evaluation conducted by the EC (CE, 2005; Primdahl et al, 2003), which pointed out the insufficient environmental outcomes of agri-environmental payments.

To respond to these shortcomings, and following an audit of the European Court of Auditors, the European Commission has thus required that agri-environmental schemes be more cost-effective. It has suggested that new allocation rules for agri-environmental contracts - such as competitive bidding - be tested in practice (Journal Officiel de l'Union Européenne, 2005). We can therefore anticipate that the debate over the rules to calculate agri-environmental payments will become more acute. It is likely that the existing European agri-environmental scheme, based on a menu of technical recommendations associated with uniform payments at the regional level evolves to include individually-designed packages with farm-fitted measures and differentiated payments, reflecting the characteristic of each farmer. Since the acceptability of reforms by farmers is a major concern for European decision-makers, it is essential to understand better what shapes farmers' attitudes towards the design of agri-environmental payments in order to forecast better their reaction to reform. In particular, since the payment rule is often a compromise between efficiency objectives, equity concerns and budgetary constraints, it is likely that it will incorporate a variable mix of the three approaches described above. It is thus necessary to find out what are farmers' preferences over these three rules since it may condition -at least partially- their willingness to participate to the reformed agri-environmental schemes. We therefore assume that farmers have a multi-attribute utility function: beyond the classical attributes such as income or consumption, there is also a payment rule attribute. Sensitivity to the payment rule can be associated to the feeling that a rule is more fair than another one. It echoes the debate on equity and justice principles which often defines three rules for a fair allocation: the accountability principle, the efficiency principle, and the needs principle (Konow, 2001).

A number of economic studies on agri-environmental policy have focused on farmers' motivation and attitudes when signing agri-environmental contracts (Damianos and Giannakopoulos, 2002; Wynn et al, 2001; Vanslebrouck et al, 2002; Johnston et al, 2003; Davies and Hodge, 2006). The current study is concerned with a complementary aspect of agri-environmental contracting: indeed, farmers may have strong preferences for management environmental outcomes, but they may be unwilling to accept changes in payment rules, for various reasons (which are not explored in the paper). The objective of this paper is to design a methodological approach to measure the relative preference of farmers for three types of payment rules: a rule based on compliance costs, a rule based on environmental contributions and a rule based on income support needs. We draw our inspiration from the choice modelling approach, which is then tested on a sample of farmers in Lozere in the South of France. We proceed in two steps: we first measure the acceptability by farmers of differentiated payment rules as opposed to the prevalent uniform payment rule. We then

evaluate their relative preferences for the three justifications of payment rules described above. The main conclusion is that farmers are open to change: although the survey was conducted in a region of extensive livestock production, where agri-environmental measures are notoriously used to distribute income-support, surveyed farmers clearly indicate that they would favour a system which would be better tailored to the characteristics of each farm and which would better take into account each farmer's true compliance costs and contribution to the environment. It is an encouraging step towards the setting-up of a reform of agri-environmental schemes in Europe

The paper is organized as follows. Section 2 describes the choice experiment methodology and the survey. Section (3) presents the results of the logit model on farmers' preferences for uniform versus differentiated payments. Section (4) discusses the results on farmers' preferences for payment rules. Section 5 concludes.

## 2. A CHOICE-EXPERIMENT TO ASSESS FARMERS' PREFERENCES ON PAYMENT RULES

### 1.1

The underlying structure of the survey is inspired by a choice experiment in which interviewed farmers have to elicit their preferred payment rule. Choice experiment is a methodology based on stated preference (Louvière, 1988, 1992; Adamowicz et al, 1994; Hanley and Mourato, 2001). It uses choice sets presenting different scenarios combining different attributes with different levels. For each choice set, respondents select their preferred scenario.

Most applications of choice experiment are used as environmental valuation methods (Bennett and Blamey, 2001) or for marketing purposes, and focus therefore on the estimation of willingness to accept or to pay for various attributes (or combinations of attributes) of a good or service. In this study, we focus mainly on establishing an ordinal hierarchy in the preferences for payment rules. Therefore, we have adapted the choice modelling method to compare farmers' choices for three rules: payments in favour of farmers having the greatest financial needs, payments compensating the largest compliance costs and payments rewarding the greatest environmental contribution. The design of the choice experiment questionnaire is the following:

Each choice is described by the comparison of two hypothetical farmers, farmer A and farmer B. These farmers are located in the same area, they have identical farming activities, and they sign up for the same agri-environmental commitment (same action, on an equivalent area, and for the same period). However, for reasons which are not explained in the survey – and are presented as independent of the farmer's will or capacity -, farmers differ with respect to four attributes. Three attributes describe the farmer's situation (descriptive attributes): level of financial needs, level of compliance costs with the agri-environmental contract, level of environmental benefit provided by the implementation of the contract; and one attribute describes the level of agri-environmental payment (payment attribute). For each of these four attributes, three comparative situations (levels) are possible: farmers A and B have the same attribute level, farmer A's attribute is greater than farmer B's; farmer A's attribute is lower than farmer B's. The comparison is made only on the basis of ordinal ranking. No measure of difference intensity is provided.

Respondents are presented with 9 choice sets, which can be divided into three categories of three choice sets each. The first category describes a situation where the two farmers differ by only one descriptive attribute and by the payment attribute.

**Figure 1: Example of a choice set in category 1: Farmer A provides greater environmental benefits than farmer B.**

	Farmer A	Farmer B	Farmer A	Farmer B	Farmer A	Farmer B	No choice
Financial needs	♦	♦	♦	♦	♦	♦	
Compliance costs	♣	♣	♣	♣	♣	♣	
Environmental benefit	♥♥	♥	♥♥	♥	♥♥	♥	
Compensation payment	♠♠	♠	♠	♠♠	♠	♠	
	Option 1		Option 2		Option 3		Option 4

In this choice set, four options are proposed and the respondent must select his preferred option. Farmers A and B have equivalent financial needs and identical compliance costs, but farmer A provides greater environmental benefits than farmer B (for example, his land is located next to a river, in a more vulnerable zone, and therefore, although his environmental effort is the same as farmer B, his contribution to the improvement of environmental quality is greater). In option 1, farmer A gets a greater agri-environmental payment than farmer B. In option 2, farmer B gets a greater payment. In option 3, they get identical payments. Option 4 is selected by the respondent when none of the three previous choices suits him. The two other choice sets describe the situations when farmers differ respectively by their compliance costs and by their financial needs. In this category of choice set, we will call the first set “environmental gain difference, ED”, the second set “compliance costs difference CD” and the last one “financial need difference, FD”.

The second category describes the situation where farmers differ by two descriptive attributes, one displays a greater level for farmer A, the other one displays a greater level for farmer B.

**Figure 2: Example of a choice set in category 2: Farmer A has greater compliance costs than farmer B and farmer B provides more environmental benefits than farmer A**

	Farmer A	Farmer B	Farmer A	Farmer B	Farmer A	Farmer B	No choice
Financial needs	♦	♦	♦	♦	♦	♦	

Compliance costs	♣♣	♣	♣♣	♣	♣♣	♣	
Environmental benefits	♥	♥♥	♥	♥♥	♥	♥♥	
Compensation payment	♠♠	♠	♠	♠♠	♠	♠	
	Option 1		Option 2		Option 3		Option 4

The two other choice sets of the second category describe the situations when farmers differ simultaneously by their compliance costs and financial needs; and by their financial needs and environmental benefits. In this category of choice set, we will call the first set “compliance costs and environmental gain difference on both sides, CED1” , the second set “financial need and compliance costs difference on both sides FCD1” and the last one “financial need and environmental gain difference on both sides, FED1”.

The third category describes the situation where farmers differ by two attributes, with the greater levels of the two attributes being observed for the same farmer.

**Figure 3: Example of choice set in category 3: Farmer A has greater compliance costs and provides more environmental benefit than farmer B**

	Farmer A	Farmer B	Farmer A	Farmer B	Farmer A	Farmer B	
Financial needs	♦	♦	♦	♦	♦	♦	No choice
Compliance costs	♣♣	♣	♣♣	♣	♣♣	♣	
Environmental benefits	♥♥	♥	♥♥	♥	♥♥	♥	
Compensation payment	♠♠	♠	♠	♠♠	♠	♠	
	Option 1		Option 2		Option 3		Option 4

The two other choice sets of the second category describe the situations when farmers differ by their compliance costs and financial needs; and by their financial needs and environmental benefits. In this category of choice set, we will call the first set “compliance costs and environmental gain difference on the same side, CED2” , the second set “financial need and compliance costs difference on the same side FCD2” and the last one “financial need and environmental gain difference, on the same side FED2”.

A discrete choice model is used to analyse the preference of farmers for payment rules, within a utility maximization framework. The basic assumption here is that farmers choose the payment rule which provides them with the highest utility. This approach is based on the Lancaster’s (1966) value theory, which assumes that consumer derive utility from characteristics embodied in the consumption goods, and the random utility theory (Manski, 1977). The utility is described as a function of variables describing the nature of differences between the two farmers as well as a random error component that captures unexplained variance in the farmer’s utility function.

$$U_{ij} = \beta X_j + \varepsilon_{ij} \quad (1)$$

where  $\varepsilon_{ij}$  represents the stochastic component of farmer  $i$ 's utility for criterion  $j$ , and  $\beta$  and  $X_j$  are respectively the vector of parameters and the matrix of variables describing the differences between the two farmers.

We model the probability that farmer  $i$  chooses the payment rule  $j$  from the total set of payment rules  $J$ . It is equal to the probability that the utility provided by  $j$  is higher than the utility of another payment rule  $j'$ :

$$p(j/J) = P\left[\left(U_{ij}\right) > \left(U_{ij'}\right)\right] \forall j' \neq j, j' \in J \quad (2)$$

$$p(j/J) = P\left[\left(\beta X_j + \varepsilon_{ij}\right) > \left(\beta X_{j'} + \varepsilon_{ij'}\right)\right] \forall j' \neq j, j' \in J \quad (3)$$

$$p(j/J) = P\left[\varepsilon_{ij'} - \varepsilon_{ij} < \beta' X_j - \beta' X_{j'}\right] \forall j' \neq j, j' \in J \quad (4)$$

This probability can be estimated with a multinomial logit model which assumes that the error terms in the farmer utility function are independently and identically distributed as Gamble variable (Dellaert et al, 1999), leading to the following closed form expression for the probabilities:  $p(j/J) = \exp(\beta X_j) / \sum_j \exp(\beta X_j)$  (5)

For the next analyses, we will use a simpler model based on a binary-choice logit estimated with the responses on the first category of choice set (describing a situation where the two farmers differ by only one descriptive attribute, n=96). It allows to compare the preference of farmers for uniform payments, relative to differentiated payments. We estimate the model for the dichotomous dependent variable  $Y_i$  taking two values indexed as follows:

$$Y_i = \begin{cases} 0 & \text{if the farmer choose a differentiated payment} \\ 1 & \text{if the farmer choose an adjusted payment} \end{cases}$$

In the binomial logit model, we use three dummy variables FD, CD and ED to describe the differences between the two farmers:

- FD takes value 1 when the two farmers differ by their financial needs, 0 otherwise
- CD takes value 1 when the two farmers differ by their compliance costs, 0 otherwise.
- ED takes value 1 when the two farmers differ by the environmental benefits they provide, 0 otherwise.

To avoid the variable dummy trap, the variable FD is used as reference category and dropped from the model.

The estimated model is specified as follows:  $Y_i = \alpha_i + \beta_{1i}CD + \beta_{2i}ED + \varepsilon_i$  and represents the attribute only specification

Since it was not possible to design a nation-wide survey, we decided on the contrary to target a geographical area in which farmers could be expected to be very reluctant to accept changes in the design of existing agri-environmental schemes. The underlying assumption was that if our survey showed that farmers in such area accepted different payment rules than the uniform rule, then we could hope to find even more encouraging results in other French regions.

Our survey was thus conducted in the *Lozère department*, located in the *Massif Central* mountain in the South-East of France. The Lozere area is an essentially rural region of which 54% is farmland and the rest is mainly forests. The Lozère is characterized by low diversification of economic activity and is very dependent on agriculture. Extensive livestock farming is the dominant farming system, with both cattle and sheep: 93% of farms have an average stocking density of less than one livestock unit per hectare. Although such extensive system does not generate much value added, it contributes to preserve the open landscape by maintaining large grazing areas. Lozerian farmers are familiar with agri-environmental contracting and more than 60% of their income on average is provided by CAP's second pillar payments (CNASEA, 2004). They are mostly accustomed to a uniform payment system in which all farmers get the same payment per ha, whatever their individual efforts or contributions to the environment. We can thus expect that any change in the allocation procedure of agri-environmental contracts might meet some opposition.

Data collection was done by face to face interviews<sup>1</sup> with farmers in August 2006. The first part of the questionnaire was designed to collect data on the characteristics of the farming system. The second part of the questionnaire was designed the choice-modelling survey with choice cards allowing us to measure farmers' relative preferences over two payment rules: (i) the uniform rule for which farmers are paid the same amount for the same action, regardless of differences between farmers in terms of compliance costs, of environmental services and of financial needs; and (ii) the differentiated payment rule which tailors payments according to one or several of the three criteria cited above. The surveys provided 96 choice sets for analysis.

### **3. Preferences for uniform versus differentiated payments**

Table 1 shows that when the two farmers differ by only one attribute, the choice of respondents is clear-cut. For FD, 28% choose a uniform payment, while 72% and 78% choose a differentiated payment for respectively CD and CE. It indicates that respondents think that an additional payment is more justified to compensate greater compliance costs or to reward greater environmental benefits than to mitigate financial needs.

The statistics of the responses to the second category of choice sets (CED1, CFD1, FED1) are less clear-cut. Responses in favour of a differentiated payment fall down to 54% of all responses. For the third category of choice sets (CED2, CFD2, FED2), the results show a very strong majority of respondents in favour of differentiated payments.

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<sup>1</sup> Interviews took place in farmers' home and they last on average for one hour.

**Table 1: Choice of differentiated payments**

Variables	% of respondents choosing differentiated payments
<b>FD</b>	28
<b>CD</b>	72
<b>ED</b>	78
<b>CED1</b>	50
<b>FCD1</b>	40
<b>FED1</b>	47
<b>CED2</b>	87
<b>FCD2</b>	75
<b>FED2</b>	78

The results obtained from the dichotomous logit model are presented in table 2. The likelihood ratio chi-square of 24.21 (with a p-value of 0.00) indicates that the model as a whole fits significantly better than an empty model. The pseudo  $R^2$  – an analogous measure of goodness of fit – is equal to 0.19 which is reasonable for analysis based on cross sectional data (Greene, 1997, p 683). Alternatively, the goodness of fit is illustrated by the correct predictions' percentage, which amounts to 76%.

**Table 2: Estimated coefficients, odds ratios and marginal effects**

Explanatory variables	Estimated coefficients	Odds ratios	Marginal effects
<b>CD</b>	+ (**)	6.53 (0.01)**	0.43
<b>ED</b>	+ (**)	13.8 (0.00)**	0.56
<b>Constant</b>	- (**)	-	-

\*\* (p<0.01) \*(p<0.05)

Percentage of correct predictions: 76%

Number of observations = 96

Pseudo- $R^2 = 0.19$

The positive signs of estimated coefficients in table 2 confirm the intuitions provided by the statistics in table 1: the choice of a differentiated payment is influenced more by environmental gain difference and by compliance costs differences between farmers than by financial needs difference. The odds-ratios show that the probability of choosing a differentiated payment is 6.53 times greater than the probability of choosing a uniform payment when farmers differ with respect to their compliance costs. When there is environmental benefit difference between the two farmers, the probability to choose a differentiated payment increases by 13.8 times compared to the situation when they differ with respect to financial needs. The marginal effects column confirms this result showing that a difference in environmental benefit increases the probability of choosing a differentiated payment by 56% compared to the situation where there is no difference in environmental benefit. A difference in compliance costs increases the probability of choosing an adjusted payment by 43%.

From these results, we can conclude that farmers prefer a differentiated payment in order to take into account differences between farmers in terms of compliance costs or environmental benefits than differences in financial needs. Furthermore, farmers are more likely to require a greater payment for a greater environmental benefit than for greater compliance costs.

#### **4. Preferences for payment rules**

We use the same dichotomous logit model to compare the preferences of farmers for uniform payments, relative to differentiated payments but we add data obtained from the responses of the second and third choice sets. This allows us to test if preferences for one payment rule, observed when farmers differ only by one attribute, are confirmed when farmers differ by two attributes (n=288).

To avoid the dummy trap, CD, FCD1 and FCD2 are used as reference categories and dropped from the model. Thus, the following interpretation of estimated coefficient is made by comparison with these three reference categories.

The results are presented in table 3. The correct predictions' percentage amounts to 68% which indicates a reasonable goodness of fit but only three estimated parameters are significantly different from zero. This is mainly due to the lack of heterogeneity of responses in the third category choice set (see last three lines of table 1).

The estimated parameters for FD and ED confirm the results presented in table 2 on a restricted data set: the financial needs difference decreases the choice of differentiated payment while the environmental gain difference increases it, compared to a situation displaying differences in compliance costs. The odds-ratios show that the probability of choosing a differentiated payment is 3.24 times greater than the probability of choosing a uniform payment when there is a difference in environmental benefit alone (ED=1) or associated to a cost compliance difference (CED2=1). When there is a difference in financial needs (FD=1), the probability to choose a differentiated payment is 0.23 times lower than when there is a difference in compliance cost alone (CD=1) or associated to environmental differences for the same farmer (FCD2=1) or separately for the two farmers (FDC1=1). The marginal effects column confirms that when there is a difference in environmental benefits (ED=1) or when it is reinforced by a difference for the same farmer in compliance costs (CED2=1), then the probability of choosing a differentiated payment increases by 21%. A difference in financial needs decreases the probability of choosing a differentiated payment by 34%.

**Table 3: The estimated coefficient, the odds ratios and the marginal effects**

Explanatory variables	Estimated coefficients	Odds ratios	Marginal effects
<b>FD</b>	- (**)	0,23**	-0,34
<b>ED</b>	+ (*)	3,24*	0,21
<b>FED1</b>	-	0,52	-0,15
<b>CED1</b>	-	0,52	-0,15
<b>FED2</b>	-	2,14	0,15
<b>CED2</b>	+ (*)	3,24*	0,21
<b>Constant</b>	+	-	-

\*\* (p<0.01) \*(p<0.05)

Percentage of correct predictions: 68%

Number of observations = 288

Pseudo-R<sup>2</sup> = 0.1

Table 4 calculates simple percentages which provide additional insights into the “competition” between the three types of agri-environmental payment rules when one rule justifies greater payments to farmer A whereas another rule justifies greater payments to farmer B (responses from category 2 of choice sets).

**Table 4: Frequency of the payment rule choice**

Variables	Frequency
<b>If FED1=1</b>	31% of respondents choose to allocate a greater payment to the farmer providing greater environmental benefits 16% of respondents choose to allocate a greater payment to the farmer facing greater financial difficulties 53% of respondents choose to allocate the same payment to both farmers.
<b>If FCD1=1</b>	41 of respondents choose to allocate a greater payment to the farmer displaying higher compliance costs 0% of respondents choose to allocate a greater payment to the farmer facing greater financial difficulties 59% of respondents choose a payment to allocate the same payment to both farmers.
<b>If CED1=1</b>	19% of respondents choose to allocate a greater payment to the farmer providing greater environmental benefits. 28% of respondents choose to allocate a greater payment to the farmer displaying higher compliance costs. 53% of respondents choose to allocate the same payment to both farmers.

The table 4 shows that when differences between farmers require to establish a hierarchy between payment rules, then more than half of the respondents prefer not to choose and select therefore a uniform payment. However, for the respondents who choose a differentiated payment, the relative percentages of responses indicate the following ranking: what justifies a greater payment is (1) first a higher compliance cost, (2) second, a greater environmental benefit, (3) and finally larger financial needs. This last result confirms only partially the previous analysis (table 3): it reinforces

the evidence that financial needs are not a priority criterion to calculate agri-environmental payments. However, it also shows that the hierarchy between the compliance cost rule and the environmental benefit rule is not clear-cut, and that almost half of respondents value them equally. There is therefore a need to organize more interviews in order to extend the data base and to be able to conduct the polynomial logit analysis described in section 2.

## 5. Conclusion and perspectives

Agri-environmental schemes are based on the voluntary provision of environmental services by farmers. Countries like the United States and Australia have experimented with several methods to allocate agri-environmental contracts in order to make efficiency and budgetary gains. These methods imply various payment rules. The European Commission is also envisaging reforms. In this context, it is important to measure the acceptability by farmers of new payment rules. This paper provides insights on these issues, based on a choice modelling approach tested with French farmers in the Lozere region.

The main result of our choice experiment is that Lozerian farmers prefer an agri-environmental scheme based on differentiated payments. Moreover, in contrast to what is repeatedly asserted by policy-makers and farm trade-unions, they do not favour a rule which gives more payments to farmers who face greater financial difficulties. In fact the survey clearly indicates that they prefer agri-environmental payments calculated on the basis of the quality of the environmental service provided, and, to a lesser extent, payments reflecting their compliance costs. This survey contradicts therefore all those who oppose a reform of agri-environmental scheme, under the pretext that farmers would perceive non uniform payment rules as non equitable. The fact that such results are found in a region where farmers have traditionally obtained agri-environmental payments for income-support purposes rather than for genuine environmental services, reinforces our confidence that even stronger preferences for payments based on environmental services would be displayed in other parts of France.

The conclusion is twofold: for agri-environmental measures whose objectives are to maintain existing practices –and which therefore do not provide additional environmental benefits and do not impose additional costs on farmers, a uniform payment should be maintained. However, for agri-environmental measures imposing genuine changes in farming systems, it seems that farmers are willing to accept new procedures reflecting better their differences. Agri-environmental schemes based on competitive bidding, with a bid-ranking rule based on a performance index including both costs and environmental contributions (such as the Conservation Reserve Program in the USA), could be envisaged more serenely than is presently the case in France.

a )

b ) References

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