



Structural, location and human capital determinants of farmers' response to decoupled payments

Elodie Douarin, Alastair Bailey, Sophia Davidova, Matthew Gorton, Laure Latruffe

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D14 Working Paper:

Structural, location and human capital determinants of farmers' response to decoupled payments.

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Preface

Within the project ‘The Impact of Decoupling and Modulation in the Enlarged Union: a sectoral and farm level assessment’ (IDEMA), Workpackage 2 led to the development of survey instruments which were presented in a previous deliverable (D4, Progress report). Those instruments were then implemented and data collected within Workpackage 3 ‘Impact of changes in direct payments on farmers’ decision-making’. The results obtained within Workpackage 3 are presented in two deliverables: Deliverable 14 focusing on individual farmers’ plans under different policy scenarios and Deliverable 22, which focuses on the impact of decoupling on corporate farms.

This paper presents Deliverable 14. This document provides some insights into how farmers’ intentions have been altered by the implementation of the 2003 reform of the Common Agricultural Policy (CAP) and decoupling in five European Union (EU) countries, namely England, France, Lithuania, Slovakia and Sweden. The questionnaire and the objective of the survey were presented in detailed in Deliverable 4. For this reason, only a summary of the sections of the questionnaire is presented here, as the focus is on data collection, data analysis and interpretation of results. A copy of the survey questionnaire is included in Annex 1.

The structure of this deliverable is as follows. The first chapter emphasises those changes in the CAP which are examined in the study. The second chapter assesses the expected effect of these changes based on a review of relevant literature. Chapter three describes the methodology employed in this study and Chapter four presents the survey samples and some descriptive statistics. Chapter five econometrically assesses the determinants of exit and growth in the five countries studied successively. Chapter six comparatively analyses the results across countries. Finally, Chapter seven concludes and draws policy recommendations.

Chapter 1: Introduction

The IDEMA project aims at assessing the impact of the 2003 Mid-Term Review (MTR) reforms on the farming sector in the EU. The 2003 reforms represented a significant shift in EU policy, particularly in its movement to decoupled support. However, the potential impact of these reforms has been disputed and more detailed analysis has been called for (Breen *et al.* 2005). Several approaches have been applied within the project to provide analytical results and policy relevant conclusions. This document focuses on the survey based results. The cross-national comparison of policy reform impacts is of particular interest to policy makers, farmers and the academic community as the implementation of the reforms within the enlarged EU is expected to have important consequences for agriculture that vary significantly between the Member States. Before assessing the potential impact of the reforms, a brief review of the main features of the policy change is presented.

1.1. The switch to “decoupled” payments

In June 2003, a major reform of the CAP was agreed. The 2003 CAP reform package constitutes a major shift in the type of payments received by farmers in the EU, as most direct payments have now become decoupled from production, i.e. they became independent of current production choices. One of the main objectives behind this shift in the form of payments is to make farmers more responsive to market signals by reducing the incentive to produce induced by the coupled payments. In terms of implementation, the reform means providing a support to farmers based on the area they are maintaining without any obligation to produce but under some cross-compliance conditions. This support is labelled the “Single Farm Payment” (SFP) in the EU-15 as one payment (on a per hectare basis) is substituted for most of the supports previously received on the farm (i.e. direct payments per production types). This reform, however, did not bring about any significant changes to the EU border protection and export subsidy system. The implementation of the reform involved some country specific modalities.

1.2. Implementation of the 2003 CAP reform

The implementation of the reform gave Member States a degree of flexibility which has led to significant variations in the nature of the policies adopted across states. Below the main choices taken, which are relevant to the countries studied and the focus of the survey, are outlined. A detailed description of the policy can be found in different EU documents (Council of the European Union, 2003) or in a more concise form in the Deliverable D1.1 from the EU FP6 GENEDEC project (Swinbank *et al.*, 2004).

Historical payments versus regionalised flat rate

SFP can be allocated to farmers according to the amount of the subsidies they were receiving before the change in policy (historical basis), or according to the farm's location, defining a level of payment per hectare for each region (regionalised flat rate), or any combination of those two ways of allocating the payments, either static or dynamic. In all cases, land eligible for decoupled payments comprises all area used for agricultural activities other than fruit and vegetable production or permanent crops. Most of the direct payments received under Agenda 2000 are to be distributed in a decoupled way within the SFP, including the dairy premium which had to be incorporated into the payments no later than 2007. However, several countries opted to incorporate it earlier (the UK and Ireland in 2005; France, Spain, Belgium, Italy, Greece and Finland in 2006). It should be noted that the "regions" in the regionalised flat-rate could be defined as administrative entities (like Bundesländer in Germany, for example), as physical entities (as in England where the payments differ for farms in disadvantaged moorland areas, disadvantaged non-moorland areas and other areas) or based on other criteria (average yields, for example, in Sweden).

Partial decoupling

Additionally, Member States could keep some coupled payments related to production types. Where this option was chosen, the implementation of the reform constitutes only a partial decoupling. Only the Republic of Ireland, Luxembourg and the UK chose not to use a partial decoupling.

Modulation

A share of the total amount of payments (SFP and additional coupled payments) is to be set aside every year to create a fund for rural development measures. This mechanism is called modulation and the rate of modulation (i.e. the share of payments to be set aside) was set at 3 percent for 2005, 4 percent for 2006 and 5 percent from 2007 to 2012. For the first time 2003 Council Decision introduced a Community Modulation Scheme (CMS), compulsory for all Member States. For the first €5,000 of the payments any losses as a result of the application of the CMS will be fully compensated. The justification for the franchise is to help smaller farms (Council of the European Union, 2003).

Transfer of entitlements

In countries where SFP is implemented, if after the initial allocation of entitlement land is converted to or is taken out of farming activities this may create an unbalance between the number of entitlements and the number of hectares potentially eligible for payments. Therefore, there is a potential market in entitlements. Generally, leasing of entitlements is only possible with a transfer of eligible land, while entitlements can be sold with or without land, but an equivalent number of hectares (ha) of eligible land are required to claim the payments. Member States could however decide to impose a tax on the exchange of entitlements without land as this has occurred in France (where this option was chosen as a way to discourage potential speculation). The proceeds of the tax go into the national reserve - an envelope for new entrants and future adjustments of the scheme. Transfers of entitlement across countries are forbidden. They could also be forbidden across regions but this depends on the national regulation.

In the New Member States (NMS) in which payments are provided to farmers through the Single Area Payment Scheme (SAPS), payments cannot be transferred as they are attached to land and every plot of land available for agricultural usage should have an entitlement.

1.3. The specific case of the NMS

In the NMS that entered the EU in 2004, more flexibility was offered as they could choose to implement the SFP system described above or they could opt for SAPS, which could initially be implemented until 2008, but in December 2006 the scheme was extended until 2010. All the NMS decided to implement SAPS instead of the SFP with the exception of Malta and Slovenia. Under SAPS, farmers receive a flat-rate regionalised payment per hectare, or Single Area Payment (SAP), irrespective of their production choices. Contrary to SFP, even land on which fruits and vegetables or permanent crops are produced is eligible. Additional coupled payments are also given to farmers. Those payments are labelled top-ups and are supposed to be funded through national sources. However, until 2006 the top-up payments could be co-financed up to 40 percent by their CAP Pillar II rural development funds.

According to the Treaties of Accession, the payments received in the NMS are not at the same level as those in the Old Member States (OMS). In 2004, the payments (excluding the national top-ups) for the NMS amounted to 25 percent of the EU-15 level and would increase with an increment every year to reach 100 percent of the EU-15 level in 2013. In the meantime, the national top-ups are expected to fall to reach zero in 2013. Despite the payments being only 25 percent of the EU-15 level in 2004, from the first year, the introduction of the CAP payments constitutes an important increase in the payments received by farmers in some of the NMS. This is the second specificity of those countries: one can argue that such an increase in payments to farmers, whatever their nature, are not divorced from production and generally the implementation of the 2003 CAP reform cannot be disentangled from the global effect of accession to the EU.

From what has been presented so far, one can see that the implementation of the 2003 reform constitutes an important shift in the policy of the EU. However, the options confronted by farmers vary between states. Therefore the next section presents a summary of the choices made by each of our five case-study countries and will be followed by a discussion on the expected outcome of the implementation of the reform.

1.4. Policy implemented in the five countries under study

As said earlier, in this study the focus is on five EU countries. Those include three OMS (i.e. England, France and Sweden) and two NMS (i.e. Lithuania and Slovakia) with diverse agri-environmental conditions and public perceptions of the reform, but also variable degrees of experience with a market economy. The five countries selected were not chosen to be representative of the whole EU-25 but to give an idea of what would be the impact of the implementation of the 2003 CAP reform in different situations and to give some insights into the impact of decoupling under contrasting conditions. The particular agricultural and market conditions in each of the five countries are presented in the respective national chapter. This section, however, gives an overview of the diversity of choices made in the five states, which are summarised in Table 1-1.

Considering, first, the three EU-15 states in which SFP is implemented, an important difference exists in terms of type of calculation chosen. In England, SFP will be first computed based on historical payments but year after year an increasing share of the total support will be based on a flat-rate regional payment, so that in 2013 the SFP will be based entirely on a flat-rate regional payment. This model is described as a dynamic hybrid as it evolves over time and combines both historical and flat-rate payments. The Swedish model also combines historical and flat-rate regional payments but in a static way (i.e. the share of historical and flat-rate payments does not change over time). In France, a simple model entirely based on historical payments is applied. Moreover, only England is implementing SFP without additional coupled payments. Sweden opted for a very limited partial coupling with only two additional coupled payments. France however is using all the coupled additional payments allowed within the Luxembourg agreement. Because both Lithuania and Slovakia are applying SAPS, the computation of the decoupled payment is based on a flat-rate regional support. Some coupled top-up payments are, however, used.

Table 1-1: Description of the policy implemented: SFP in England, France and Sweden and SAPS in Lithuania and Slovakia

		Decoupled part (area payment with no obligation to produce)	Coupled part
SFP	England Implementation: 2005	Calculation: Dynamic hybrid model moving towards flat-rate payments Beneficiaries: All except permanent crops, horticulture, other fruits and vegetables	Payments: None
	France Implementation: 2006	Calculation: Historic Beneficiaries: All except permanent crops, horticulture, other fruits and vegetables	Payments: Arable crops Ewe premium Suckler cow premium Calf slaughter premium Beef slaughter premium
	Sweden Implementation: 2005, except dairy	Calculation: Mixed static historic and regional Beneficiaries: All except permanent crops, horticulture, other fruits and vegetables	Payments: Specific drying aid for COP* in the north Special beef premium
SAPS	Lithuania Implementation: 2009	Calculation: Regional Beneficiaries: All	Payments: Seeds premium Calf slaughter premium Beef and quality beef premiums Ewe premium
	Slovakia Implementation: 2007	Calculation: Regional Beneficiaries: All	Payments: Suckler cow premium Ewe premium

* Cereals, oilseeds and protein crops

The policies implemented in the five countries studied, together with the policies in the NMS prior to accession are presented in more detail in the respective country sections in Chapter 4.

Chapter 2: Expected outcome of decoupling: a brief overview of previous studies

2.1. Decoupling: definitions and expected impact

So far, the concept of “decoupling” has been used in its broadest meaning, namely as a process of moving from a coupled form of payments to a less coupled one. In this sense, decoupling is described “*ex-ante*” through the type of policy implemented. This is typical of the way in which policy analysts and decision-makers use the concept of decoupling. However, academics normally use a more complex definition based on the “*ex-post*” effect of a policy package. It is normally accepted that there are three types of trade-distorting effects of agricultural policies. They are commonly recognised as “static effects”, “effects under uncertainty” and “dynamic effects” (OECD, 2000). Whenever a policy affects the trade equilibrium and/or the adjustment process to external shock, this policy straightforwardly creates distortions on the market and these effects are called “static effects”. They have been extensively studied for coupled or partially decoupled policy packages (see Moschini and Sckokai, 1994, for instance). “Effects under uncertainty” depend directly on farmers’ risk aversion of which two forms may be distinguished, namely the “income or wealth effect”, which depends on the relative risk aversion of farmers with respect to their total wealth (Hennessy, 1998), and the “insurance effect”, which depends on the perceived level of risk incurred (Young and Westcott, 2000). Finally, the “dynamic effects” describe the change in farmers’ behaviour in the long-term. Policies may change the investment and saving decisions of farmers in response to either current policy signals or to expected policies (Rude, 2000), and therefore affect production in the long-run. Market imperfections would also affect the real level of decoupling achieved “*ex-post*” as the existing constraints in the farming sector due to credit market imperfections would be reduced by decoupled payments (Goodwin and Mishra, 2005; Sadoulet *et al.*, 2001) and the market imperfections in the land market may modify the distribution of the payments between farmers and land owners (Douarin *et al.*, 2006; Ciaian and Swinnen, 2005).

In this context, the implementation of payments defined as decoupled from an “*ex-ante*” point of view (such as SFP) are expected to lead to a decrease in production

and a relative extensification (thanks to the removal of the link between payments and production yields). However, effects due to altered expectations, risk or market imperfections are more difficult to predict. Some studies indicate that farmers may take riskier production decisions on the farm (Hennessy, 1998, Serra *et al.*, 2005b). Overall, most researchers acknowledge that the impact of decoupled payments are difficult to predict as in theory the different elements of a policy package or different aspects of farmer responses (risk related, expectations related or due to market imperfections) may have contradicting impacts. Researchers tend, therefore, to agree that empirical studies are required to fully assess the impact of decoupled payments (Breen *et al.*, 2005, Serra *et al.*, 2005a, Harsche, 2005).

2.2. What can be expected by the implementation of the 2003 CAP reform?

Previous experiences with decoupling have been presented elsewhere (Baffes, 2004; Andersson, 2004; Swinbank *et al.*, 2004). Studies of recent experiences with full decoupling (such as the New Zealand case) tend to show that farmers were able to adjust to their new market environment and that the consequences for rural areas and communities were not as negative as some anticipated (Baffes, 2004). Other examples, where policy packages including area payments unrelated to production decisions were implemented, reinforce the necessity to consider issues such as risk, expectations or market imperfections for an understanding of farmers' responses to policy changes. However, countries like Mexico or the USA, where decoupled payments were implemented in the late 1990s, implemented policies re-establishing the link between production choices and payments, or market prices and support, as difficult market conditions and a negative public image forced the governments to do so. In the EU, the implementation of the 2003 reform is one more step towards less coupled payments after the MacSharry reform and Agenda 2000. The SFP and cross-compliance introduced by the 2003 CAP reform make it difficult to compare the impact of previous policy changes with the potential impact of this one. Therefore, to assess the potential impact of the reform, one can rely on studies on similar policy changes outside Europe (Implementation of the PROCAMPO reform in Mexico or the 1996 FAIR Act in the USA) or prospective analyses of the 2003 CAP reform.

The existing prospective analyses could be classified into three main groups: studies that rely on stakeholders and expert knowledge, model simulations and

surveys of farmers' intentions. In these studies the impacts on the EU-15 and NMS are often presented separately as the differences in the initial situations and policy implemented are likely to lead to diverging effects. Here a brief overview of some of the prospective studies is included in order to present the existing knowledge about the expected impact of the 2003 CAP reform.

Conceptual analyses

In the early debates surrounding the MTR reform, some conceptual analyses were conducted, based on specialists' expectations and knowledge, to try to capture the potential effects of decoupling on agriculture. These studies focused mostly on the strong potential impact of decoupling on the farming sector from a social point of view due to the large redistribution of income that it entails (Renwick *et al.*, 2003). However, this type of research does not allow for a detailed analysis of the impact of decoupling and can be criticised for being limited or biased. A large consultation of stakeholders was carried out by the EU FP6 project GENEDEC (Wooldridge *et al.*, 2005). In summary, this consultation revealed that stakeholders, interviewed by the end of 2004 and early 2005, were expecting the implementation of the 2003 CAP reform in the five states considered (France, Germany, Ireland, Italy and the United Kingdom) to increase the overall competitiveness of the sector and to push farmers to make more market oriented decisions. It was expected that output of all commodities would fall, especially beef and sheep meat production, due to a reduction in both the area kept in production and the intensity of production. Some, albeit limited, marginal land was even expected to be abandoned. The impact on the land market and diversification was expected to be complex, but most agreed that a decrease in the required labour force would occur. An increase in the rate of structural change was also expected. Both conceptual studies and consultations of stakeholders are useful to gauge how the change of policy may impact on the sector and the expectations of key actors. They allow for the general direction of the impact to be investigated but detailed analyses are difficult and they only offer a partial view on the problem as complex impacts or contradicting effects are difficult to distinguish. Alternative means of study for the policy change exist and can, for example, rely on modelling as presented in the next section.

Empirical studies based on modelling

Several models have been used to forecast the impact of the reform and a summary of results is presented below. It may be noted, first, that classical econometric models appear to be inadequate to investigate the potential impact of the reform that is taking place. In the literature, few examples exist where an econometric estimation of past behaviour was used to try and forecast future behaviour regarding decoupling. This is because such an approach is inherently biased as it assumes that decoupling will have only very limited impacts on farmers' decision-making (Peerlings, 2005). A more commonly followed approach has been to develop general or partial equilibrium models.

Analysis based on general or partial equilibrium models (CGE/PE) point to some similarities in findings. Based on this type of models, it is expected that the change in policy will lead to a decrease in the production of cereals in the EU-15 and an increase in the NMS, a decrease in all livestock in the EU-15 and an increase in the NMS in all livestock but dairy cows (Jensen and Frandsen, 2003). However, some disagreements exist across models particularly concerning the potential effect of the MTR on oilseeds, pasture and voluntary set-aside (Balkhausen *et al.*, 2005). This is due to the diverging *ad-hoc* assumptions on the effective level of decoupling of the payments received (Balkhausen *et al.*, 2005) as it is difficult to predict *ex-ante* which payments will appear coupled due to farmer's expectations, their risk preferences, market failures, etc. It is sometimes assumed that the payments will not appear fully decoupled and cannot simply be included in the model as lump-sum payments. However, the level of coupling that will persist is difficult to evaluate. This difficulty has implications for other approaches as well, as CGE/PE models provide price trends which are used as inputs in Linear Programming (LP) models and therefore the validity of the results of CGE/PE models are critical to the accuracy of other models.

Few studies analysing the impact of the MTR reform based on LP models have been published to date. However, they seem to broadly agree on the fact that the reform will lead to changes in the agricultural sector although the results obtained from programming models are often difficult to compare as they are based on different projected prices, study regions, farms typologies and behavioural assumptions. On the one hand, the overall impact in the EU-15 is generally thought to be accelerated structural change and an increase in voluntary set-aside, namely to

keep the land in good agricultural and environmental conditions (GAEC) without any production, and a move towards more extensive livestock production methods. For example, a study using a profit maximising multi-period linear programming model for Ireland indicates that 10 percent of the cattle farmers should stop producing and keep their land in GAEC, and similarly that arable farmers should reduce their area under production, while milk producers would be left with the decision to exit or grow (Breen *et al.*, 2005). Another study focusing on the UK and based on a profit maximising LP shows as well substantial shifts out of crops and a move towards larger and more extensive sheep and cattle farms (Revell and Oglethorpe, 2003). Relatively consistent changes are also predicted, for different case study regions of the EU-15, by AgriPoliS, an agent-based model (using linear programming) focusing on structural change. Results from this model indicate a move towards extensification of animal production thanks to changes in production activities including pulling out of farm production while keeping their land in GAEC, but a limited impact of SFP on exit (details about AgriPoliS and the regional simulation results are presented in the IDEMA deliverable 23). In summary, without entering into the subtlety of the models and models' results, it seems that there is a global consensus on predicting for the EU-15 a decrease in COP production with land being permanently set-aside and an extensification of cattle and sheep production.

On the other hand, in the NMS, results from the model AgriPoliS (which is to the best of our knowledge the only model based on LP studying the impact of the MTR reform in the NMS) indicate a decreasing level of exits from farming as accession effects (increase in payments) are more important than decoupling and an increase in voluntary set-aside or GAEC.

Overall, it has to be noted that even if the results obtained from LP models are intuitive and easily interpretable, the changes may however be over-estimated or biased as this type of models is based on restrictive objective functions, considering only the economic aspects of farming¹ and may offer (by construction) too little adaptation opportunities for the farmers modelled. Their results are highly dependant on the behavioural assumptions on which they are based. This suggests that survey based investigations to understand farmers' motives that integrate psychological and

¹ A LP model based on the achievement of a set of goals varying across different types of farmers rather than only profit maximising behaviour has been developed at the University of Reading but no simulation results were available at the time of writing.

socio-economic factors may be an appropriate complementary tool for analysing behavioural intentions in the face of the CAP reform.

Survey based investigations

The last approach that can yield insights into the potential impact of the implementation of the MTR reform is survey based. Asking farmers what they are planning to do may be a good way to obtain a feel for their adjustment patterns without making any *a priori* assumptions. This is the methodology adopted here. It is described in the next chapter.

Chapter 3: Methodology

3.1. A survey of intentions²

The direction and extent to which the change in policy will alter farmers' decisions is central to the debate as to how the structure of European farming will evolve over the short- to medium-term. Several authors have tried to investigate the potential impact of decoupling on a purely theoretical basis but the interest of this approach is somehow limited as the policy change is likely to have complex and diverse impacts. This may make it difficult to cover all the aspects of the reform and the diversity of the potential impacts. Therefore, it will mean that reaching definite conclusions based on theory only may not be possible and empirical studies seem necessary (Harsche, 2005). An approach that combines both psychological and structural factors in the understanding of decision-making and asks farmers what they intend to do may be a good way forward, avoiding biasing the results by omitting *a priori* assumptions on the impact of decoupling. It constitutes an interesting complementary approach to models in the study of decoupling.

3.1.1. Previous intention surveys

Several studies of farmers' intentions have been conducted, particularly in the United Kingdom. For example, a survey was conducted by the University of Newcastle upon Tyne between 1994 and 1997 including farmers participating in the Farm Business Survey, investigating their short-term intentions and their long-term confidence in farming. The main conclusion of the study was that farmers were very reluctant to change, that is to say that farmers intended to continue their business as before (Harvey, 2000). While several other examples can be found in the literature for the UK (Thomson and Tansey, 1982) and elsewhere (Tranter *et al.*, 2004), little attention has been paid to the impact of decoupling on intentions. A notable exception to this has been the work of the Economic Research Service (ERS) of the USDA, which conducts surveys on farmers' behaviour in the US on an annual basis. They modified their questionnaire following the implementation of decoupled payments (through the

² Most of this section was taken from Douarin, E. (2006) Impact of the Implementation of the Single Farm Payment in Sweden on Farmers' Decision to Remain in the Sector and Produce. Paper presented at the 93rd EAAE seminar, Prague, Czech Republic, 22-23 September 2006.

1996 Farm Bill) in order to assess more precisely farmers' off-farm opportunities and their possibilities to adjust to decoupled policies (USDA, 2004). The extensive questionnaire developed by the ERS is however mainly concerned with short-term adjustments, as it records only information about the decision taken within the year of the survey. However, the intentions of farmers are recorded on a yearly basis and can be considered a valuable source of information.

While decoupled policies were only implemented in the EU from 2005 onwards, some studies of farmer's intentions regarding hypothetical decoupled policies exist. Tranter *et al.* (2004) tried to evaluate the impact that the introduction of a buy-out bond scheme would have on the farming sector through a survey of intentions. In this scheme farmers would be offered a predefined buy-out payment for a limited period that would put an end to any other type of EU support (Swinbank and Tangermann, 2000). Their results mostly show that the majority of the farmers interviewed in the three states studied (namely Germany, Portugal and UK) would not alter their farm plans if a bond scheme was to be introduced to replace the current policy in place (at the time Agenda 2000). Ten case-studies of farmers' intentions were also conducted in France in 2005 for a sample of farms in mountainous areas (Chatellier and Delattre, 2005). The results indicate that farmers were well aware of the policy reform and its potential impact on the support that they would receive after its implementation. The research also shows that farmers were not planning to change greatly the way in which they were managing their farms as the partial decoupling introduced in France would have a limited impact on the total amount of payments they would receive. Yet, full-decoupling would have led to more important changes and a decrease in production. The limited size of the sample however makes it difficult to extrapolate the overall impact that the reform may have on French agriculture. Breen *et al.* (2005) investigated farmers' intentions to adjust to the SFP in Ireland with a survey conducted in 2003. Results from this survey were used to compare farmers' intentions with the results obtained from a LP model. The survey found that Irish farmers were reluctant to change, so that intentions contrasted markedly with predictions from the model.

3.1.2. *Strength and weaknesses of this approach*

Although surveys of farmers' intentions have been conducted previously, it is not a very common approach. The main reason for this is probably the fear that answers will not be reliable. Responses may be biased in two major ways: first, because answers will strongly depend on the respondent's expectations towards the evolution of the general economic environment and their own situation, and second, because respondents may alter their answers to influence the outcome of the analysis (Thomson and Tansey, 1982). The second source of bias may be difficult to identify and correct but simply informing farmers of the size of the sample interviewed may reduce the temptation to voluntarily bias their answers. The first source of bias is probably more common and the extent to which it is a problem varies with the objective of the research. Indeed, because farmers base their answers on their expectations about the evolution of their environment, survey results give a good insight into farmers' business confidence, which is otherwise very difficult to measure (Thomson and Tansey, 1982). The answers also provide a good approximation of how farmers will behave in the short-run as their expectations bias their intentions and decisions in the short-run, before the real evolution of the environment is revealed and stabilised (Harvey, 2000). It is interesting to note that many researchers using intentions' surveys insist on their reliability by indicating that the majority of the farmers actually implemented their intended behaviour (Harvey, 2000; Thomson and Tansey, 1982; Tranter *et al.*, 2004). In fact, only one paper was identified that criticised intentions' surveys for their lack of credibility using the example of farmers' succession plans (Vare *et al.*, 2005). However, even in that case more than 80 percent of the respondents did do what they say they would do (Vare *et al.*, 2005).

The problem with intentions' surveys may therefore lie more in the interpretation of the responses. It is recognised that intentions' surveys provide more useful and reliable information for short-run decisions (Harvey, 2000). Therefore, longer-run decisions should be analysed with care, considering that intentions give an idea of the general direction of farmers' future behaviour based on their expectations rather than an accurate picture of the future of the sector. Responses may be based on inaccurate expectations and unforeseeable events can always arise and alter farmers' plans. However, the study of farmers' intentions allows the collection of critical information on their confidence in the sector. Additionally, by providing relatively

reliable information on farmers' future decisions without *a priori* behavioural or other limiting assumptions that a forecasting model would require, intentions' survey are valuable.

3.1.3. Description of the survey questionnaire

The survey questionnaire was developed based on the notion that asking farmers what they would do under different policy scenarios, such as pre-accession policies or Agenda 2000, and different decoupling scenarios would allow to have a better understanding of what the farmers were expecting from the change in policy. It would in particular allow to compare their intentions holding everything else but the policy reform constant. The questionnaire was divided into three main sections:

Questions regarding farmers' intentions

As the objective was to investigate the impact of the policy reform, the questionnaire tried to capture the changes in decisions due to the introduction of SFP/SAPS. For this reason, farmers were asked the same questions in three different scenarios, a baseline scenario (policy in place prior to the implementation of the 2003 CAP reform in the EU-15 or prior to accession for the NMS) and two decoupling scenarios.

The two decoupling scenarios correspond to, first, the introduction of the SFP or SAPS according to the specific modalities chosen by each country as presented in Table 1-1, and, second, to a full decoupling scenario based on flat-rate regionalised payments with no additional coupled support (no top-ups in the NMS).

The baseline scenario is a counterfactual, which represents the continuation of the agricultural policy in place in each country before the implementation of the SFP/SAPS, that is to say Agenda 2000 in the EU-15 and the national agricultural policy of each NMS. Responses by farmers as to their intentions under this reference scenario can then be compared to their answers for the two decoupled scenarios, in order to assess whether policy reform induces changes in their intentions.

Questions asked under the three scenarios related to the farmers' intentions to exit or stay in the farming sector, and within agriculture to change their farmed area, production mix and on- / off-farm diversification activities. These decisions are of major importance for understanding the potential impact of the change in policy on

the farming sector as a whole. Notably, the decision to exit, even though recognised as a major determinant of dynamism within the sector, has received limited attention in the literature (Kimhi *et al.*, 1999).

Regarding the intention to exit or stay within agriculture, farmers were asked whether they planned to leave farming, that is to say, to stop producing and to discontinue keeping their land in GAEC without producing. The three proposed time horizons were within 5 years, between 5 and 10 years, and after 10 years. Farmers were also asked what they intended to do with their farm and what occupation they would take up after leaving farming. As for the questions relating to the expected changes in area, production and diversification, they were asked for the next five year time period only.

Questions regarding farmers' attitudes and expectations

The questionnaire also includes a section dealing with farmers' attitudes towards agricultural policies and off-farm employment, based on the socio-psychological framework of the Theory of Planned Behaviour (TPB), developed by Ajzen (Ajzen and Driver, 1992). The TPB assumes that the best predictor of behaviour are behavioural intentions which are based on the individuals' beliefs ("Attitudes"), the social pressures which they face ("Subjective Norms"), their willingness to act on the values of others ("Willingness to Comply"), and the control they think they have over the situation with which they are dealing ("Perceived Behavioural Control"). Through the survey, information on farmers' attitudes regarding policy reform, agricultural focus, diversification and multifunctionality were collected along with data on subjective norms, willingness to comply with values and norms of people whose opinion they respect, and perceived behavioural control. Comparatively little previous work has been conducted on farmers' attitudes to policy in a cross-national context. This is despite empirically tested and robust psychological models that highlight the importance of beliefs and attitudes in influencing behaviour (Ajzen, 1988). In the survey, farmers were asked to state the degree to which they agreed or disagreed with a set of statements, measured on 5 point Likert scales. These scales drew on previous attempts to capture the attitudes of farmers (Maybery *et al.* 2005; Willock *et al.* 1999) and are designed to fit within a cross-national TPB framework.

In addition, farmers were asked to state how probable they viewed some future policy outcomes. The degree to which farmers believe a reform of policy to be credible and enduring is likely to influence their decision-making. The options for which they had to state their opinions concerned the continuation of decoupled payments with eco-conditionality, removal of all supports and a return to coupled payments.

Information regarding farms' and farmers' characteristics

To avoid collecting large amounts of data on the economic performance and structural characteristics of farms, IDEMA survey data was matched to Farm Accountancy Data Network (FADN) records. Although FADN returns were available for all farms surveyed and provided a good description of farms prior to the change in policy, it was necessary to collect some additional information, particularly demographic, that is usually missing in FADN databases. In particular, information about farmers' age and education, their household composition and the presence of a successor was solicited.

Information about their other gainful activities (including national payments related to production, i.e. payment for organic farmers or conservation) and their past off-farm investments was also collected. The latter information is important when investigating decoupling, as the availability of additional income not related to farm production might encourage farmers to invest more off-farm. Such information is however usually missing in FADN and therefore constrains all modelling activities (USDA, 2003, 2004).

3.1.4. Data collection and samples

Data were collected through face to face interviews, except in Sweden where both a postal and telephone survey were conducted.³ Data collection took place between February and November 2005 in all five countries. Table 3-1 below presents for each country the type of survey conducted and the size of the sample. Matching FADN records were also provided for each farm for selected years. It was not possible to get

³ In Sweden the phone interviews were carried out on a small sample and only on part of the questionnaire.

access to the FADN records for the farms in the sample for the same period in all countries. Therefore the years varied between countries (Table 3-1).

Table 3-1: Data available: survey and FADN

<i>Country</i>	<i>Starting date</i>	<i>Type of survey</i>	<i>Sample size</i>	<i>Year(s) of matching FADN</i>
England	June 2005	Face to face	153	1998-2002
France	November 2005	Face to face	281	One year only: 2002, 2003 or 2004*
Sweden	March 2005	Postal Phone	344 +40	1999-2002
Lithuania	April 2005	Face to face	220	2000-2002
Slovakia	February 2005	Face to face	154	2001-2002

*In France, it was not possible to get the FADN records for the farms interviewed. However, raw FADN data were provided to us by the CERs. For each farm, they provided us with the last year of data available, but the year differs with the providing centre and was either 2002, 2003 or 2004.

3.2. Modelling of growth and exit

3.2.1. Descriptive Statistics and initial interpretation of the results

In the first instance descriptive statistics are presented. This yields an overall view of the potential impact of the change in policy based on farmers' intentions. Responses are reported in terms of the shares of respondents under each of the policy scenarios for a particular country and allow for an understanding of the change in behaviour induced by the change in policy. Intentions to exit, to alter the size of the farm and the production mix are presented, as well as intentions to invest on- and off-farm in the future. This allows to comment, in particular, on the potential effects of the change in policy on structural change and farming patterns but also on investment behaviour and the relative attractiveness of other non-farm sectors.

3.2.2. Farm businesses' survival

Understanding the determinants of survival or the symmetric issue of exit is critical for capturing the forces of structural change in agriculture (Ehrensaft *et al.*, 1984). As a result, economic studies of such determinants have become an important topic for investigation in the last decade (Stiglbauer and Weiss, 2000; Kimhi and Bollman, 1999; Kimhi, 2000). Some studies have even focused on the impact of specific policies on the decision to exit (Pietola *et al.*, 2003). In the present study, the determinants of exit/stay under the different policy scenarios are investigated to assess what are the main factors behind the decision to exit from farming and to understand which factors are recurrent and which factors vary with adjustments to policy. This is done through a Probit model with the dependent variable being the decision to stay or exit the farming sector within the next 5 years.

The conceptual model behind the decision to exit or stay in farming is the following. Each farmer, index n , faces a choice among 2 alternatives:

- alternative 1: remain in farming
- or alternative 2: exit (this alternative would include retirement, move towards a full-time non-farm jobs, etc.).

The chosen alternative will therefore be the one that will allow the decision-maker to enjoy the highest level of utility. Let us denote U_{nj} , $j = 1, 2$, the utility that decision-maker n obtains from the two alternatives. The decision model is therefore:

Remain in farming (i.e. choose alternative i) if $U_{ni} > U_{nj} \quad \forall j \neq i$.

The utility U_{nj} can be rewritten as:

$$U_{nj} = V(x_{nj}, s_n) + \varepsilon_{nj} \quad (1)$$

where $V(.,.)$ is a function of x_{nj} , farms' characteristics, and of s_n , farmers' characteristics and ε_{nj} captures the part of the utility of the decision-maker that remains unobserved by the researcher, that is to say the stochastic term in the decision function from the researcher's point of view.

From this, P_n , the probability of the decision-maker n to choose to remain in farming can be expressed as follows:

$$\begin{aligned} P_n &= \Pr(U_{n1} > U_{n2}) \\ &= \Pr(V_{n1} + \varepsilon_{n1} > V_{n2} + \varepsilon_{n2}) \end{aligned} \quad (2)$$

$$= \Pr(\varepsilon_{n2} - \varepsilon_{n1} < V_{n1} - V_{n2})$$

The probability of decision-maker n to choose alternative 1 is therefore the probability that the difference between the unobserved parts of the utilities is smaller than the difference between the representative utilities. By assuming a specific density function for $\varepsilon_n^* = \varepsilon_{n1} - \varepsilon_{n2}$, the parameters in the representative utility can be estimated.

Then, the underlying model is the following:

$$Survival_n^* = \beta Z_{1n} + \varepsilon_n \quad (3)$$

$$\text{With } Survival_n = \begin{cases} 1 & \text{if } \varepsilon_n > -\beta Z_{1n} \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

The determinants behind the decision to remain in farming can therefore be estimated with a Probit model including a set of characteristics affecting the utility derived from the different alternatives and a set of farmers' characteristics (set of variables Z_1). The choice of the variable tested allows a wide range of facets of decision-making to be taken into account in a simple framework. The final choice of variables for each country is presented and explained in the individual country sections.

3.2.3. Farms' growth

Growth is another important component of structural change and investigating the determinants of growth under the different policy scenarios is therefore likely to allow gaining more insights into the consequences of the policy change. Classically, in studies focusing on survival and growth, a Heckman model (Heckman, 1979) is applied, where a Probit model on decision to exit is estimated first followed by a second stage OLS on growth (with growth as a continuous variable) for the farms remaining in farming during the period considered. However, the Heckman model requires a continuous measure for farm growth. In the case of our study, the distribution of farmers' plan to grow was strongly biased towards "no change" as many respondents stated they were not planning to alter the size of their farm in the coming 5 years and towards "no downscaling" as very few respondents reported a plan to reduce the size of their farm. Under those circumstances, valid econometrical analyses were only possible using a discretised variable based on farmers' plan to

grow with two categories: intending to grow or not. Therefore, the determinants of growth are revealed through a Probit model contrasting farmers intending to grow to the rest of the respondents. Once again, the conceptual framework on which farmers based their decision is assumed to be a utility maximisation framework where each farmer, index n , faces a choice among 2 alternatives:

- alternative 1: increasing the size of their farm
- or alternative 2: not increasing the size of their farm (including “no change” and decrease in size).

Similarly to the model of exit, the chosen alternative will be the one that allows the decision-maker to enjoy the highest level of utility and the determinants of growth can be estimated through a Probit model taking the following from:

$$Growth_n^* = \beta Z_{2n} + \varepsilon_n \quad (3)$$

$$\text{With } Growth_n = \begin{cases} 1 & \text{if } \varepsilon_n > -\beta Z_{2n} \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

The explanatory variables are a set of characteristics affecting the utility derived from the different alternatives and a set of farmers' characteristics (set of variables Z_2). Here again a wide range of facets of the decision-making can be taken into account through a simple framework. The final choice of variables for each country is presented and explained in the individual country sections.

One may argue that because only the decision-makers staying in farming can choose to grow, the sample of farmers planning to expand their farms is biased and a correction should be included in the growth analysis to take this into account. However, since there is no variable likely to affect exit only that could therefore be *a priori* excluded from the growth equation, the selection procedure is difficult to assess and it was chosen here to study the two decisions independently. This means that the study of growth presented here is conditional on staying in the farming sector.

3.3. Investigation of attitudes and expectations

Policy makers have recognised that how farmers adjust to changes in agricultural policy depends partially on their attitudes and mindsets (USDA, 2004). However, while agricultural policy has shifted from a production orientation to more decoupled forms of payment, there is little evidence that farmers' attitudes have also adjusted.

For example, a recent analysis argues that farmers are not taking decisions consistent with a less production-oriented environment and have distinctive patterns of adjustment to policy reform (Walford, 2003). Therefore, it is important to also investigate whether a typology of farmers can be discerned depending on their opinions on policy support and farming objectives, and whether different values or opinions can be linked to diverging behavioural intentions to adjust to the 2003 CAP reform. In this aim, the pooled sample of farmers interviewed in the five countries studied is utilised, and it is investigated whether there are significant differences in farmers' attitudes to agriculture and policy support amongst the EU member states. An ANOVA based analysis is presented regarding farmers' attitudes towards support and off-farm work, and the relationship with intentions to exit and grow.

The analysis of attitudinal data is divided into two parts (this analysis is presented in details in Gorton *et al.*, 2006). First, descriptive statistics are presented for the whole sample regarding the distribution of the attitudinal responses for the Likert scales. Mean scores for the five countries are presented with significant differences identified using ANOVA F-tests. Second, groups of farmers with similarly held attitudes are identified using cluster analysis. This is to investigate whether differences in farmers' attitudes can be discerned according to predominately national, east-west, size or other criteria.

Cluster analysis is performed in two stages. First, a hierarchical technique is used to identify outliers and the number of clusters, and then profile the cluster centres. Then, the observations are clustered by a non-hierarchical method with the cluster centres from the hierarchical results used as the initial seed points. This combined procedure allows one to benefit from the advantages associated with hierarchical and non-hierarchical methods, while at the same time minimising the drawbacks (Punj and Stewart, 1983). The algorithm used in the hierarchical technique is Ward's method based on squared Euclidean distances. To decide how many clusters exist, the criteria suggested by Fiegenbaum and Thomas (1993) are applied, which focus on the simultaneous analysis of the overall fit obtained within each grouping and the improvement that is obtained in this fit with the inclusion of an additional group⁴.

⁴ These criteria are: (a) the percentage of intra-group variance explained with the obtained grouping being higher than a minimum percentage which was set at 50 percent and (b) that the percentage

The empirical analysis of the survey data is first applied country by country and then a comparative study is undertaken. The focus is on individual farms. However, in Slovakia, an important share of agricultural land is utilised by corporate farms. Therefore, for Slovakia, the survey results for corporate farms are also presented, although corporate farms are studied in more details in deliverable 22. The next Chapter presents the sample characteristics, descriptive statistics and the link between attitudes and intentions, on a country by country basis. Chapter 5 focuses on models of exit and growth for individual farms in the studied countries. Finally, both the determinants of exit and growth and the linkage between attitudes and intentions are further studied in a cross-country setting in Chapter six.

increase in the explanation of the intra-group variance, obtained with the inclusion of an additional group, does not exceed 5 percent. Thus, the number of groups that exist will be determined when the two conditions are satisfied simultaneously.

Chapter 4: Sample description, descriptive statistics and exploratory analysis

4.1. England

4.1.1. Background

4.1.1.1. Description of the policy implemented in England

The policy implemented in England is a dynamic hybrid model moving towards flat regional payments. The model applied is referred to as hybrid as farmers will be receiving part of their payments based on their historical claims and part based on a regional flat rate. The model is qualified as dynamic as the share of the total payment received by a farmer based on a regional flat rate will evolve from 0 percent the first year to 100 percent in 2012. For the flat regional rate share, three regions have been defined according to the physical characteristics of the land:

- Moorland Severely Disadvantaged Area (Moorland SDA)
- Upland or non-Moorland Severely Disadvantaged Area (non-Moorland SDA)
- Lowland.

Because the regional envelope is composed of the sum of the payments historically received in the respective region, the introduction of the flat rate payments constitutes a redistribution of support among farmers within a region. Across regions, however, important disparities will remain. By 2012, lowland farmers are expected to receive up to 7 times more than the farmers in the Moorland SDA. England did not opt for any coupled payments. The policy implemented is therefore fully-decoupled in an *ex-ante* point of view.

4.1.1.2. Policy scenarios

Three scenarios were presented to the survey respondents in England. They were asked to state their intentions to adjust to:

- The continuation of Agenda 2000, the baseline scenario.
- The implementation of SFP with payments based on historical claims only (no flat rate components).

- The implementation of SFP with flat rate regional payments only (no historical components).

Contrary to the questionnaires in the other countries analysed, the SFP as implemented in England has not been considered as a scenario as the dynamic component would have made the interpretation of the differences across scenarios difficult. For this reason, it was preferred to consider two static scenarios, one corresponding to the situation at the beginning of the implementation of the SFP (historical payments only) and one corresponding to the situation at the end of the dynamic process (regional flat rate payments only). This should allow to assess the potential differences in impact of those two options, while getting a feel of what the reaction to the real policy change might be. Importantly, the flat rate is expected to create a wider redistribution of payments among farmers and therefore to induce a stronger response than the one under historical payments.

4.1.2. Description of the sample

A sample of 156 farmers was surveyed in England, but after cleaning the data only 134 records were usable. The farms surveyed do not cover the whole territory of England as the contracts for data collection had to be negotiated at the regional level rather than at the national one. Four of the Farm Business Survey (FBS) centres, normally collecting data for the FADN database, agreed to participate in the data collection: Askham Bryan, Newcastle, Wye and Exeter⁵. This has led to a bias in the geographical representativity of the sample. Information on the precise location of farms was not disclosed due to the confidentiality clause. However, the location of the four participating centres, and the farms they are responsible for, means that a variety of agri-environmental situations were covered by the IDEMA sample. The comparison of the distribution of the sample farms in terms of farm specialisation or “type of farming” (TF) and in terms of economic size, measured in economic size unit (ESU) to FADN (2002) indicates that the sample of interviewed farmers gives a good representation of the FADN population. With the exception of farms specialised in permanent crops and fruits and vegetables (“Other groups”), that were not surveyed as the 2003 CAP reform does not concern them directly, all other specialisations have been well represented (Table 4-1). In terms of size measured in ESU, the distribution

⁵ Other centres (namely Nottingham, Reading and Cambridge) declined taking part.

of surveyed farms mimics quite well the distribution in the full FADN sample (Table 4-2), with a slight over representation of small farms (1 ESU) and under representation of large farms (8 ESU).

Table 4-1: Distribution of the sampled farms according to the type of farming, compared to FADN sample (%)

TF – Type of farming	Total sample	FADN	Surveyed sample
Cereals	13		13
General cropping	11		5
Dairying	22		28
Other cattle	7		8
Sheep and goats	25		27
Pigs	4		4
Mixed	11		15
Other groups	9		0

Table 4-2: Distribution of the sampled farms according to ESU, compared to FADN sample (%)

ESU class	Total sample	FADN	Surveyed sample
1	1		3
2	7		6
3	12		10
4	13		14
5	17		19
6	20		22
7	19		19
8	11		7

The sample also gives a good representation of farmers from LFA regions and Objective 1 area. Additional characteristics of the farms surveyed are presented in Table 4-3 and in Annex 2 (Table 8-1 and Table 8-2). On average, the sample farms are rather large (136 ha). By legal types, 54 percent are sole traders and 43 percent are partnerships; the remaining are farm companies. Despite their large size, on average only 2 annual work units (AWU) are used in each farm. Most of the respondents are full-time farmers. Operators' reliance on external factors is limited with only 36 percent of the land being rented in (low in comparison to the average in the EU-15 but close to the national average) and about 21 percent of farm labour is being hired. The

variations across the sample in the share of rented land and hired labour are however large (large standard deviation). Livestock dominates the revenue from sales. The average revenue from sales is high at 4,740 euros per ha. The share of subsidies in the farm revenue is relatively low (14 percent) in comparison to other EU-15 countries and varies across respondents. Sixty six percent of the farms reported that they do not receive any organic or agri-environmental payments; among the remaining 36 percent, such payments represented on average 34 percent of the total level of payments received in 2004 (minimum 2 percent; maximum 100 percent). Respondents were relatively old (55 years on average) and well educated (32 percent continued their education after their A-level). The share of respondents with agricultural education is 56 percent. Additionally, farmers' experience on-farm is high (35.2 years in average). Their experience off-farm is much more modest (about 3 years) but with very important variation in the sample. It is also interesting to note that, even if few farmers are not members of a union (only 19 percent), a large majority of them are defining themselves as "passive" members.

Table 4-3: Characteristics of the farms surveyed; descriptive statistics for 1999-2002 (average)

	Mean	Std dev	Min	Max
UAA (ha)	135.6	142.3	2.0	1,198.5
Labour (AWU)				
Total	2.07	1.12	0.33	8.01
Farmer only	0.95	0.14	0.17	1.00
Share of external factors (%)				
Rented land	35.4	41.9	0	100
Hired labour	21.7	26.1	0	92
Shares in revenue from sales (%)				
Crop	17.0	30.2	0	100
Livestock	83.0	30.1	0	100
Other	0.3	1.5	0	13.6
Revenue from sales per ha (excl. subsidies) (euros)	4,739	19,346	105	211,172
Share of subsidies in total revenue (%)	14.2	11.5	0	60.9
Subsidies per ha (euros)	228.2	156.7	0	1,118

Farm households are relatively small as they normally comprise of two adults and one child only. This may explain why only 25 percent of the respondents have identified their successor despite the high average age of the farmers in the sample. The major source of household income (three quarters) is from on-farm activities

(Table 8-3 in Annex 2). However, large variations exist in the sample as the share of income from on-farm activities has a large standard deviation. More precisely, for 48 percent of the farmers surveyed, on-farm activities represent 90 percent or more of their total household income. This means that a large share of the respondents do rely strongly on their on-farm activities to generate income. However, about 7 percent of the farmers declared that on-farm activities contributed to less than 30 percent of their household income.

A comparison of the farm sample with the EU average and the survey samples for the other countries studied underlines the specificity of English agriculture. It has a relatively low reliance on support; the farms are large but farmers are quite old with uncertain succession perspectives. The dependency upon farm incomes is relatively high on average, but with sharp contrasts among farmers.

4.1.3. Stated intentions

Farmers were asked to provide a detailed description of their plans about the future of their farms under the previously mentioned three policy scenarios. Their answers provide valuable insights into their potential short-term adjustments and their perceptions of the likely impact of the policy change on their business. The answers that relate to some strategic decisions which are of central importance to understand the effects of decoupling are presented below.

4.1.3.1. Exit/Stay

Although the average age of the sample is relatively high, most of the respondents intend to exit later than 10 years from now. What is important is that the exit intentions almost do not change depending on the scenario (Table 4-4). This indicates that at least at the early stage of the policy reform, farmers do not intend to adjust by changing their strategic plans. This is consistent with the responses to previous intention surveys (Harvey, 2000), which indicated that farmers intended to continue “business as usual”.

Table 4-4: Exit intentions according to scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Exit in the next 5 years	18	18	19
Exit in the next 5 to 10 years	22	21	19
Later exit (beyond 10 years)	59	60	60
Missing answers	1	1	2

Farmers were also asked to state what they were intending to do after exiting and what would happen to their farms. Their answers again show no variations across scenarios. Once they have exited the sector, 75 percent of the farmers are planning to enjoy their retirement. The fact that most of the respondents are only planning to exit the sector at their retirement age may explain the stability of their responses across scenarios. Almost half of the respondents intend to pass their farm to a successor when they exit the farming sector. The second most favoured option is to sell farm land or to cease renting in farm land (Annex 2, Table 8-5 and Table 8-6).

In summary, it seems that, whatever the policy in place, farmers' intentions are quite stable. Most respondents want to exit in ten years time to enjoy their retirement and pass on the farm to a successor, and this holds under the three scenarios studied. The change in policy seems, however, to lead a small number of respondents to exit earlier under SFP historical payments and a slightly larger number under SFP flat-rate regional payments. But the changes are too small to expect an important impact of the decoupled policies on exit.

4.1.3.2. Farm size

Most of the respondents intending to stay in the farming sector beyond the next 5 years intend to keep the same farming area under all scenarios (Table 4-5).

Table 4-5: Intended change in area for those willing to stay in farming, according to scenarios: shares of farmers (%)

Change in size	Scenario 1	Scenario 2	Scenario 3
Do not know	5	4	4
Decrease	3	3	7
No change	80	81	78
Increase	12	12	11
Total	100	100	100

Among those willing to change, a higher percentage intends to increase their farming area. Under the full decoupling (flat rate regional payments), the share of farmers willing to decrease their farmed area is slightly larger than under the two other scenarios (7 percent and 3 percent respectively). Comparing the scenarios, a slight reduction in the share of respondents willing to increase their area between Scenarios 1 and 2, on the one hand, and Scenario 3, on the other hand, can be observed. A slight augmentation in the share of respondents willing to decrease their area between Scenarios 1 and 2, and Scenario 3 can also be observed. This means that in terms of change in size, plans are affected in a limited way by the change in policy, but changes in plans do appear in the expected direction. However, in absolute terms these changes are very small. Table 4-6 presents the intended changes in the size of the farm, in hectares, and as a percentage of the initial farm's utilised agricultural area (UAA). Comparing scenario 1 and 2 reveals that the magnitude of the intended change is not affected by the policy reform. Comparing scenarios 1 and 2 with scenario 3 indicates that, for farmers willing to downsize, the average intended decrease remain the same (in ha), but the average relative size decrease is greater. This suggests that farmers with smaller farms intend to downsize under scenario 3 compared to the two other scenarios. Very limited changes are observed for the growing farms. It must be noted, however, that it is difficult to draw robust conclusions from those data, since in each case the number of respondents is very small.

Table 4-6: Intended area change for those willing to stay, according to scenarios; average changes ^a

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-48	-48	-47
%	-22	-22	-40
	(3 respondents)	(3 respondents)	(7 respondents)
Increase in area			
Ha	43	40	45
%	47	45	34
	(13 respondents)	(13 respondents)	(12 respondents)

^a Stated change in ha, and stated change as a percentage of the average past UAA (=stated change in ha * 100 / average UAA in ha in 1999-2002).

Respondents were also asked to state how they were planning to decrease or increase their farm land area. The preferred option to decrease the farming area is to stop renting in. This is quite intuitive as land owned may have a higher intrinsic value for the farmers than rented in land. Similarly, the preferred option to increase the farming area is to purchase land. There are no major differences across scenarios (see Annex 2 Table 8-6).

To summarise, the impact of the implementation of a decoupled policy have limited impact on farmers plan to alter the size of their farm. Farmers' plans however indicate that the flat-rate regional payments would induce still small but more important adjustments.

4.1.3.3. Production activities

So far, it has appeared that the different policy scenarios would not affect exit and growth in a major way. Farmers' adjustment to the policy change could then appear in their output mix choices. Tables are presented in Annex 2 (Table 8-7 to Table 8-9), summarising farmers' plans to allocate resources to specific production activities and increase or decrease the area of land kept free from production activities (GAEC or set-aside) under the three scenarios studied. Only two respondents intend to withdraw land from production to keep it in GAEC or increase the set-aside area under both Scenarios 2 and 3. Concerning the output mix, the preferred option for the majority of respondents under all scenarios is "no change". However, there are some changes across scenarios. The most noticeable change concerned rearing and fattening cattle. For this activity, the share of respondents not willing to change their production decreases by 13 percent and 17 percent under scenario 2 and 3 respectively compared to scenario 1, while the share of farmers willing to decrease this production activity increases by 14 percent and 16 percent. This move away from rearing and fattening cattle is consistent with the change in incentives created by the shift in policy. More subtle changes are observed for other production activities, and the overall direction of the changes is less clear. The share of farmers willing to quit or decrease their COP production increases under scenario 2 and 3, as does the share of farmers willing to increase this activity. Similarly, for dairy production the share of farmers willing to increase and willing to quit is greater under the two decoupled scenarios compared to the baseline one. Concerning sheep and goat production, the share of farmers willing

to increase this production is greater by 2 percent under the two decoupled scenarios. However, the share of farmers willing to decrease this production is also greater, while the share of farmers willing to quit decreases. Finally, concerning forage and pasture, small variations across scenarios can be observed. The share of farmers willing to increase their forage and pasture area increases by 1 percent under scenario 2 compared to scenario 1, and the share of farmers willing to quit decreases by 1 percent, leading to a likely small overall increase in this production. Under scenario 3, however, this is not confirmed with the share of farmers willing to decrease their forage and pasture area increasing by 2 percent.

When considering the magnitude of the change as well as the direction, it is difficult to draw any conclusions due to the low numbers of respondents (see Annex 2). However what can be said is that, changes exist across scenarios and seem to indicate that the policy will have an impact on the output mix of farmers. Under decoupled policies, the expected move towards less COP production does not appear clearly, but a move towards slightly less intensive production of livestock (significantly less head of rearing and fattening cattle in particular with about the same area under forage and pasture) seems to be confirmed.

4.1.3.4. Non-agricultural on-farm or off-farm investment

Finally, the survey also considered other possible adjustments by focusing on the possibility of investment outside agriculture through investment on- and off-farm in non-agricultural activities. It has already been said that most of the household income of the respondents was stemming from farming. However, as a proxy of farmers' level of diversification off-farm prior the policy change, past off-farm asset values, as reported by the respondents, were recorded.

Table 4-7: Importance of off-farm assets before the policy change (%)

	1999	2000	2001	2002	2003
Valuation of off-farm assets as a share of total assets					
Average	7	7	8	8	9
Share of respondents without off-farm assets	66	65	61	60	60
Share of total revenue generated by off-farm assets					
Average	4	4	4	5	6
Share of respondents without off-farm revenue	66	66	63	61	61
Share of total profit generated by off-farm assets					
Average share (%)	7	7	9	9	9
Share of respondents without profit from off-farm assets	68	69	64	62	62

Note: The average share is calculated for the whole sample (140 respondents), including those with 0%.

Table 4-7 shows that although the majority of respondents reported they did not have off-farm assets, the share of such respondents has decreased between 1999 and 2003. This is why the average share of off-farm assets in the total asset value, in the total revenue and in the total profit has increased over the period for the whole sample. Therefore a slight trend towards increased investment into off-farm assets has existed prior to the policy change.

Table 4-8: Intended change in non-agricultural investments (on- and off-farm), according to scenarios; shares of farmers (%)

	Scenario 1 (104 respondents)	Scenario 2 (108 respondents)	Scenario 3 (106 respondents)
Start or increase	21	26	28
Decrease or stop	0	0	0
No change	79	74	72

As shown in Table 4-8, the trend seems to continue within the next 5 years, as investment in non-agricultural activities, both on- and off-farm, tend to increase under all scenarios. Indeed, no respondent intends to stop investing in non-agricultural activities. And, although most of the respondents do not want to change, about one quarter would like to start or increase their investments. The trend towards more investment in non-agricultural activities also seems to be strengthened as the degree of decoupling of the policy in place increases. The share of farmers willing to start or increase their investment in non-agricultural activities is slightly increasing from Scenario 1 to Scenario 3. This is fully consistent with the idea that decoupled

payments not conditional on farming can stimulate farmers to redirect their investments away from agriculture.

As shown in Annex 2 (Table 8-10), agro-tourism, business and letting for industrial or development purposes are the favoured investments, both on- and off-farm, under all scenarios. More respondents are willing to start or increase activities that are on-farm rather than off-farm, but the value of intended investment is much larger off-farm than on-farm. This may show that there is a potential for diversification of activities on-farm with a low level of investment required.

In summary, the implementation of a decoupled policy seems unlikely to affect the structural change in England in an important way but some minor adjustments may occur due to a small number of earlier exits and slight changes in intentions to grow or downsize. However, more important adjustments are likely to affect output-mix choices and diversification plans, in a way which is consistent with expected response to decoupled policy.

4.1.4. Goals, Attitudes, Credibility: more operators' characteristics

Additional pieces of information were available from the survey. Indications of farmers' goals, attitudes towards subsidies and off-farm work, and credibility of the reform were collected to shed light on their decisions. Indeed, as the survey deals with intentions to react, expressed before the policy change was actually implemented, a socio-psychological frame of understanding can be an interesting tool to further comprehend farmers' intentions.

4.1.4.1. Goals, Attitudes, Credibility: descriptive statistics and exploratory analysis

Respondents were asked to rank five goals according to how important they were for them when managing the farm. The most important for English farmers is to provide for the needs for their household. This objective comes before maximising their profit and avoiding excessive debt. Investing is the least preferred goal, in particular investing off-farm.

Table 4-9: Average ranking of the goals by the respondents

From 1 to 5 (with 1 for the most important and 5 for the least important)

G1	Provide for needs of the household	1.7
G2	Investment in activities on the farm (agricultural or not)	3.2
G3	Investment in activities off-farm	4.7
G4	Maximise farm profit	2.2
G5	Avoid excessive debt	3.0

Respondents were also asked to indicate their level of agreement with some statements relating to agricultural policy and off-farm employment. The statements and the average score recorded are shown in Table 4-10. Regarding their values, the respondents consider farming as an activity that aims at producing goods to be marketed and that should be full-time. They are willing to produce landscape goods (2.1.4), but they would rather be paid for it (2.1.9). They do not feel too much pressure to keep their business running and do not feel restricted by the CAP regulations (2.1.12, 2.1.13). Non-pecuniary benefits from farming seem to be highly valued (2.1.6). Regarding their family and friends, respondents are unsure about their opinions on their activity (many statements scored around 3) but nevertheless consider their opinion when taking decisions.

Table 4-10: Average ranking for the value and belief statements by the respondents

(from 1 “strongly agree” to 5 “strongly disagree”)

2.1.1. A good farmer is a competitive producer of goods sold on the free market.	2.1
2.1.2. Farm land should be fully used for agricultural production.	2.4
2.1.3. Farmers should only produce food and fibres.	3.4
2.1.4. Farmers should produce landscape and environmental goods.	2.7
2.1.5. Farmers should not have to work off-farm to sustain their farming activities.	2.0
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	1.9
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	3.4
2.1.8. Farmers shouldn't receive any commodity price support.	3.4
2.1.9. Farmers shouldn't receive any subsidies related to environmental goods production.	4.0
2.1.10. Farmers shouldn't receive any income support.	3.9
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	4.0
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	3.0
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	2.9
2.2.1. They think that farmers produce agricultural commodities, only.	2.5
2.2.2. They think that farmers produce landscape and environmental goods.	3.1
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.9
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	3.1
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	2.0
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	2.8
2.3.3. My family and friends' views come first.	2.5

Finally some indications of how credible the policy change is were collected by asking farmers how probable they thought different future policy options were. As shown on Table 4-11, respondents are not sure whether payments will remain or not (6.1.2), but if they do, they would most probably be in a decoupled form. This indicates that in the surveyed sample decoupled policies are seen as credible. There is therefore no reason to believe that farmers would be acting strategically and respond to the change in policy weakly due to a belief that coupled policy may come back in a near future.

Table 4-11: Average ranking for the credibility statements by the respondents
(from 1 “Not probable at all” to 6 “Very probable”)

6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.6
6.1.2. Farmers will receive no support payments what so ever.	3.0
6.1.3. Payments will be recoupled to agricultural production.	2.0

4.1.4.2. Goals, Attitudes, Credibility and Decisions on farm

To investigate whether farmers’ adjustment to the reform could be, at least partially, explained by some variables such as goals, attitudes or credibility of the policy, it was expected to employ ANOVA. However, because in England so few farmers change their plan across scenarios, it was not possible to carry out meaningful quantitative analyses on the potential link between change in decisions to exit or grow and goals, attitudes and credibility of the reform. However, looking at the responses, farmers’ goals and attitudes seem to be consistent with their current situation as most farmers in the survey are full-time with limited experience working off the farm. Additionally, they do not feel their decisions are constrained by the CAP, which may explain why their intentions are not changing across scenarios.

4.1.5. Conclusions

According to farmers’ intentions, the introduction of decoupled payments will affect very little the structural change in England. Few farmers plan to modify their exit or growth decisions under SFP compare to Agenda 2000. However, the greatest part of farmers’ adjustment plan, i.e. the most important difference across scenarios, seem to concern production choices (even though the majority of the respondents are not planning to change their output mix across scenarios, it is still the area where most of the changes happen) and the decision to invest in diversification. Therefore, adjustment to the 2003 CAP reform in England is more likely to be subtle and to concern mainly production activities choices and diversification.

4.2. France

4.2.1. Background

4.2.1.1. Description of the policy implemented in France

The policy implemented in France is a static historical model with partial decoupling. It is a historical model because the payments received under SFP are computed based on the level of payments received by the farmer during the reference period (2000-2002). It is a static model because the computation method will not change across the years, and it is *ex-ante* partial decoupling since some payments remained partially coupled after the change in policy. Table 4-12 lists the payments that remain coupled under SFP.

Table 4-12: Payments remaining coupled after the implementation of SFP in France

Payments for:	Share of the payment remaining coupled (%)
Arable crops	25
Sheep	50
Suckler cows	100
Calf slaughter	100
Adult cattle slaughter	40

Despite part of the payments remaining coupled, the implementation of SFP constitutes a decoupling of the payments while comparing with the situation under Agenda 2000. However, because the payments are computed on a historical basis, each farm will carry on receiving a level of payments similar to what they were receiving before the change in policy. Therefore the change in policy should not have very strong effects on the farmers in France, with the exception of dairy farmers who will suffer from the decrease of intervention prices.

4.2.1.2. Policy scenarios

Three scenarios were presented to the respondents in France:

- The continuation of Agenda 2000, the baseline scenario.
- The implementation of partially decoupled SFP where some coupled payments remain (as described above)
- Hypothetical full decoupling, i.e. the implementation of SFP based on a flat-rate regional payments and no coupled part.

4.2.2. Description of the sample

298 farms were surveyed in France. Only 281 are in the final sample, due to mismatch between the FADN database and the farms surveyed. Contrary to the other countries studied, only one year of FADN data is used for each farm in this sample (2002, 2003 or 2004 depending on which was the most recent year available). Additionally, because only raw data rather than the final FADN database were provided to us, the information available for each farm differs from what we were able to use for the other countries studied.

The sample of French farmers surveyed does not cover the whole territory as data collection had to be negotiated through regional data-collecting centres (i.e. through the CER, "Centre d'Economie Rurale"). This leads to some bias in the geographical dispersion of farms. Only some "départements" in the west and south-west of the country are represented in the sample, implying an absence of farms in mountainous areas. Regarding the legal status, the sample is biased towards partnerships. The 2003 Census reports 66 percent of sole traders and 28 percent of partnerships in the population (Agreste, 2003). However, in the sample the respective percentages are 39 percent and 55 percent. Assessing the representativity of the sample in terms of type of farming and ESU is not possible as such data are not available for the French sample. However, compared to the national average UAA of 47 ha in 2003, the farms in the sample are large (97.8 ha) (Table 4-13). This may be partially due to the bias against mountainous areas, and to the bias towards partnerships, whose average UAA in the French population is 101 ha. Farms in the sample use more rented land than the whole population in 2003 (74 percent), but this is also probably due to the high presence of partnerships, which rely more on external

land than individual farms. On average 2 AWU are required on each farm, the reliance on hired labour is small (less than 10 percent of the AWU are hired labour). Data on sales were not available for most of the farms in the sample. This implies that most of the figures presented for the French sample based on farm output are not comparable with the values presented for other countries, where sales were used instead.

Table 4-13: Characteristics of the farms surveyed; descriptive statistics for 2002, 2003, or 2004 (depending on the farms)

	Mean	Std dev	Min	Max
UAA (ha)	97.8	55.7	7.9	396.0
Labour (AWU)				
Total	2.0	1.1	1.0	9.0
Share of external factors (%)				
Rented land	85.9	25.9	0.0	100.0
Hired labour	9.8	20.0	0.0	100.0
Shares in total output ^a (%)				
Crop	29.1	30.0	-27.7	125.3
Livestock	28.8	29.4	-10.5	99.3
Total output per ha (euros)	2,008	1,346	134	13,525
Share of subsidies in total output (%)	25.5	17.6	0.0	105.6
Subsidies per ha (euros)	380.5	138.3	0.0	1,106

^a Negative outputs are due to stock variations.

Farmers in the sample are quite young (43 years old on average), but only 42 percent of them went to college (see Annex 3, Table 8-20). An impressive 90 percent of the sample has an agriculture oriented education. As they are young, their on-farm work experience is somewhat limited (18 years), as is their off-farm work experience (2 years). Only 27 percent of them are in a farmers' union. The typical household is composed of 2 adults and a young. The majority of the farmers in the sample think it is too early for them to say whether they will have a successor or not. Considering the composition of the household' income, farmers' households rely strongly on investment (about 50 percent of income on average) and only about 13.5 percent of their income stem from agriculture. However, the very high values for the standard deviation show that the situations are extremely diverse in our sample. Indeed, only 12 percent of the farmers in the sample have positive returns from their investments and the average value of household income stemming from investments is very significantly driven up by the few very successful of them. On the farm income side, a

limited number of farmers actually make losses from their farming activity (which may be due to the set-up cost of farming in a group of relatively young farmers), bringing the average down.

Unsurprisingly there are very few farmers who think that their work load or the one of other people on the farm is not large enough (Table 4-14).

Table 4-14: Evaluation of the workload on the farm before the implementation of SFP; share of farmers (%)

Is the current work load on the farm:	For you	For your farm partners and family members	For the hired labour force
Acceptable	70	45	18
Too heavy	27	13	2
Too low	2	2	1
Missing answers	1	40	79

4.2.3. Stated intentions

4.2.3.1. Exit/Stay

As the average age of the farmers in the sample is pretty low (43 years old), the majority plans to exit late, i.e. in more than 10 years time (Table 4-15). It seems that there are only limited variations in the exit timing of farmers across scenarios (: France). There are virtually no changes between Scenarios 1 and Scenario 2 and really limited changes comparing those two scenarios with Scenario 3. The fact that exit planning remains unchanged between Scenario 1 and Scenario 2 was expected as France is implementing SFP based on historical payments and some coupled payments remained. However, considering the opposition that existed in France against decoupling, it is more surprising to see that even under Scenario 3 really few farmers change their exit plans (around 3 percent of the sample only). This may be explained by the fact that respondents are quite young and therefore not willing to consider exiting as an adjustment strategy just yet.

Table 4-15: Exit intentions according to scenarios; share of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Exit in the next 5 years	10	11	11
Exit in the next 5 to 10 years	12	12	12
Later exit (beyond 10 years)	53	52	51
Missing answers	25	25	26

Most operators are planning to retire when leaving the farm. That is the plan of about 75 percent of the sample under the three scenarios. Therefore, this seems to confirm the idea that the lack of change in exit plan may be due to the fact that young farmers do not really consider exiting as an adjustment strategy. Passing on the farm to a successor is the favoured option. However, around 40 percent of the farmers in the sample do not know what will happen to their farm when they leave, which is not surprising considering that most of the surveyed farmers are planning to exit farming relatively late, in more than 10 years.

4.2.3.2. Farm size

Farmers' adjustment to the new policy could then translate into change in plan regarding the size of their farm. As already mentioned, the population in the sample is quite young and most of them plan to exit late. In addition the share of undecided farmers in terms of their exit plan is quite high as well. Among those planning to stay at least five years, a large proportion would like to increase the size of their farm under all three scenarios (Table 4-16). This shows that, whatever the policy in place, a frustration exists as most farmers would like to increase the size of their farm, and have not had the opportunity to do so, so far. This can be explained by the existence of the SAFER, an state-body which regulates the exchange of agricultural land and which gives priority to small farms or young farmers and may therefore penalise other farmers in their plan to grow.

Table 4-16: Intended change in area for those willing to stay in farming, according to scenarios; shares of farmers (%)

Change in size	Scenario 1	Scenario 2	Scenario 3
Do not know	3	6	2
Decrease	1	1	3
No change	43	41	48
Increase	53	52	47
Total	100	100	100

Table 4-17 makes the frustration of farmers willing to grow more obvious, as about 30 percent the farmers in the sample want to grow. They want to increase the size of their farm on average by 30 percent. Table 8-26 in Annex 3 emphasises the existence of a frustrated demand for land as none of the respondents want to decrease their agricultural area if it is not to convert it into other usage or pass it to a successor, but a large proportion wants to buy or rent in substantial quantity of land.

Table 4-17: Intended area change for those willing to stay, according to scenarios; average changes^a

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-13	-5	-17
%	-13	-5	-33
	(2 respondents)	(2 respondents)	(5 respondents)
Increase in area			
Ha	+35	+35	+35
%	+36	+35	+34
	(96 respondents)	(93 respondents)	(82 respondents)

^a Stated change in ha, and stated change as a percentage of the average past UAA (=stated change in ha * 100 / UAA in ha).

4.2.3.3. Production activities

Other adjustment strategy includes altering the output mix on the farm. Decoupled policies offer more freedom to farmers as payments are not tied to production, therefore farmers can invest in more profitable activities rather than supported activities. They can also stop producing and keep their land in GAEC. However, the GAEC option is not very popular in France and very few farmers are considering changing their set-aside or GAEC area under the different scenarios (Table 8-27 in Annex 3). On the production side, as expected, some farmers are choosing to produce less of the crops previously heavily supported (COP for example) under scenarios 2

and 3 than they would have under Agenda 2000. However, the expected movement towards less intensive livestock production is not clearly confirmed. Indeed, the majority of farmers do not want to change their pasture and forage area, and for those planning to change their area, a move towards increasing forage and pasture is observed but with no clear differences across scenarios. The number of farmers willing to increase their stocking density decrease from scenario 1 to scenario 3, but this tendency is not confirmed by their intentions to change the number of heads of cattle (dairy or other), and other grazing livestock they keep, as no differences appear across scenarios. This was to be expected under scenario 2 due to the historical computation of the payments and the existence of additional coupled payments, but is more surprising under the fully decoupled scenario. The only clear indication that farmers may be going towards less intensive livestock production is in their intentions towards the change in ratio grass/maize in their pasture, with a move towards more grass and less maize from scenario 1 to 3. This move is stronger under the fully decoupled scenario.

As a summary, farmers in France are not likely to adjust their production mix significantly under SFP as implemented in the country. Under a truly decoupled scenario, their adjustment would have been a little bit more consistent with what was expected from the reform, but changes in output mix would still have been limited, which is somewhat surprising considering how much French farmers were opposing a fully decoupled policy.

4.2.3.4. Labour

A specificity of the French survey is that some questions on labour allocation were added to assess whether farmers' adjustment plan to decoupling would involved some changes on this issue. While in all scenarios most of the respondents believe that the needs for labour on the farm will not change, some respondents think that fully decoupled payments will lead to less labour needed (17 percent in Scenario 1 compared to 23 percent under Scenario 3), as shown in Table 4-18. The same trend is observed for on-farm labour time from the farmers themselves and from their farm partners. The trend is not confirmed for on-farm hired labour, however. This suggests that, under a fully decoupled scenario, farmers intend to transfer the workload to hired workforce or to use less labour intensive methods of production, in order to have

more time themselves for off-farm activities and for leisure. This is confirmed by the increasing number of respondents from Scenario 1 to Scenario 3 believing that their time for off-farm activities and leisure will increase. The implementation of SFP based on historical payments with some coupled payments has however a very different impact on labour needs, as farmers believe they will have to work more on farm and as well as their partners.

Table 4-18: Opinions on the evolution of workload, according to scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
On-farm labour needs will:			
Increase	21	34	24
Decrease	17	15	23
Not change	61	49	51
Missing or not applicable	1	2	2
Farmer's on-farm labour time will:			
Increase	22	31	24
Decrease	20	18	25
Not change	55	48	48
Missing or not applicable	3	3	3
Farmer's off-farm labour time will:			
Increase	15	16	18
Decrease	5	6	6
Not change	63	62	60
Missing or not applicable	17	16	16
Farmer's leisure time will:			
Increase	33	34	37
Decrease	11	14	10
Not change	55	51	50
Missing or not applicable	1	1	3
Partners' on-farm labour time will:			
Increase	14	20	16
Decrease	15	15	17
Not change	33	27	28
Missing or not applicable	38	38	39
Hired labour on-farm labour time will:			
Increase	6	7	7
Decrease	4	4	4
Not change	14	13	12
Missing or not applicable	76	77	77

On average the share of on-farm labour devoted to cross-compliance requirements is stable across scenarios, at about 4 percent (Table 4-19). This means that farmers in the sample are not really worried by the cross-compliance

requirements under SFP and do not believe that this will increase their workload. This does not go against what was expected by decision-makers prior the change in policy, for two reasons. Firstly, farmers had previously to comply already to some cross-compliance requirements, although less strict. Secondly, land under GAEC would require more time allocated for cross-compliance, but French farmers do not intend to keep their land in GAEC, and are mostly planning to use it for production.

Table 4-19: Evaluation of farm labour allocated to cross-compliance requirements, according to scenarios

	Scenario 1 (220 respondents)	Scenario 2 (265 respondents)	Scenario 3 (219 respondents)
Share of on-farm labour devoted to cross-compliance requirements (%)			
Average	3	4	4
Minimum	0	0	0
Maximum	90	90	100
Standard deviation	7	7	11
Share of farmers answering 0% (%)	22	28	33

4.2.3.5. Non-agricultural on-farm or off-farm investment and other adjustment strategies

Other adjustment strategies include investment in non-agricultural activities, change in methods of production and investigation of the possibility to cash the payments by selling payments' entitlements. Considering investment in non-agricultural activities first, it has been said already that the sample of French farmers comprise a few very successful off-farm investors. Additionally, as shown in Table 4-20, 17 percent of the sampled farmers had invested in off-farm asset in the 3 years prior to the policy change indicating a quite strong interest in off-farm investments compared to what is observed in the other countries studied.

Table 4-20: Importance of off-farm investment before the policy change

Share of respondents having invested off-farm in the past 3 years (%)	17
Average investment value for those farms (ths euros)	7,314

This interest is confirmed Table 4-21, as about 20 percent of the interviewed farmers are considering investing in non-agricultural activities, both on- and off-farm in the future. However, the policy change is not likely to impact on farmers' intentions to invest outside agriculture in the future, as this percentage remains relatively stable across scenarios.

Table 4-21: Intended change in non-agricultural investments (on- and off-farm), according to scenarios; share of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Start or increase	18	18	20
Decrease or stop	2	2	2
No change	58	58	56
Missing answers	22	22	22

According to Table 4-22 and Table 4-23, farmers in the sample are also considering a number of other ways of changing their farming methods in the future. However, there are no major changes between scenarios. The fact that farmers are investing in order to adjust their farming methods demonstrate their dynamism and their flexibility. Even if there is no change across scenarios, it still may indicate that if a policy change was to alter significantly the environment in which they are farming, they would be ready to make the necessary adjustments, having considered a number of possible options. As for Table 4-24, it indicates that fewer farmers are worried about their income under the fully decoupled scenario, as the share of those willing to take measures to protect their crop or revenue decreases in Scenario 3 compared with Scenario 2. This may be due to the fact that decoupled payments act as an income guarantee.

Table 4-22: Intended changes in the way of farming in order to increase the value added, according to scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Intending to change the way of farming in order to increase the value added	62	64	62
Intending to start or increase the following type of production:			
Organic production	1	1	2
Production less intensive in fertilisers	29	30	30
Contract production	31	31	29
On-farm sales	14	16	15
Other	12	13	12

Table 4-23: Intended changes in the way of farming in order to decrease the costs, according to scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Intending to change the way of farming in order to reduce their costs more	82	83	81
Intending to reduce more the following costs:			
Machinery costs (machinery co-operatives)	42	44	43
Technical costs (change in varieties)	31	32	31
Intermediate consumption	52	54	53
Fixed costs	40	41	40
Other	6	6	7

Table 4-24: Intended changes in income guarantees; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Willing to change their income guarantees (crop insurance, spot market, etc)	26	28	26

Finally, France is a special case as the policy implemented with the 2003 CAP reform is fully based on historical payments, which means that each farmer will be receiving a different amount of payments per hectare according to what they were producing during the reference period, and a amount of payments comparable to what they were getting prior to the policy change. However, the payments will be given to farmers according to their entitlements and if they have the number of hectares required. The reform is therefore creating entitlements to payments, whose value will differ across farms and that can be traded with or without the land. However, trading entitlements without land will be taxed at 50 percent to avoid speculation. Table 4-25 shows that more than half of the sample (52 percent) has less entitlements than their current area; in other words, the number of rights to payments they have is smaller than the number of hectares that they were utilising at the time of the survey. This suggests that these farms have increased size between the reference time for SFP calculation (2000-2002) and the survey time (2005). However, Table 4-26 shows that very few farmers (4 percent) intend to sell land without entitlements and very few farmers intend to purchase (4 percent) or sell (1 percent) entitlement without land, probably due to the tax in place. As a conclusion, it seems that the development of a market for entitlements is unlikely, at least from this survey of intentions.

Table 4-25: Eligible area to SFP

Share of respondents having (%):	
all their current area endowed with SFP (1)	41
less SFP than their current area (2)	52
more SFP than their current area (3)	3
Missing answers	4
For those having less entitlements than their current area (2): average area without entitlement	
Ha	14
% of current UAA	16
For those having more entitlements than their current area (2): average area needed	
Ha	21
% of current UAA	30

Table 4-26: Intentions regarding the exchange of SFP (%)

Intention to purchase or sell land without entitlements; share of respondents (%)	
Intending to do so	4
Not intending to do so	40
Missing answers	57
Intention to purchase entitlements without land; share of respondents (%)	
Intending to do so	4
Not intending to do so	55
Missing answers	41
Intention to sell entitlements without land; share of respondents (%)	
Intending to do so	1
Not intending to do so	11
Missing answers	88

4.2.4. Goals, Attitudes, Credibility: more operators' characteristics

To complement the previous analyses and present farmers' intentions under another light, we will now consider the impacts of other factors such as farmers' goals, attitudes and expectations towards the future of the policy.

4.2.4.1. Goals, Attitudes, Credibility: descriptive statistics and exploratory analysis

This first section will characterise farmers in the sample according to their goals, attitudes and how credible they believe the change in policy is.

To provide needs for the household and to maximise farm profit are the most important goals for French farmers, while off-farm investment is by far the least important (Table 4-27). This may be surprising as on average 50 percent of their household income derives from off-farm investments (but with a very important standard deviation).

Table 4-27: Average ranking of the goals by the respondents

From 1 to 10 (with 1 for the most important and 10 for the least important)

G1	Provide for needs of the household	2.6
G2	Investment in activities on the farm (agricultural or not)	6.9
G3	Investment in activities off-farm	7.3
G4	Maximise farm profit	2.8
G5	Avoid excessive debt	3.9
G6	Improve working conditions	3.2
G7	Reduce work burden	4.7
G8	Respond to administrative constraints	5.3
G9	Improve product quality	5.3
G10	Other	7.4

Focusing on attitudes, the most agreed upon statement is 2.1.12 “I have to keep my farm running”. French farmers seem to think that subsidies are necessary for them to carry on, whatever the form of the subsidies, as statements 2.1.8 to 2.1.10 suggesting that farmers should not receive different types of supports are all rated on average above 3 (that is to say, disagree) (Table 4-28). French farmers also state the strongest opposition to the idea that a good farmer is a competitive one (2.1.1.) with an average score of 3.5, when in other countries this statement scored around 2 on average. Surprisingly farmers seem to believe they should produce landscape and environmental goods (2.1.4.) but also that the society disagrees with that (2.2.2.). Attitudes and social pressure seem also to go against taking on off-farm employments (2.1.5. and 2.2.4.).

Table 4-28: Average ranking for the value and belief statements by the respondents

(from 1 “Strongly agree” to 5 “Strongly disagree”)

2.1.1. A good farmer is a competitive producer of goods sold on the free market.	3.5
2.1.2. Farm land should be fully used for agricultural production.	1.9
2.1.3. Farmers should only produce food and fibres.	1.7
2.1.4. Farmers should produce landscape and environmental goods.	1.7
2.1.5. Farmers should not have to work off-farm to sustain their farming activities.	1.5
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	1.9
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	3.2
2.1.8. Farmers shouldn't receive any commodity price support.	3.2
2.1.9. Farmers shouldn't receive any subsidies related to environmental goods production.	3.9
2.1.10. Farmers shouldn't receive any income support.	3.1
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	3.5
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	1.2
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	2.1
2.1.14. <i>The structure of my farm, in terms of size and specialisation, will allow me to adjust easily to new conditions, whatever the European agricultural policy in place.</i>	3.4
2.2.1. They think that farmers produce agricultural commodities, only.	1.8
2.2.2. They think that farmers produce landscape and environmental goods.	3.3
2.2.3. They think that CAP support should help producers to maintain their farming activities.	3.4
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	2.4
2.3.0. <i>When making key decisions about the farm I consult my partners on the farm.</i>	1.2
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	3.1
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	2.2
- <i>my technical advisor</i>	2.4
- <i>my accountant or financial advisor</i>	1.7
- <i>other people from my professional circle</i>	2.6
2.3.2bis. <i>How does the CER^a play a role in my decision-making process.</i>	
- <i>as a source of information</i>	1.8
- <i>through its legal and financial expertise</i>	1.8
- <i>as a partner in the design of my business strategy</i>	2.2
2.3.3. My family and friends' views come first.	3.0

^a “Centre d'Economie Rurale” (technical advice)

Finally, concerning the credibility of the reform, according to French farmers, the most probable option is continuation of decoupled payments (Table 4-29). Recoupling or removal of payments are seen as a lot less likely, with removal of payments being a little bit more probable than recoupling. Therefore on average, there is no reason to believe that farmers' responses to the policy change are biased by their expectation towards the future of the policy. It seems that there is no credibility issue.

Table 4-29: Average ranking for the credibility statements by the respondents
(from 1 "Not probable at all" to 6 "Very probable")

6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.4
6.1.2. Farmers will receive no support payments what so ever.	2.8
6.1.3. Payments will be recoupled to agricultural production.	2.6

4.2.4.2. Goals, Attitudes, Credibility and Decisions on farm

The influence of some variables such as goals, attitudes or credibility of the policy on farmers' plan to adjust to the change in policy is investigated here. Results from ANOVA on farmers' change in decisions across scenarios according to their stated opinions are presented in the following sections. The two decisions investigated are exit timing and variation of the size of the farm. Only the results significant at 10 percent are reported. The results presented compare farmers' intentions under continuing Agenda 2000 and SFP as implemented in France.

Changes in the decision to exit

The very small number of farmers planning to change their exit timing across scenarios does not allow an investigation of the determinants of change exit timing through ANOVA.

Changes in the decision to grow

The results presented in Table 4-30 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intention to grow due to the implementation of the 2003 CAP reform. Farmers' rating of 10 goals (G1 to G10), their attitudinal scores for 28 statements and their individual probability scores for 3 future policy options presented above were used.

Table 4-30: Change in growth planning and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Plan to operate a smaller farm under SFP compared to Agenda 2000	2. Plan to operate a farm the same size under the SFP and Agenda 2000	3. Plan to operate a larger farm under SFP compared to Agenda 2000	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G7	3.75	4.75	6.80	.059		.020	.047
2.1.3.	2.38	1.66	1.40		.070		
2.1.5.	1.13	1.55	2.40			.091	
2.1.6.	1.25	1.91	2.60	.072	.079	.065	
2.2.2.	3.25	3.34	2.20				.051
2.2.3.	3.13	3.52	2.00	.044			.015
2.3.0.	2.25	1.53	1.00		.088	.092	

As stated earlier, French farmers are not considering putting large amount of land in GAEC. This table additionally indicates that farmers planning to operate on a larger farm under SFP compared to Agenda 2000, consider reducing their workload as less of a priority than farmers willing to operate the same area or a smaller area under SFP compared with Agenda 2000 (higher value for G7). This may confirm that farmers are planning to use labour on the additional area they will take on under SFP. It is possible that the coupled payments remaining under SFP in France constitute still enough of an incentive to use more labour on-farm. Those farmers willing to farm a larger area under SFP compared to Agenda 2000 additionally appear to value less strongly the non-monetary benefits of a farming lifestyle (2.1.6.).

Similarly farmers who strongly believe that land has to be used for production of food and fibres (low score for 2.1.3.) are more likely to increase the area on which they operate under SFP compared to Agenda 2000. All this tend to confirm that either the policy design or farmers' perception of it does not really fit with a decoupled policy. Farmers who consider operating a larger farm under SFP than under Agenda 2000 are not against the idea that farmers could take off-farm employments (high

score for 2.1.5.). Finally it can be seen, that farmers willing to operate smaller farms under SFP compared to Agenda 2000 feel less pressure from their environment to produce landscape and environmental goods (high score for 2.2.2.), but also less support from the society for farmers to receive payments to maintain their farming activities (high score for 2.2.3.). Those results may however not be very stable as very few respondents want to change their plan across scenarios.

4.2.5. Conclusions

As a general conclusion from these analyses, it has first to be said that the results have to be considered with great care. Indeed the sample surveyed does not represent the whole diversity of French agriculture, as notably mountainous regions are omitted. Additionally the regions investigated are relatively homogenous leading to the policy change investigated to lead to only limited redistribution of payments among farmers. Finally the farmers investigated rely only in a limited way on their on-farm income and are very young. In this context, the responses to the policy changes analysed here may underestimate the reaction the policy will cause in the whole country.

However the global conclusion of the investigation is that the adaptation to the reform is likely to be very smooth as very few farmers will alter their plan to exit or grow across scenarios. It still appears that farmers' strategies to adjust are rather based on changes in their output mix and altering the allocation of time to farming activities. Finally, two profiles of farmers seem to emerge depending on whether they want to operate larger farms under SFP or not. Indeed, farmers planning to operate larger farms under SFP seem to be more concerned with production and working full-time on-farm while farmers willing to decrease the size of their farms seem to be more concerned with reducing their workload and enjoying the lifestyle.

4.3. Sweden

4.3.1. Background

4.3.1.1. Description of the policy implemented in Sweden

As indicated in Chapter 1, the 2003 CAP reform provides a good scope for regional adaptation and each country within the EU has chosen to implement the reform under a different form. In the Swedish case a “hybrid regionalised support model” has been designed and was implemented from January 2005. The model is regionalised because the basic amount of payments received per hectare is fixed, with differences across regions. The model is also hybrid because some additional payments will be received by farmers according to what they were producing in 2000-2002. Finally, additional coupled payments will be provided to farmers producing beef, but only until 2009. Table 4-31 summarises how the payments provided after the policy change relate to Agenda 2000 payments. Agenda 2000 payments are presented in rows and MTR payments in columns. Most of the payments existing under Agenda 2000 will be given to farmers as decoupled regional payments under MTR. For crops one exception exists, as the specific drying aid to northern Sweden remains totally coupled. For livestock, the extensification payments, slaughter premiums and milk quotas are fully decoupled, but part will be redistributed on a regional basis and part on an historical basis. Finally 75 percent of the special beef premium remains coupled while the 25 percent remaining percent will be decoupled and redistributed on a regional basis.

Table 4-31: Description of the policies studied in Sweden

		MTR payments		
		Decoupled part (Share, %)		Coupled part (Share, %)
		Basic regionalised payment	Top-ups based on historic production choice (reference period: 2000-2002)	
Agenda 2000 payments	Specific drying aid to northern Sweden			100
	Other support for crop production	100		
	Extensification payments	50	50	
	Slaughter premiums	60	40	
	Milk quotas	32.5	67.5	
	Special beef premiums	25		75
	Other livestock payments	100		

This policy reform represents a global shift toward more decoupled payments, as all the payments received by farmers are independent of the current production choice, with two exceptions: a coupled drying aid for crops in the north of the country and a special beef premium. The coupled payment made to beef producer is expected to smoothen the transition to decoupled payments (Ministry of Agriculture Food and Consumer Affairs, 2004).

COP producers are expected to be the most affected by the policy change, as the level of payments they receive drops with the implementation of the reform. Similarly, decoupling is expected to impact on cattle farmers despite the special beef premium maintained for the first four years of the reform (Ekman, 2004).

4.3.1.2. Policy scenarios

In the questionnaire for Sweden only two scenarios were proposed to the respondents:

- The continuation of Agenda 2000, the baseline scenario.
- The implementation of SFP as described above.

Contrary to the four other countries studied, the third scenario (full-decoupling: flat-rate area payments with no additional coupled payments) was not investigated as it was too close to the real implementation of the SFP (Scenario 2).

4.3.2. Description of the sample

A total of 384 farmers were surveyed. Out of it, 344 farmers were interviewed through a postal survey and 40 through (partial) phone interviews. Table 4-32 and Table 4-33 compare the shares of farms according to their type of farming and ESU in 2005 in the total FADN sample, in the total surveyed sample, in the sample of farms interviewed through the postal survey and the sample of farms interviewed over the phone. Table 4-32 shows that the sample surveyed by post only is slightly biased towards dairy and pig farmers. This bias is surprising especially considering the fact that pig farmers should have been excluded from the sample as they were not directly concerned by the reform. As a result, more interesting farm orientations such as “cereals”, “general cropping” and “mixed” are slightly under-represented. The sample of farms interviewed over the phone, being quite small, does not really allow for this bias to be corrected in the total surveyed sample. Table 4-33 also shows a bias in the surveyed sample, as large farms are over-represented. Overall, comparing the characteristics of the farm surveyed with the characteristics of the farm in the 2005 FADN database, the surveyed sample is fairly representative of the total population with a bias towards dairy farmers and large size farms (ESU > 40). These biases should be considered in the conclusions and implications made from the results of the survey.

Table 4-32: Distribution of the sampled farms according to the type of farming, compared to FADN sample (%)

TF – Type of farming	Total FADN sample	Total surveyed sample	Postal surveyed sample	Phone surveyed sample
Cereals	21	14	15	22
General cropping	19	16	15	18
Dairying	31	45	45	37
Dry stock	7	5	6	5
Pigs	2	7	7	10
Mixed	16	12	12	8
Other groups	4	1	0	0

Table 4-33: Distribution of the sampled farms according to ESU, compared to FADN sample (%)

ESU class	Total FADN sample	Total surveyed sample	Postal surveyed sample	Phone surveyed sample
>100	10	19	18	25
40-100	28	46	46	20
16-40	29	26	29	38
8-16	28	8	6	18

Most of the farms surveyed are not in LFA (54 percent of the respondents) and not producing using organic methods (83 percent), which is consistent with the country's situation (see Annex 4, Table 8-39). On average farms in the sample are between ESU class 7 and 8.

Table 4-34: Characteristics of the farms surveyed; descriptive statistics for 1999-2002 (average)

	Mean	Std dev	Min	Max
UAA (ha)	92	86	0	619
Labour (AWU)				
Total	2.1	1.5	0.2	13.2
Farmer only	0.9	0.2	0.0	1.0
Share of external factors (%)				
Rented land	60	33	0	100
Hired labour	9	20	0	100
Shares in revenue from sales (%)				
Crop	24	33	0	99
Livestock	64	37	0	100
Other	12	13	0	70
Revenue from sales per ha (excl. subsidies) (euros)	1,507	1,447	133	15,917
Share of subsidies in total revenue (%)	23	14	0	69
Subsidies per ha (euros)	303	164	0	1,232

Their average size in hectares is 92, with a great share being rented in (60 percent on average) (Table 4-34). However, the dependency on external labour is low (average 9 percent) and the average AWU per farm is 2. The average revenue from sales in the sample is around 1,500 euros per hectare, with an additional 300 euros per hectare of subsidies. The average level of subsidies received is pretty high as it amounts to 23 percent of the total revenue from sales including subsidies (when it is only 14 percent on average in the English sample for example). However, an

important share of the farmers' revenue stems from livestock production activities and this sector is likely to be greatly affected by the implementation of decoupled payments. Importantly all those figures are consistent with the situation in Sweden and means that the global sample surveyed is fairly typical of the country.

Farmers in the sample are on average 55 years old (see Annex 4, Table 8-40). Most of them only went through the compulsory schooling and most of them do have an agricultural oriented education. The average total off-farm working experience is quite high (10 years) and represents roughly one third of the farmers' average on-farm experience. The average household is rather small with 2.8 members, with less than a young (under 18 years old) per household. However, half of the surveyed farmers still hope they will find a successor in the future (51 percent saying it is too early to know whether they will have a successor or not). Within the household revenue of the surveyed farmers, an average of 33,612 euros per year stem from activities off the farm. The standard deviation is large, showing that the sample presents some important disparity in terms of household off-farm income.

4.3.3. Stated intentions

4.3.3.1. Exit/Stay

As shown by Table 4-35, under both scenarios the majority of farmers plan to exit late (in more than 10 years). However, it seems that under Scenario 2 exit is slightly accelerated as the proportion of respondents exiting within 5 years and between 5 and 10 years is greater under Scenario 2 compared to under Scenario 1.

Table 4-35: Exit intentions according to scenarios; share of farmers (%)

	Scenario 1	Scenario 2
Exit in the next 5 years	20	23
Exit in the next 5 to 10 years	31	33
Later exit (beyond 10 years)	44	40
Missing answers	5	4

It is legitimate to wonder what farmers will be doing once they have exited the farming sector (see Table 8-43 and Table 8-44 in Annex 4). There are no major changes in the activities the farmers want to focus on once they exit farming, probably

because under both scenarios the majority of farmers will be retiring at a normal age (about 70 percent of the sample). Regarding what farmers are planning to do with their farm when leaving, once again there are limited changes across scenarios and most farmers intend to pass on their farm to a successor. It is however interesting to note that a small proportion of farmers want to abandon their farm, which means that they do not think they will be able to pass it on to a successor or even to sell or rent it. This share is growing with the implementation of SFP.

Thus, in terms of exit, it seems that the change in policy induce a limited acceleration of exit (earlier exit under SFP than Agenda 2000, a little bit less “normal-age” retirement) and a slight increase in the number of abandoned farms. This globally signals that farmers are a bit worried about the change in policy and that their confidence in the sector seems to be reduced under SFP compared to under Agenda 2000.

4.3.3.2. Farm size

Focusing now on farmers plan to alter the size of their farms, it is interesting to note that farmers seems to find it difficult to make plan under SFP and the share of farmers not knowing how they will alter the size of their farm under SFP compared to under Agenda 2000 nearly triples, as can be seen from Table 4-36. Among those who stay in farming and know how they want the size of their farm to evolve in the future, a very large majority of farmers does not plan to change their UAA under both scenarios.

Table 4-36: Intended change in area for those willing to stay in farming, according to scenarios; shares of farmers (%)

Change in size	Scenario 1	Scenario 2
Do not know	14	38
Decrease	2	3
No change	73	50
Increase	11	9
Total	100	100

Table 4-37 presents the intended change in size under the two scenarios. It shows that under both scenarios, farmers willing to decrease the size of their farm plan smaller changes than farmers planning to increase the size of their farm. However, few respondents actually stated the area by which they were willing to

decrease or increase the size of their farm, so the figures may be misleading. Farmers willing to decrease their farm usually plan to do it by reducing the amount of land there are renting in, and farmers willing to increase the size of their farm would consider both increasing the land rented in or buying some land (Annex 4, Table 8-45). Once again few farmers actually stated through which way they were planning to alter the size of their farm, so the figures may be misleading. However, for those who stated their preferences, there seems to be no deviation across scenarios. Therefore, the fact that farmers willing to contract the size of their farm will rely on the rental market to do so, and the fact that those who want to expand will rely on both the rental and sale market, are policy independent, and are more likely to be related to the intrinsic greater personal value of owned land.

Table 4-37: Intended area change for those willing to stay, according to scenarios; average changes ^a

	Scenario 1	Scenario 2
Decrease in area		
Ha	-11	-19
%	-31	-34
	(6 respondents)	(8 respondents)
Increase in area		
Ha	98	96
%	55	63
	(32 respondents)	(25 respondents)

^a Stated change in ha, and stated change as a percentage of the average past UAA (=stated change in ha * 100 / average UAA in ha in 1999-2002).

4.3.3.3. Production activities

Farmers in Sweden are therefore likely to adjust to the policy change by altering their exit and growth intentions, which is in contrast with what was observed in France and in England. Other adjustments strategies include altering their production mix, and here again Swedish farmers' intentions are contrasting with what was observed in the two OMS presented earlier. Indeed, more farmers are planning to set-aside additional land under SFP than Agenda 2000 and some farmers are also planning to put some land in GAEC within SFP (see Annex 4, Table 8-46). This is an interesting finding which shows that farmers are actually willing not to produce on all their land if they do receive subsidies. Therefore, SFP could lead to a relative decrease in production in the country. Table 8-47 in Annex 4 shows that SFP will lead to a relative decrease in

the production of COP, and a relative increase in forage and pasture compared to what would have happened under continuing Agenda 2000. At the same time the herd size for cattle (beef and dairy) and pig will slightly decline under SFP compared to Agenda 2000, leading livestock production to be less intensive. Thus, it seems that farmers will respond to the change in policy and readjust their production choices. As under SFP COP production will not be receiving more payments than other activities on a per hectare basis, farmers are less willing to produce it. Additionally, the reduction in incentives to intensify will also lead farmers to extensify under SFP. Farmers' changes in plans are therefore consistent with decoupling.

4.3.3.4. Non-agricultural on-farm or off-farm investments

Adjustments could also occur through a change in investment across agricultural and non agricultural activities. Prior to the reform, the share of off-farm assets in the farms' total asset value was relatively stable, as well as the share of farms holding no such assets (Table 4-38).

Table 4-38: Importance of off-farm assets before the policy change (%)

	2001	2002	2003
Valuation of off-farm assets as a share of total assets			
Average			
Share of respondents without off-farm assets	11 40	11 41	12 39
Share of total revenue generated by off-farm assets			
Average			
Share of respondents without off-farm revenue	12 46	12 46	12 45
Share of total profit generated by off-farm assets			
Average			
Share of respondents without off-farm profit	11 54	11 54	12 52

Note: The average share is calculated for the whole sample (251 respondents), including those with 0%.

Considering future investments, the share of farmers willing to start or increase non-agricultural activities is larger under SFP than under continuing Agenda 2000 (Table 4-39). This means that some farmers will invest their payments in non agricultural activities rather than in production thanks to the decoupled scheme. Off-farm intended changes, whether it is an increase or a decrease, are larger in value than on-farm intended changes, on average under both scenarios (Annex 4, Table 8-49).

Respondents favour mostly activities related to agriculture (contracting, direct sales, etc.), or more generally activities directly related with agriculture and forestry.

Table 4-39: Intended change in non-agricultural investments (on- and off-farm), according to scenarios; shares of farmers (%)

	Scenario 1 (268 respondents)	Scenario 2 (260 respondents)
Start or increase	14	20
Decrease or stop	2	2
No change	84	78

To conclude this section comparing farmers' intentions under Agenda 2000 and SFP, structural change is likely to be accelerated slightly with the implementation of SFP as more farmers will be willing to exit the sector. The global direction of farmers' responses is consistent with the change in policy, as farmers are planning to produce in a less intensive way and to reduce their production of previously heavily supported crops. The intentions of the Swedish farmers interviewed are contrasting with the reported plans of English and French farmers who participated to the study, as more important adjustments are intended. Additionally, the changes in farmers' intentions across scenarios are consistent with the change in incentives created by the change in policy.

4.3.4. Goals, Attitudes, Credibility: more operators' characteristics

To complement the picture drawn so far, pieces of information on farmers' goals, attitudes towards subsidies and off-farm work and credibility of the reform were also collected.

4.3.4.1. Goals, Attitudes, Credibility: descriptive statistics and exploratory analysis

The first piece of information of interest concerns the goals operators are pursuing when farming. Farmers were asked to rank four possible goals as shown in Table 4-40. The highest ranked goals are first to avoid excessive debt and second to provide for the household needs. Investment in off-farm activities is a less favoured goal. Farmers do not consider profit maximising as their first objective.

Table 4-40: Average ranking of the goals by the respondents

From 1 to 5 (with 1 for the most important for you and 5 for the least important)

G1	Provide for needs of the household	2.4
G2	Investment in activities on the farm (agricultural or not)	2.5
G3	Investment in activities off-farm	4.3
G4	Maximise farm profit	2.9
G5	Avoid excessive debt	2.2

Operators were also asked to express their level of agreement with some statements relating to agricultural policy and off-farm employment. The statements and the average score received by each of them are presented in Table 4-41. Swedish respondents tend to disagree with the idea that farmers should also produce landscape and environmental goods (average score 2.8 for statement 2.1.4.) and also think that people around them disagree even more with this idea (score 3 for statement 2.2.2.). Additionally, respondents do want to receive payments, whichever the form (score 3.6 or greater for statements 2.1.8. to 2.1.11).

Farmers were also asked how probable they saw some options for the future of the CAP (after 2013). The options offered were continuing decoupled payments with cross-compliance, no payments at all or re-coupling of the payment. Farmers' average opinions are presented below, in Table 4-42. The most probable option according to Swedish farmers is continuing decoupled payments (with a score of 4.1). Then even if their attitudes and beliefs show that they want to receive payments, they still think that the second most probable option is suppression of all payments (score 3.5). If coupled payments would have been seen as a probable future option for the CAP, we could have had expected farmers to behave strategically to maximise their future payments, but their expectations being towards continuing decoupled payments or no payments at all, strategic behaviour are unlikely.

Table 4-41: Average ranking for the value and belief statements by the respondents

(from 1 “Strongly agree” to 5 “Strongly disagree”)

2.1.1. A good farmer is a competitive producer of goods sold on the free market.	2.3
2.1.2. Farm land should be fully used for agricultural production.	2.2
2.1.3. Farmers should only produce food and fibres.	3.3
2.1.4. Farmers should produce landscape and environmental goods.	2.8
2.1.5. Farmers should not have to work off-farm to sustain their farming activities.	2.0
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	2.2
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	3.1
2.1.8. Farmers shouldn't receive any commodity price support.	3.6
2.1.9. Farmers shouldn't receive any subsidies related to environmental goods production.	3.8
2.1.10. Farmers shouldn't receive any income support.	3.7
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	3.9
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	3.4
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	2.5
2.2.1. They think that farmers produce agricultural commodities, only.	2.6
2.2.2. They think that farmers produce landscape and environmental goods.	3.0
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.9
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	3.1
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	2.0
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	2.8
2.3.3. My family and friends' views come first.	2.6

Table 4-42: Average ranking for the credibility statements by the respondents

(from 1 “Not probable at all” to 6 “Very probable”)

6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.1
6.1.2. Farmers will receive no support payments what so ever.	3.5
6.1.3. Payments will be recoupled to agricultural production.	2.6

4.3.4.2. Goals, Attitudes, Credibility and Decisions on farm

To investigate whether farmers' adjustment to the reform could be, at least partially, explained by some variables such as goals, attitudes or credibility of the policy, ANOVA were carried out on farmers' change in decisions across scenarios according to their stated opinions. The two decisions investigated were exit timing and variation of the size of the farm. Only the significant at 10 percent results are reported.

Changes in the decision to exit

The results presented in Table 4-43 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intentions to exit due to the implementation of the 2003 CAP reform. Farmers' rating of 5 goals, their attitudinal scores for 20 statements and their individual probability scores for 3 future policy options as described above were used but only 4 indicators turn out to be significantly different depending on farmers' change in exit plans.

Table 4-43: Change in exit timing and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Exit earlier under SFP	2. No change in exit plan	3. Exit later under SFP	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G5	1.69	2.28	1.89	.042	.018		
2.1.10.	3.77	3.70	4.50				.058
2.1.11.	4.23	3.85	4.00		.049		
2.1.13.	2.03	2.51	2.70	.065	.022		

Table 4-43 shows that farmers willing to exit earlier under SFP compare to Agenda 2000 consider avoiding debt as a more important objective than those not altering their timing of exit. They are also disagreeing more strongly with the idea that their farming abilities will allow them to perform well whatever the policy in place and agreeing more strongly with the idea that the CAP imposes too many restrictions on their plan. Farmers planning to exit later under SFP disagree more strongly than farmers not changing their plan with the idea that farmers should not receive any income support. Therefore, it may appear globally that farmers' attitudes towards agricultural policy in general seem to differ across groups, with farmers exiting earlier

under SFP feeling more pressure from the policy change. However, it is difficult to know whether farmers expressed those opinions because the policy change was forcing them to exit earlier or if the earlier exit is a consequence of their opinions. None of the statements dealing with the credibility of the reform are rated differently by farmers according to their change in plan. This demonstrates that there is no apparent reason to believe that farmers will respond strategically to the policy change, based on their expectations towards future changes in policy.

Changes in the decision to grow

The results presented in Table 4-44 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intention to grow due to the implementation of the 2003 CAP reform. Once again really few indicators turn out to be significantly different depending on farmers' change in intentions across scenarios.

Table 4-44: Change in growth planning and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Plan to operate a smaller farm under SFP	2. Plan to operate a farm the same size under the 2 scenarios	3. Plan to operate a larger farm under SFP	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G4	2.75	3.05	2.32				.016
G5	2.11	2.23	2.80			.042	.077
2.1.6.	1.71	2.36	2.17	.026	.008	.10	
2.1.7.	2.82	3.30	2.33	.005			.002
2.1.9.	3.54	3.89	4.13			.066	
2.1.10.	3.00	3.85	3.67		.002	.073	
2.1.11.	3.93	3.99	3.46				.038
6.1.1	3.63	4.15	4.54			.052	

According to Table 4-44, farmers who plan to operate on a larger farm under SFP consider profit maximisation as a more important objective than those who plan to operate on the same area under both policies (G4). The less farmers are planning to grow under SFP compare to Agenda 2000, the more they think avoiding debts is an important objective (G5). Therefore operating a large farm under SFP is the option chosen by farmers who are ready to get indebted to get more support in the long-run. Farmers willing to operate on a smaller farm under SFP are more convinced than the rest of the sample that farming is a rewarding job in terms of non-monetary benefit rather than in income (2.1.6.). Farmers who want to operate on a larger farm under SFP compare to Agenda 2000 are significantly more confident that they will be able to find a job off-farm or increase the time they already work off-farm (2.1.7.). Therefore two strategies seem to be identified here one where farmers willing to focus on farming would rather manage a smaller holding under SFP while farmers who are more willing to be indebted but also to work off-farm will prefer operating larger farm under SFP, implying that they may try to get as much subsidies as possible while reducing their workload on-farm. Based on the results for statement 2.1.9., farmers who are planning to operate a smaller farm under SFP compare to Agenda 2000 are less positive about receiving support linked to environmental good production than farmers willing to operate a larger farm under SFP. This is a fairly intuitive result. Farmers willing to operate on a smaller farm under SFP disagree less strongly than the others with the idea that farmers should not receive any income supports (2.1.10.), which again fit with the idea that those farmers will be focusing more on production activities. Finally farmers planning to operate on larger farms under SFP are also less confident in their farming abilities (2.1.11.). Therefore this seem to fit with the existence of two patterns of adjustment with some farmers focusing on production and market signals and others choosing to produce environmental goods and operate larger scale farms to get as much support as possible. It may therefore not be surprising to see that farmers willing to operate on smaller farms under SFP compare to Agenda 2000 see continuing decoupled payments as less probable than farmers who are planning to operate on larger farms (6.1.1). However they still consider decoupled payments as a fairly probable future option for the policy but the option that this group considers on average most probable is the complete disappearance of payments.

As a conclusion, the analysis presented above seem to allow two patterns of behaviour to be identified with some farmers willing to focus on production operating on smaller farms under SFP and believing supports will not be maintained and other willing to focus on capturing support on-farm, operating larger farm, and possibly getting additional income off-farm.

4.3.5. Conclusions

From the descriptive statistics of the survey responses, it appears that the implementation of SFP will give some room for an accelerate structural change as some farmers are planning to exit earlier than they would have under Agenda 2000 and intention to grow among the remaining farmers persist even after the change in policy. It also seems that farmers will modify slightly their production choices: moving away from COP, extensifying their livestock production (decrease in the heard size, increase in the pasture areas) and will even keep some land in GAEC without producing on it. This is globally consistent with the implementation of more decoupled payments as the reduced incentive to produce and to intensify are translated into farmers' intentions. Additionally the investigation of their goals, attitudes and credibility of the policy and their impacts on the change in intentions across scenarios allow us to reinforce the idea that farmers' adjustment strategies are dependent on farmers expectations and attitudes with two profiles of adjustment appearing: farmers focusing on market and production in one hand and farmers focusing on capturing subsidies while reducing their effort on-farm on the other hand.

4.4. Lithuania

4.4.1. Background

4.4.1.1. Description of the policy implemented in Lithuania

Prior to accession in 2004 Lithuania implemented its own agricultural policy, which included direct payments linked to production of chosen crops and livestock (Table 4-45).

Table 4-45: Description of pre-accession policy in Lithuania (2000-2003)

	2000	2001	2002	2003
<i>CROP PRODUCTION</i> <i>euros/ha (LTL/ha)</i>				
Arable crops (cereals, oilseeds, other crops supported by EU)				
Grains	11.6 (40)	10.7 (40)	11.4 (40)	0 (0)
Buckwheat in less favoured areas	43.4** (150)**	40.3** (150)**	42.6** (150)**	43.4** (150)**
Rye in less favoured areas	86.9** (300)**	80.6** (300)**	85.2** (300)**	86.9** (350)**
Rapeseed	23.2 (80)	21.5 (80)	22.7-34.1 (80-120)	23.2 (80)
Barley	0 (0)	0 (0)	28.4 (100)	0 (0)
Flax for fibre	523.3 (1,807)	295.5- 349.2 (1,100- 1,300)	312.3- 425.8 (1,100- 1,500)	289.6- 434.5 (1,000- 1,500)
Linseed	0 (0)	0 (0)	0 (0)	144.8* (500)*
Maize	0 (0)	0 (0)	0 (0)	0 (0)
Sunflower	0 (0)	0 (0)	0 (0)	0 (0)
Protein crops	29.0 (100)	26.9 (100)	28.4 (100)	8.7** (30)**
Starch potatoes	0 (0)	0 (0)	0 (0)	0 (0)
Other crops in less favoured areas	0 (0)	0 (0)	0 (0)	5.2** (18)**
Potatoes > 5 ha	0 (0)	0 (0)	0 (0)	52.1 (180)

Vegetables > 2 ha	0 (0)	0 (0)	0 (0)	52.1 (180)
Crops non supported by EU	0 (0)	0 (0)	0 (0)	0 (0)
ANIMAL PRODUCTION <i>euros/unit (LTL/unit)</i>				
Grassland and pasture	0 (0)	0 (0)	0 (0)	0 (0)
Milk, per ton	n.c.	0 (0)	4.7 (16.7)	9.5 (32.7)
Milk cows, per head	0 (0)	0 (0)	0 (0)	0 (0)
Bulls, per head	0 (0)	0 (0)	0 (0)	0 (0)
Slaughtered adult animals, per head	n.c.	0 (0)	19.9-56.8 (70-220)	20.3-86.9 (70-300)
Suckler cows, per head	n.c.	107.4- 214.9 (400-800)	56.8-227.1 (200-800)	57.9-231.7 (200-800)
Ewes, per head	n.c.	0 (0)	14.2-28.4 (50-100)	14.5-29.0 (50-100)

Note: Conversion from LTL to euros as on the 1st of January of the given year.

**when seeds are certified.*

*** only in less favoured areas.*

n.c.: not communicated.

Source: LAEI data table made according Orders of Minister of the appropriate years.

From 2004 the SAPS was implemented, that provides direct payments to farmers with no obligation to produce (decoupled payments), as well as additional coupled payments for specific crop and livestock (top-ups). Table 4-46 below presents the decoupled payments given for all registered land (32.5 euros/ha in 2004 and 45.6 euros/ha in 2005) in a first column, and the additional top-ups in a second column for each year. It must be noted that an additional 18.8 euros/ha (65 LTL/ha) is also given as a top-ups for all land located in LFA regions.

Table 4-46: Description of post-accession policy in Lithuania (2004-2005)

	2004		2005***	
	<i>SAP</i>	<i>Top-ups</i>	<i>SAP</i>	<i>Top-ups</i>
CROP PRODUCTION <i>euros/ha (LTL/ha)</i>				
Arable crops (cereals, oilseeds, other crops supported by EU)	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Grains	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Buckwheat in less favoured areas	32.5	56.8	45.6	56.4

	(112,14)	(196,15)	(157,4)	(194,6)
Rye in less favoured areas	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Rapeseed	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Barley	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Flax for fibre	32.5 (112,14)	134.2 (463,15)	45.6 (157,4)	124.4 (429,6)
Linseed	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Maize	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Sunflower	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Protein crops	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	89.7 (309,6)
Starch potatoes	32.5 (112,14)	56.8 (196,15)	45.6 (157,4)	56.4 (194,6)
Other crops	32.5 (112,14)	0 (0)	45.6 (157,4)	0 (0)
ANIMAL PRODUCTION <i>euros/ha (LTL/unit)</i>				
Grassland and pasture, per ha	32.5 (112,14)	0 (0)	45.6 (157,4)	0 (0)
Milk, per ton	0 (0)	0 (0)	0 (0)	13.9 (48)
Milk cows, per head	0 (0)	31.9 (110)	0 (0)	0 (0)
Bulls, per head	0 (0)	147.2 (510)	0 (0)	159.9 (552)
Slaughtered adult animals, per head	0 (0)	26.1 (90)	0 (0)	55.9 (193)
Suckler cows, per head	0 (0)	144.8 (500)	0 (0)	161.9 (559)
Ewes, per head	0 (0)	8.7 (30)	0 (0)	12.5 (43)

Note: Conversion from LTL to euros as on the 1st of January of the given year.

**** data from Lithuania's proposal on direct payments scheme in Lithuania in 2005 sent to the European Commission.*

Source: LAEI data table made according Orders of Minister of the appropriate years.

Comparing the two previous tables, the implementation of the SAPS constitutes a slight increase in payments from the first year for all crop production activities, except for flax for fibre and linseed in all regions and for potatoes and vegetables in non LFA regions, and an increase in payments for most livestock producers (depending on the direct payments they were receiving before accession and on their stocking density).

Farmers who will benefit the most from the change in policy are arable crop producers and producers of previously unsupported crops. Farmers in LFA will also be winning with the implementation of SAPS, thanks to the specific LFA payment they will be receiving.

4.4.1.2. Policy scenarios

In the Lithuanian questionnaire three scenarios were considered:

- The continuation of pre-accession policy, the baseline scenario.
- The implementation of SAPS as decided by the country (see Table 4-46).
- The implementation of full decoupling, that is to say of a flat-rate area payment only (SAPS with no top-ups).

4.4.1.3. UAA: the issue of registered vs. non registered land

A specificity of the SAPS in NMS is that, in order to get payments, operators need to register their land annually. The situation of the land with respect to the registration procedure is described in Table 4-47 for Lithuania.

Table 4-47: Classification of land in Lithuania

Area	Thousand hectares
Total UAA	3,487.2
1. UAA in Agricultural Census of which	2,530.7
UAA registered, eligible	2,287.9
UAA not in GAEC	242.8
2. other UAA of which	956.0
UAA with unidentified owners	533.0
UAA not granted for usage or leased out	423.0

Source: Communication between the Lithuanian Ministry of Agriculture and DG Agri

Among the total 3,487.2 thousand hectares of potential agricultural land in Lithuania only 2,530.7 thousand hectares are considered as agricultural land by the 2002 Agricultural Census. This agricultural land includes 2,287.9 thousand hectares registered and eligible to payments, the remaining 242.8 thousand hectares being not eligible for payments yet. The 956 thousand hectares that are not included in agricultural land by the Agricultural Census comprise both land with unidentified

owners (533 thousand hectares) and currently abandoned land (423 thousand hectares).

The provision of increased payments to farmers is likely to raise the price of agricultural land in Lithuania, and may accelerate the identification of the owners of the 533.0 thousand hectares currently under unclear ownership. This may also create an incentive to register at least part of the 242.8 thousands hectares currently in poor condition, if the cost incurred to make them eligible to payments (GAEC) is less than the sum of the discounted future payments. Those two mechanisms may lead to an apparent restructuring if additional farmers register the land they are already farming and start being accounted for in the Census and then in the FADN. A real restructuring might also occur if those areas are exchanged on the land market. But it may also be the case that, in spite of the payments, no restructuring takes place in the future if those areas are already used as family garden or if their quality is too low for them to be eligible for the payments.

Thus, depending on the reality of the situation, this means that in the near future, the total area eligible for payments may grow with the total registered and UAA. In 2005, already some 2,574 thousand hectares of land were declared and registered, that is to say 286 thousand hectares more than in the 2002 Census. This is important because it may mean that farms do have a potential to grow even in the case where there are few exiting farmers releasing their land. However, registrations for 2006 seem to show that the total number of hectares declared and registered will be smaller than in 2005.

4.4.2. Description of the sample

The sample is composed of 220 individual commercial farms. The dairy sector is well represented in the sample but the other livestock specialisations are under-represented in favour of the crop specialisations (Table 4-48). Table 4-49 shows that, as the FADN focuses on commercial farms, a large number of small farms existing in Lithuania are not represented in the FADN. Therefore, the surveyed sample (which is drawn from the FADN sample) is biased as small farms are under-represented compared to the total population of farms. However, to study the impact of the change in policy, focusing on commercial farms is probably the best option. Comparing the distribution of farms in terms of ESU in the total FADN and the surveyed sample, it

can then be said that our sample represents well the distribution of commercial farms in the country.

Table 4-48: Distribution of the sampled farms according to the type of farming, compared to FADN sample (%)

TF – Type of farming	Total FADN sample	Surveyed sample
COP	13	36
General cropping	11	25
Milk	10	11
Other cattle	3	0
Sheep and goats	0	0
Mixed livestock	17	4
Mixed crops	26	15
Other	20	9

Table 4-49: Distribution of the sampled farms according to ESU, compared to FADN sample and Agricultural Census (%)

ESU class	Census population	Total FADN sample	Surveyed sample
1-2	64	18	18
3	15	13	14
4	7	12	7
5	6	16	15
6	3	10	13
7	4	21	25
8 or greater	1	10	8

Characteristics of the sampled farms are presented in Table 4-50 and Table 8-56 in Annex 5. Based on the 2002 LFA definition, 60 percent of the farms in the sample are in LFA regions and there is no mountainous LFA in Lithuania, as it is a flat country. However, the definition for LFA has changed after accession and the 2002 LFA definition is not a very good proxy for the EU LFA definition. It is however still indicative of farmers operating under relatively unfavourable agri-environmental conditions. Farms in the sample are of medium economic size with an average ESU class of 5. The average size in hectares is however quite large in European standards, at 88 ha. Most of the farmers in the sample are full-time, and farms require on average 3 AWU (which is 1 more AWU per farm than in England or Sweden for example). The revenue from farming activities is lower than in EU-15

countries studied. In 2000-2002 the support received by farmers was on average 12 percent of the total revenue, which is also less than the share of subsidies in revenue in the EU-15 countries.

Table 4-50: Characteristics of the farms surveyed; descriptive statistics for 2000-2002 (average)

	Mean	Std dev	Min	Max
ESU	5.0	1.9	2	9
UAA (ha)	88.3	86.1	5.0	712.7
Labour (AWU)				
Total	2.7	2.1	0.6	15.4
Farmer only	0.9	0.16	0.13	1.0
Share of external factors (%)				
Rented land	61	30	0	100
Hired labour	14	32	0	89
Shares in revenue from sales (%)				
Crop	63	35	0	100
Livestock	31	34	0	100
Other	7	16	0	100
Revenue from sales per ha (excl. subsidies) (euros)	304	363	23	3,462
Revenue from sales per AWU (excl. subsidies) (euros)	9,562	9,290	794	52,523
Share of subsidies in total revenue (%)	12	11	0	69
Subsidies per ha (euros)	32.8	30.1	2.8	181.7

Farmers in the sample are 50 years old on average, 50 percent of them have left formal education at 20 or more and 64 percent of them have an agriculture oriented education. However, their experience in farming is quite limited (about 10 years) and comparable to their off-farm experience. The majority of the respondents are not members of any farmers' union (42 percent), but about 60 percent of the respondents who are in a farmers' union consider themselves as active members. Most of the households are composed of two adults and a young (younger than 18). The majority of the farmers in the sample think it is too early to say whether they will have a successor or not. But one fourth of the farmers having identified a successor, have him/her on the farm. In the surveyed sample, the household income stem at 90 percent from agricultural activities, on average. Therefore the households are highly dependent on their on-farm income, and probably on the subsidies they are receiving.

4.4.3. Stated intentions

4.4.3.1. Exit/Stay

The change in policy is important in Lithuania (change in the form and in the level of payments), however, the timing of exit of the sampled farmers does not vary much across scenarios (Table 4-51). This may be explained either by the fact that, without market imperfections, decoupled payments do not give any incentive to stay longer in farming even if they are greater than what farmers were previously receiving, or by the fact that farmers may be planning to exit only to retire, and therefore their retirement time is set. Slight changes in plan can however be observed with a movement towards later exits under SAPS with top-ups, as compared to the pre-accession scenario. The changes between pre-accession scenario and full decoupling are however less clear. It has to be noted here that even if less than 10 percent of the respondents are planning to change their exit timing, their decision is likely to have a great impact on the sector, and this constitutes an important shift in the rate and direction of the structural change.

Table 4-51: Exit intentions according to the scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Exit in the next 5 years	18	17	16
Exit in the next 5 to 10 years	15	11	15
Later exit (beyond 10 years)	56	61	55
Missing answers	11	11	14

Respondents were asked what they would intend to do after exiting the farming sector. Even if retirement at normal age is the favoured option, it is slightly more commonly chosen under pre-accession policy. Globally, turning to non-manual jobs becomes a more appealing choice under the decoupled policies. Farmers were also asked what they were planning to do with their farm once they exited the sector. The majority of them want to pass on their farm to a successor, as long as part of the payments at least is coupled to production activities (Scenarios 1 and 2), but would rather rent their farm under full-decoupling. The importance of the shift in farmers' decisions on that particular point is surprising, but is consistent with a situation where

fully decoupled and larger payments are introduced and are capitalised into land prices.

4.4.3.2. Farm size

Under decoupled payments, there are more respondents willing to increase the size of their farm than under the pre-accession policy (Table 4-52). This may be because the volume of payments they will be receiving will allow them to invest in land. Moreover, even more respondents want to increase the size of their farm under SAPS plus top-ups than under fully decoupled payments, which is consistent with the fact that coupled payments give farmers production incentives that are inexistent under full-decoupling.

Table 4-52: Intended change in area for those willing to stay in farming, according to scenarios; shares of farmers (%)

Change in size	In Scenario 1	In Scenario 2	In Scenario 3
Do not know	7	15	12
Decrease	4	2	3
No change	68	36	54
Increase	21	47	31
Total	100	100	100

Table 4-53 confirms that more farmers want to increase the size of their farm and that the demand for land is likely to increase under decoupled scenarios. However, as seen earlier, with the implementation of decoupled scenarios farmers do not change their exit timing or, if they do change it, they are more likely to exit later.

Table 4-53: Intended area change for those willing to stay, according to scenarios; average changes ^a

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-57	-37	-45
%	-57	-28	-84
	(7 respondents)	(3 respondents)	(4 respondents)
Increase in area			
Ha	82	77	81
%	163	130	150
	(32 respondents)	(72 respondents)	(46 respondents)

^a Stated change in ha, and stated change as a percentage of the average past UAA (=stated change in ha * 100 / average UAA in ha in 2000-2002).

4.4.3.3. Production activities

Concerning change in output mix and land use, farmers do not intend to keep land idle or in GAEC without producing on it (Annex 5, Table 8-64). This may mean that all farmers in the sample are expecting to make profit producing on their land. Some respondents even want to reduce the land that they are currently leaving idle. Regarding the output mix, under the three scenarios farmers plan to increase their COP production, but even more so under SAPS with top-ups. The two decoupling scenarios will lead to an increase in livestock production (pasture area, number of cattle heads) than it would have under continuing pre-accession policy. Those intentions are not consistent with a decoupling of support and rather indicate that the increase in the level of payments constitutes an incentive towards more production.

4.4.3.4. Non-agricultural on-farm or off-farm investment

Finally, considering the possibility of investing in non agricultural activities, only a few respondents (between 10 and 16 respondents, i.e. 5 to 7 percent) stated holding some off-farm assets in 1999 to 2003. The problem is that, for those respondents where there is no answer, we do not know whether it is because their off-farm assets are 0, or because they did not wish to disclose any information on this issue. For those who have answered, it seems that the importance of off-farm assets has decreased over the period considered (Table 4-54). The fact that few farmers seem to hold non agricultural asset off-farm shows that any further increase in non-agricultural investment can be seen as diversification.

Table 4-54: Importance of off-farm assets before the policy change (%)

	1999	2000	2001	2002	2003
Valuation of off-farm assets as a share of total assets					
Average	22	20	18	17	18
Share of total revenue generated by off-farm assets					
Average	26	22	21	17	15
Share of total profit generated by off-farm assets					
Average	26	22	21	16	16

According to Table 4-55, the intention to invest on- or off-farm in non-agricultural activities does not change much with the implementation of decoupled

payments. There seems to be a very small increase in the number of farmers who wish to decrease or stop their activities, and a very small decrease in the number of farmers who wish to increase or start their activities under decoupled payments. The change is however extremely marginal.

Table 4-55: Intended change of non-agricultural investments change (on- and off-farm), according to scenarios; shares of farms (%)

	Scenario 1 (149 respondents)	Scenario 2 (146 respondents)	Scenario 3 (146 respondents)
Start or increase	11	10	11
Decrease or stop	1	2	1
No change	88	88	88

The type of activities in which the farmers will choose to invest was not asked in Lithuania. Statistics in Table 8-67 in Annex 5 are given for all types of activities altogether. In this country it seems that farmers wishing to invest in non-agricultural activities will prefer doing so off-farm (as this option is chosen more often than on-farm investment), investing less money than farmers who wish to diversify on-farm.

4.4.4. Goals, Attitudes, Credibility: more operators' characteristics

Farmers had to state within the survey their opinions about the future of the policy, rank some goals according to their importance in their decision-making process and states their agreement with series of statements on subsidies and off-farm job. This should inform our understanding of their decision-making.

4.4.4.1. Goals, Attitudes, Credibility: descriptive statistics and exploratory analysis

Results of the goal ranking exercise in Lithuania are presented in Table 4-56. They might be difficult to understand as respondents sometimes ranked only part of the objectives or gave the same rank to several objectives. It seems however that the two most important objectives are to invest on-farm and to maximise profit. Maximising profit is quite often ranked as the first objective of the respondents. If the farmers who ranked more than one goal as their first objective are excluded (that is 37% of the respondents), Table 4-57 is obtained. Table 4-57 confirms that profit maximising is the predominant goals for farmers in the sample. This may be surprising when this goal did not rank that high for farmers in OMS.

Table 4-56: Average ranking of the goals by the respondents

From 1 to 5 (with 1 for the most important for you and 5 for the least important)

G1	Provide for needs of the household	2.4
G2	Investment in activities on the farm (agricultural or not)	2.3
G3	Investment in activities off-farm	4.1
G4	Maximise farm profit	2.1
G5	Avoid excessive debt	2.6

Table 4-57: Objective ranked as first by the respondents who ranked the 5 goals and only one goal per rank:

Objective ranked first	Share of respondents (%)
Provide for needs of the household	12
Investment in activities on the farm (agricultural or not)	12
Investment in activities off-farm	6
Maximise farm profit	27
Avoid excessive debt	6
Total respondents considered	63
Missing	37
Total sample	100

Farmers' opinions, shown in Table 4-58, reveal a strong dependency on support (statements 2.1.8 to 2.1.10: strong disagreement on the idea that farmers should not receive subsidies, whatever the form of the subsidy). Respondents seem to be very keen on promoting environmental goods and producing landscape (2.1.4.). Opinions of off-farm works are mitigated with statement 2.1.5. and 2.2.4. being on average given a score of three (i.e. at the middle of the scale).

Finally farmers were asked to state how credible three different policy scenarios to be implemented from 2013 were. As shown in Table 4-59, the most probable option is on average continuing decoupled payments with cross-compliance. The second most probable option is a move back to coupled payments. However on average this option is ranked on scale-point less likely than continuing decoupled payments. This give us therefore very little reason to believe that farmers may be planning to adjust to decoupled payments in a strategic way, i.e. to maximise future recoupled payments for example.

Table 4-58: Average ranking for the value and belief statements by the respondents

(from 1 “Strongly agree” to 5 “Strongly disagree”)

2.1.1. A good farmer is a competitive producer of goods sold on the free market.	1.7
2.1.2. Farm land should be fully used for agricultural production.	2.0
2.1.3. Farmers should only produce food and fibres.	3.2
2.1.4. Farmers should produce landscape and environmental goods.	2.0
2.1.5. Farmers should not have to work off-farm to sustain their farming activities.	3.0
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	2.7
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	3.4
2.1.8. Farmers shouldn’t receive any commodity price support.	4.7
2.1.9. Farmers shouldn’t receive any subsidies related to environmental goods production.	4.6
2.1.10. Farmers shouldn’t receive any income support.	4.7
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	3.1
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	2.1
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	2.4
2.2.1. They think that farmers produce agricultural commodities, only.	2.5
2.2.2. They think that farmers produce landscape and environmental goods.	2.9
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.3
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	3.1
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	2.0
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	1.9
2.3.3. My family and friends’ views come first.	2.3

Table 4-59: Average ranking for the credibility statements by the respondents

(from 1 “Not probable at all” to 6 “Very probable”)

6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.3
6.1.2. Farmers will receive no support payments what so ever.	2.7
6.1.3. Payments will be recoupled to agricultural production.	3.2

4.4.4.2. Goals, Attitudes, Credibility and Decisions on farm

To investigate whether farmers' adjustment to the reform could be, at least partially, explained by some variables such as goals, attitudes or credibility of the policy, ANOVA were carried out on farmers' change in decisions across scenarios according to their stated opinions. The two decisions investigated were exit timing and variation of the size of the farm. Only the significant at 10 percent results are reported. The results presented compare farmers' intentions under continuing pre-accession policy and SAPS with top-ups.

Changes in the decision to exit

The results presented in Table 4-60 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intentions to exit due to the implementation of the MTR. Farmers' rating of 5 goals (G1 to G5) presented in section 5.1.1., their attitudinal scores for 20 statements as presented in section 5.1.2. and their individual probability scores for 3 future policy description (see section 5.1.3.) were used.

Table 4-60: Change in exit timing and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Exit earlier under SAPS	2. No change in exit plan	3. Exit later under SAPS	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G1	2.17	2.54	1.63				.053
2.1.1.	2.71	1.75	1.75	.082	.025		
2.1.5.	2.86	3.16	1.00	.001		.014	.000
2.1.6.	3.29	2.71	3.75	.027			.015
2.2.3.	3.00	2.21	2.25		.074		
6.1.1	4.29	4.28	5.38				.065
6.1.3	4.57	3.09	4.25	.010	.016		.046

Table 4-60 shows that farmers willing to exit later under SAPS plus top-ups than they would have under continuing pre-accession policy consider providing for the family as a more important objective than those not altering their timing of exit (G1). They also are more convinced that farmers should not work off-farm (2.1.5.).

Farmers who choose to exit earlier under SAPS plus top-ups are less convinced than the others that a good farmer is competitive (2.1.1.). This fits with the idea that farmers are expecting competitiveness to be a more important factor after the change in policy. Farmers who are planning to change their plan according to the policy in place are less convinced that farming is rewarding in terms of non-monetary benefits than the others (2.1.6.), they are also more convinced that payment will be recouped in the future (6.1.3). It has to be noted that even though those farmers think that payments are likely to be recouped in the future, they are not adjusting to the policy change in a strategic way, as they are actually responding and adjusting to the policy change (in opposite direction!) even though they believe it is not going to last.

Changes in the decision to grow

The results presented in Table 4-61 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intention to grow due to the implementation of the MTR. Once again really few indicators turn out to be significantly different depending on farmers' change in intentions across scenarios.

According to Table 4-61, the more farmers are likely to operate a small farm under SAPS and top-ups than continuing pre-accession policy, the less they care about providing for the need of their household (G1). Farmers who are planning to operate a farm with a different size under SAPS compare to continuing pre-accession policy are also less concerned by the importance of avoiding excessive debts (G5).

Similarly farmers who are changing their plan across scenarios are less convinced than a good farmer has to be competitive (2.1.1.). The more farmers are likely to operate a larger area under SAPS the less they think farm land should be fully used for production (2.1.2.). This would mean that farmers operating large farms under SAPS are also the more likely to put land in GAEC. However, they seem to be avoiding this option. Farmers who are not planning to change their size across scenarios express a stronger disagreement with the idea that farmers should not receive commodity price support (2.1.8.) or income support (2.1.10.) than farmers planning to operate larger area under SAPS. Farmers who are planning to cultivate less land under SAPS also think more strongly that they have to keep their farm running (2.1.12.) and that CAP imposes too many restrictions on their plan (2.1.13.). It also appears that farmers who are planning to keep on farming the same area or to

farm a smaller area under SAPS also feel less pressure from their environment not to work off-farm (2.2.4.).

Finally concerning expectations towards the future of the policy, farmers who want to farm a smaller area under SAPS are less convinced that decoupled payments will remain (6.1.1) but more convinced that no support will be given to farmers in the future (6.1.2) or that coupled payments will be given in the future (6.1.3) than those who want to increase their area. This is a bit contradictory and therefore does not give us any reason to believe that farmers responded to the different scenarios in a strategic way.

Table 4-61: Change in growth planning and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Plan to operate a smaller farm under SAPS	2. Plan to operate a farm the same size under the 2 scenarios	3. Plan to operate a larger farm under SAPS	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G1	4.67	2.59	2.40	.015	.014	.001	
G5	3.67	2.43	2.96	.028	.094		.023
2.1.1.	2.00	1.68	2.14	.078			.023
2.1.2.	1.67	1.88	2.26				.062
2.1.8.	5.00	4.78	4.48	.051			.023
2.1.10.	5.00	4.90	4.60	.025			.008
2.1.12.	1.33	2.04	2.44	.076			.062
2.1.13.	1.33	2.38	2.58		.094	.065	
2.2.4.	4.67	3.01	2.90		.042	.044	
6.1.1	2.67	4.16	4.60	.075		.038	
6.1.2	4.00	2.82	2.48			.069	
6.1.3	4.67	3.11	3.00		.089	.100	

As a conclusion it may be a bit difficult to interpret some of the results presented, as they may seem contradictory and differ largely from what was seen in other country. But globally farmers not changing size or planning to operate a smaller area under SAPS than under pre-accession policy seem to express opinions in contradiction with the philosophy of the reform. However, the number of farmers changing their plan across scenarios is fairly small. Therefore those results may not be very stable or reliable. Globally this investigation allow us to say that there is no reason to believe that farmers are planning to behave strategically under decoupled payments due to a lack of credibility of the policy.

4.4.5. Conclusions

The implementation of the MTR reform in Lithuania means a highest level of more reliable payments. The global effects of the reform will be a willingness to stay longer and operate larger farms for most of the farmers. Farmers' adjustment patterns to SAPS will also mean less diversification and no GAEC, even though farmers willing to grow more under SAPS agree with the idea that agricultural land can be used for other things than agricultural production.

4.5. Slovakia

4.5.1. Background

4.5.1.1. Description of the policy implemented in Slovakia

As shown in Table 4-62, pre-accession policy in Slovakia was providing support to farmers mainly through payments coupled to production. With the introduction of the SAPS, the total amount of payments given to farmers is tripled and the form is now decoupled payments (not related to production) plus some additional top-ups, mostly for cereal and livestock producers. In general, the change in policy represents: (i) a removal or reduction of the coupled payments (decoupling) for all production activities, except for cereals for which the amount given to farmers through decoupled payments is actually increased, and (ii) the introduction of additional and larger decoupled payments, or SAPS.

Table 4-62: Total payments to farms in Slovakia in 2003 and 2004

In millions of euros (in millions of SKK)	2003 (Scenario 1)	2004 (Scenario 2)
SAP	0 (0)	73.7 (3,061.3)
Direct payments in crop production	23.3 (991.9)	89.0 (3,696.5)
Cereals, including corn and crossbreeds	11.2 (476.9)	87.2 (3,621.8)
Oil seed crops	3.8 (163.6)	0 (0)
Breeding potatoes and planting material	0.7 (28.8)	0 (0)
Leguminous vegetables	0.2 (10.6)	0 (0)
Consumer potatoes	1.9 (80.5)	0 (0)
Field vegetables and medicinal plants	0.9 (38.4)	0 (0)
Sugar beet	1.4 (59.9)	0 (0)
Tobacco	0.4 (18.3)	1.7 (71.5)
Special permanent crops	2.7 (114.8)	0.1 (3.2)
Direct payments in livestock production	30.8 (1,310.2)	5.9 (245.2)
Milk	19.2 (817.1)	0 (0)
Bas for slaughter	1.5 (63.0)	0 (0)
Goat and sheep keeping	6.1 (257.4)	3.1 (130.6)
Keeping of nursing cows	3.0 (128.0)	2.8 (114.6)
Apiculture, fish keeping	1.1 (44.7)	0 (0)
Total	54.1 (2,302.1)	168.6 (7,003.0)

Note: Conversion from SKK to euros as on the 1st of January of the given year.

Source: SR Report, 2005

4.5.1.2. Policy scenarios

Questions to Slovakian farmers related to three alternative scenarios:

- The 2004 pre-accession policy remains in place, the baseline scenario.
- The implementation of SAPS with top-ups (see Table 4-62).
- The implementation of a full decoupling scenario, that is to say decoupled payments allocated on a regional basis and with no top-up payments.

Questionnaires differed slightly between individual and corporate farms in order to take into account their specificity. The rest of the chapter presents the survey results for individual farms first, and then for corporate farms.

4.5.A. Individual farms

4.5.2. A. Description of the sample

156 operators of individual farms were interviewed in Slovakia, out of the 192 individual farms in the total FADN sample of 2002, but for only 154 were FADN data available.

Table 4-63: Distribution of the sampled farms according to the type of farming, compared to FADN sample (%)

TF – Type of farming	Total FADN sample	Surveyed sample
Specialist cereals, oilseed and protein crops (COP)	49.0	48.7
General field cropping	21.9	20.8
Specialist fruit and citrus fruit	1.0	0.6
Specialist dairying	3.6	4.5
Specialist cattle-rearing and fattening	1.0	1.3
Cattle-dairying, rearing and fattening combined	0.5	0.6
Sheep, goats and other grazing livestock	8.3	7.8
Specialist granivores	0.0	0.0
Mixed cropping	3.1	3.2
Mixed livestock, mainly grazing	0.5	0.0
Mixed livestock mainly granivores	0.0	0.0
Field crops-grazing livestock combined	9.4	10.4
Various crops	1.6	1.9

The group of surveyed farmers appears to be well representative of the total FADN sample in terms of type of farming and economic size (Table 4-63 and Table 4-64).

Table 4-64: Distribution of the sampled farms according to the type of farming, compared to FADN sample (%)

TF – Type of farming	Total FADN sample	Surveyed sample
Specialist cereals, oilseed and protein crops (COP)	49.0	48.7
General field cropping	21.9	20.8
Specialist fruit and citrus fruit	1.0	0.6
Specialist dairying	3.6	4.5
Specialist cattle-rearing and fattening	1.0	1.3
Cattle-dairying, rearing and fattening combined	0.5	0.6
Sheep, goats and other grazing livestock	8.3	7.8
Specialist granivores	0.0	0.0
Mixed cropping	3.1	3.2
Mixed livestock, mainly grazing	0.5	0.0
Mixed livestock mainly granivores	0.0	0.0
Field crops-grazing livestock combined	9.4	10.4
Various crops	1.6	1.9

However, when comparing the share of farms per size class in the surveyed sample and the FADN sample on the one hand, with the total Census population and the registered population of individual farms on the other hand, the bias of the FADN sample, and therefore of our sample, towards large farms becomes visible (Table 4-65 and Table 4-66). Among the total population of farms in Slovakia, only the relatively large ones are registered (the registered farms are usually larger than 1 hectare), and among the registered farms only the large ones are in the FADN sample (size greater than 10 hectares).

Table 4-65: Distribution of the sampled farms according to ESU, compared to FADN sample (%)

ESU class	Total FADN sample	Surveyed sample
1	0.5	0.0
2	4.7	4.5
3	3.1	2.6
4	2.6	3.2
5	15.1	15.6
6	8.9	9.1
7	32.3	31.8
8	23.4	24.0
9	7.3	6.5
10	2.1	2.6

Table 4-66: Distribution of the sampled farms and FADN farms according to size, compared to the Census and registered populations (%)

Size classes in ha	Census population	Registered population	FADN sample	Surveyed sample
up to 0.5000	48.5	7.7	0.0	0.0
0.5001 - 1.0000	22.4	7.9	0.0	0.0
1.0001 - 5.0000	22.8	29.6	0.0	0.0
5.0001 - 10.0000	2.4	11.7	0.0	0.0
10.0001 - 50.0000	2.6	26.6	27.1	26.6
50.0001 - 100.0000	0.6	7.6	27.1	26.6
100.0001 - 500.0000	0.6	7.6	36.5	36.4
500.0001 - 1000.0000	0.1	0.9	7.3	8.4
>1000.0000	0.0	0.3	2.1	1.9

It is obvious that the group of surveyed farmers does not represent the full diversity of the situation existing in Slovakia. But this is mostly due to the fact that our sample was drawn from the FADN sample which is oriented towards commercial farms. The sample surveyed being however really similar to the FADN sample in terms ESU and TF, it does provide a representative image of the total population of individual commercial farms.

The dominant specialisations in the sample farms are COP and field crops. Based on the 2002 LFA definition, 8 percent of the sample farms are located in mountainous LFA and 51 percent in LFA not mountainous. Since accession, Slovakia is using a new definition for LFA, which remains however very close to the former one. Therefore the 2002 definition is a good proxy for the current LFA status of the farm considered. Table 4-67 confirms that the commercial farms in Slovakia are quite large, with an average UAA of 170ha. This implies that an average of 4 AWU is

required on each farm, with only 30 percent of labour being performed by hired workforce. Farmers rely heavily on rented land (87 percent) which may be explained by a complex land market where land for sale is scarce. In the sample farms the revenue mainly stems from crop production (77 percent). The level of subsidies received pre-accession by each farm as a share of the total revenue is on average smaller and more variable than what was received by French or Swedish farmers for example. As shown by Table 8-77 in Annex 6, farmers in the sample are about 51 years old on average. Most of them never went to college but more than 50 percent of them have an agriculture oriented education. Their on-farm experience is limited compared with farmers from OMS, but their off-farm experience is much larger. 54 percent of the respondents are active member of a farmers' union. The household is typically constituted of 2 or 3 adults and 1 young. Despite being quite old, 60 percent of the farmers in the sample do not have a successor or think it is too early to say so. However, for the 40 percent who have identified a successor, this successor is with them on the farm in 84 percent of the cases. On average the surveyed households get 80 percent of their income from on-farm activities. This shows the dependence of these households on agricultural production.

Table 4-67: Characteristics of the farms surveyed; descriptive statistics for 2001-2002 (average)

	Mean	Std dev	Min	Max
UAA (ha)	171.4	211.3	11.5	1,199.8
Labour (AWU)				
Total	4.2	5.4	0.2	46.0
Share of external factors (%)				
Rented land	87.0	19.3	0.0	100.0
Hired labour	31.0	33.8	0.0	100.0
Shares in revenue from sales (%)				
Crop	76.4	32.3	0.0	100.0
Livestock	21.8	30.6	0.0	100.0
Other	1.8	8.5	0.0	77.3
Revenue from sales per ha (excl. subsidies) (euros)	1,371	2,173	16.7	1,7135
Share of subsidies in total revenue (%)	17.0	17.2	0.0	88.3
Subsidies per hectare (euros)	171.7	441.1	0.0	4486.5

4.5.3. A. Stated intentions

4.5.3.1. A. Exit/Stay

Farmers plan to postpone their exit under the two decoupled scenarios as compared to continuing pre-accession policy (Table 4-68). They postpone even more their exit in the scenario with top-ups (Scenario 2). Most farmers are planning to take an early retirement under all scenarios (see Annex 6, Table 8-81). This seems to be contradicted by the fact that farmers in the sample are quite old (50 on average) and planning mostly to exit late, and even to postpone their exit under decoupled scenarios. Once out of the sector, most of the respondents would like to transmit their farm to a successor.

Table 4-68: Exit intentions according to scenarios; shares of farmers (%)

	Scenario 1	Scenario 2	Scenario 3
Exit in the next 5 years	38	18	24
Exit in the next 5 to 10 years	20	21	18
Later exit (beyond 10 years)	38	55	49
Missing answers	4	6	9

4.5.3.2. A. Farm size

Farmers seem to be optimistic about the impact of decoupling on their farms and want to remain active longer under the two decoupled policies. Other adjustments of their plan may concern the way they want to see the size of their farm evolve in the future. Table 4-69 shows that a high proportion of farmers want to expand their farm under all scenarios, and even more under SAPS with top-ups. This overall aspiration towards larger farming may be due to current restrictions in the land market. This is also confirmed by Table 4-70, where impressive proportions in intended change are revealed. Like in other countries, most of the farmers willing to decrease the size of their farm mainly want to stop renting land, while those willing to expand would prefer to buy land.

Table 4-69: Intended change in area for those willing to stay in farming, according to scenarios; shares of farmers (%)

Change in size	Scenario 1	Scenario 2	Scenario 3
Do not know	2	1	12
Decrease	6	2	4
No change	58	46	58
Increase	34	51	26
Total	100	100	100

Table 4-70: Intended area change for those willing to stay, according to scenarios; average changes ^a

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-114	-45	-162
%	-73	-14	-83
	(5 respondents)	(3 respondents)	(4 respondents)
Increase in area			
Ha	148	96	88
%	201	20	145
	(31 respondents)	(59 respondents)	(27 respondents)

^a Stated change in ha, and stated change as a percentage of the average past UAA (=stated change in ha * 100 / average UAA in ha in 2001-2002).

4.5.3.3. A. Production activities

Farmers' adjustment to the policy change may also appear in their production decisions. With the implementation of the CAP reform, operators do have an option to keep their land in GAEC but stop producing on it. It would have been interesting to know if Slovakian farmers would have chosen this option but the question was, by mistake, removed from the questionnaire for this country. Annex 6 shows that, regarding the intended change in the area kept idle on the farm, there is virtually no difference across scenarios if one is to consider that only one or two respondents are intending to change this area over a total sample of 154 farms. Regarding the output mix, the implementation of SAPS plus top-ups will lead to an increase in the production of COP, cattle and forage, a decrease in milk production, and a stagnation of the production of pigs and roots. The additional incentive to produce given by coupled payments is confirmed as the same trends can be observed under the fully decoupled scenario but with less important shifts.

4.5.3.4. A. Non-agricultural on-farm or off-farm investment

Finally, investing in activities outside farming can be another way to adjust to the change in policy. According to Table 4-71, very few respondents held off-farm assets prior to accession, which confirms the earliest statements that they are highly dependent on on-farm revenue. However, as shown on Table 4-72, in the future, farms are planning to invest in diversification activities. Decoupled scenarios seem to increase farmers' willingness to invest in non-agricultural activities. This may be explained by the fact that, because decoupled payments are not tied to production, they can be re-invested in other activities. Farmers prefer to invest on-farm, when diversifying (Annex 6, Table 8-87). And if they do diversify off-farm, they will invest smaller amount of money.

Table 4-71: Importance of off-farm assets before the policy change (%)

	1999	2000	2001	2002	2003
Valuation of off-farm assets as a share of total assets					
Average					
Share of respondents without off-farm assets	0.8 95	0.7 95	0.8 95	0.8 96	1.0 95
Share of total revenue generated by off-farm assets					
Average					
Share of respondents without off-farm revenue	0.6 97	0.9 97	1.2 96	1.4 94	1.3 95
Share of total profit generated by off-farm assets					
Average					
Share of respondents without off-farm profit	1.1 97	1.0 98	1.0 98	1.1 97	0.9 97

Note: The average share is calculated for the whole sample (154 respondents), including those with 0%.

Table 4-72: Intended change in non-agricultural investments (on- and off-farm), according to scenarios; shares of farms (%)

	Scenario 1 (152 respondents)	Scenario 2 (152 respondents)	Scenario 3 (152 respondents)
Start or increase	20	29	29
Decrease or stop	0	2	1
No change	80	69	70

Therefore, to conclude this section, the implementation of decoupled payments leads farmers remain longer in farming, grow more, change their production

choices and diversify more. This enthusiasm may be due to the fact that decoupled payments are stable and are guaranteed to be maintained over a relatively long period, they represent a higher level of payments and they are not tied to production, giving a lot of freedom to the operators to use them.

4.5.4. A. Goals, Attitudes, Credibility: more operators' characteristics

To better characterise the differences across respondents some more information on their attitudes, expectations and goals were collected.

4.5.4.1. Goals, Attitudes, Credibility: descriptive statistics and exploratory analysis

The most important for Slovakian farmers is to provide for needs for their household and to invest on farm (Table 4-73). These objectives come before maximising their profit and avoiding excessive debt. Investing off-farm is the least preferred goal.

Table 4-73: Average ranking of the goals by the respondents

From 1 to 5 (with 1 for the most important for you and 5 for the least important)

G1	Provide for needs of the household	2.0
G2	Investment in activities on the farm (agricultural or not)	2.1
G3	Investment in activities off-farm	4.5
G4	Maximise farm profit	3.3
G5	Avoid excessive debt	3.0

The statements about which most of the respondent seems to agree (small standard deviation) concern their dependency over payments (strong disagreement with statement 2.1.8 “farmers shouldn’t receive any commodity price support” and statement 2.1.9 “farmers shouldn’t receive any government or European payments related to environmental goods production”) (Table 4-74). However respondent disagree less strongly with statement 2.1.10 “farmers shouldn’t receive any income support” and their opinions are more spread over the scale. Then respondents seem also to all agree with statement 2.1.5 “Farmers should not have to work off-farm to sustain their farming activities” and statement 2.1.12 “I have to keep my farm running”.

Table 4-74: Average ranking for the value and belief statements by the respondents

(from 1 “Strongly agree” to 5 “Strongly disagree”)

2.1.1. A good farmer is a competitive producer of goods sold on the free market.	2.1
2.1.2. Farm land should be fully used for agricultural production.	1.7
2.1.3. Farmers should only produce food and fibres.	2.5
2.1.4. Farmers should produce landscape and environmental goods.	1.8
2.1.5. Farmers should not have to work off-farm to sustain their farming activities.	1.2
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	1.9
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	2.7
2.1.8. Farmers shouldn’t receive any commodity price support.	4.6
2.1.9. Farmers shouldn’t receive any subsidies related to environmental goods production.	4.7
2.1.10. Farmers shouldn’t receive any income support.	3.9
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	3.6
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	1.2
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	3.4
2.2.1. They think that farmers produce agricultural commodities, only.	1.9
2.2.2. They think that farmers produce landscape and environmental goods.	2.6
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.2
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	2.1
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	2.0
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	3.2
2.3.3. My family and friends’ views come first.	3.3

On expectations towards the future of the policy, respondents tend to think that some sort of payments to farmers will persist as statements statement 6.1.1 (persisting decoupled payments) and statement 6.1.3 (recoupled payments) are on average scored as relatively probable (average score of 4.22 and 3.43 respectively, on a scale going from 1 to 6 with 1 being not probable at all and 6 very probable) (Table 4-75). Moreover, the proposition that farmers will end up receiving nothing by 2013 is scored on average as “not probable” (average score of 2.08 for statement 6.1.2).

Opinions vary the most on the probability of payments to be recoupled with a standard deviation of 1.654.

Table 4-75: Average ranking for the credibility statements by the respondents
(from 1 “Not probable at all” to 6 “Very probable”)

6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.2
6.1.2. Farmers will receive no support payments what so ever.	2.1
6.1.3. Payments will be recoupled to agricultural production.	3.4

4.5.4.2. A. Goals, Attitudes, Credibility and Decisions on farm

To investigate whether farmers’ adjustment to the reform could be, at least partially, explained by some variables such as goals, attitudes or credibility of the policy, ANOVA were carried out on farmers’ change in decisions across scenarios according to their stated opinions. The two decisions investigated were exit timing and variation of the size of the farm. Only the significant at 10 percent results are reported. The results presented compare farmers’ intentions under continuing pre-accession policy and SAPS plus top-ups.

Changes in the decision to exit

Table 4-76: Change in exit timing and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Exit earlier under SAPS	2. No change in exit plan	3. Exit later under SAPS	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G1	2.37	2.01	1.77			.070	
G2	2.00	1.90	2.38	.035			.012
G4	3.63	3.38	3.13			.076	
G5	2.63	3.11	3.19			.076	
2.1.6.	1.84	1.71	2.26	.016			.005
2.2.1.	1.74	1.75	2.13				.074
2.2.2.	2.58	2.38	2.85				.044
611	3.61	4.10	4.45			.031	
613	3.44	3.70	3.02	.088			.031

The results presented in Table 4-76 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intentions to exit due to the implementation of the MTR. Farmers' rating of 5 goals (G1 to G5), their attitudinal scores for 20 statements and their individual probability scores for 3 future policy description (see above) were used.

Farmers exiting later under SAPS are more concerned by their household needs than those exiting earlier. They are also more concerned about profit maximisation on-farm and less worried about their indebtedness. Finally those farmers also think that decoupled are unlikely to stay. Farmers not changing their exit timing across scenarios, if compared to farmers willing to exit later under SAPS, consider investing on-farm a more important goal. They also appreciate more the non-pecuniary benefit of farming, and are more convinced that people want them to produce agricultural commodities and landscape. Finally they are more incline to think that payments will be recoupled in the future. This analysis does not allow us to say that farmers are responding to decoupling in a strategic way as it is difficult to explain why farmers who believed that decoupled payments won't be maintain still choose to remain active longer under decoupled policy than they would under coupled ones. It is however interesting to see that the farmers the more willing to stay under SAPS are those who want to make more profit and care less about non-pecuniary benefit.

Changes in the decision to grow

The results presented in Table 4-77 correspond to the opinions that were significantly different across groups of farmers created according to how they change their intention to grow due to the implementation of the MTR. Once again really few indicators turn out to be significantly different depending on farmers' change in intentions across scenarios.

Focusing on the intention to grow, farmers willing to operate larger farms under SAPS are more concerned about providing for the needs of their household (G1), not having to work off-farm (2.1.5.) and receiving income support (2.1.10.) but also more confident in their farming skills (2.1.11.) than farmers willing to operate smaller farms or farms the same size than what they would have under pre-accession policy. They are also less convinced that decoupled payments will be maintained (6.1.1). Farmers who are planning to operate smaller farms under SAPS are more incline to think that farm land should be used for agricultural production only (2.1.2.)

and appreciate more the non-pecuniary benefit of farming (2.1.6.) than farmers not willing to change their plan across scenarios. They are also more concerned about keeping their farm running (2.1.12.). Finally Farmers who plan to operate larger farms under SAPS feel that they need commodity price support (2.1.8.) and feel more pressure from people around them to produce landscape (2.2.2.) and not to take off-farm jobs (2.2.4.) than farmers willing to operate smaller farms.

Table 4-77: Change in growth planning and goals, attitudes, credibility

	Description of groups			Groups compared			
	1. Plan to operate a smaller farm under SAPS	2. Plan to operate a farm the same size under the 2 scenarios	3. Plan to operate a larger farm under SAPS	1-2-3	1-2	1-3	2-3
	Average scores within the groups			F-test, significance level			
G1	2.50	1.93	1.75	.013	.042	.003	
2.1.2.	2.10	1.63	1.70		.077		
2.1.5.	1.41	1.25	1.14			.086	
2.1.6.	2.13	1.75	1.98		.094		
2.1.8.	4.31	4.59	4.83	.019		.005	.086
2.1.10.	3.31	3.85	4.25	.019		.004	
2.1.11.	3.31	3.70	3.31			.098	
2.1.12.	1.44	1.14	1.21		.051		
2.2.2.	2.90	2.27	2.67	.068	.022		.099
2.2.4.	2.00	2.34	1.86	.073			.026
6.1.1	3.75	4.22	4.41			.031	

So to summarise farmers willing to increase the size of their farm more are farmers less concerned about production, more confident about their adaptation skills and seeking supports. They are therefore dynamic farmers, while farmers willing to operate smaller farms are more likely to keep all their land in production and enjoying the lifestyle and keeping their farm running, they therefore may be seen as more conservative and more willing to just carry on with their farming activities. We can

note once again that even if expectations towards the future of the policy differ across farmers depending on their intention to grow, there are no strong elements to make us think that farmers will respond strategically to the change in policy.

4.5.5. A. Conclusions

The general conclusion of these analyses of farmers' responses to the implementation of decoupled payments in Slovakia is that because payments will generally increase with the reform more farmers are planning to stay longer or grow. It also appears that the farmers the more willing to grow are more confident in their skills, and more flexible in their responses (no pressure to keep the farm running). They are also more incline to consider landscape production as something the society value and farmland as an asset which can be used for other thing than producing.

This analysis of individual farms, however, only gives a partial picture of the likely impact of the reform in this country, as corporate farms still exist there. Therefore, information was collected on corporate farms as well and is presented in the next section. Additional insights into the specific issues related to the 2003 CAP reform on corporate farms can however be found in Deliverable 22.

4.5.B. Corporate farms

4.5.2. B. Description of the sample

To complete the picture, corporate farms in Slovakia were also interviewed. 152 farms were surveyed and all had FADN records. Among them, they were 101 cooperatives and 51 companies, including 43 limited liability companies and 8 joint-stock companies. Farms are mostly of mixed production (Table 4-78). They are very large, 1,866 ha on average (Table 4-79). The shares of external factors (rented land and hired labour) are 100 percent for most of the farms. The characteristics are not different between cooperatives and companies. Only 3 farms in the whole sample are not members of the Agrarian Chamber.

Table 4-78: Characteristics of the farms surveyed in terms of type of farming and ESU; shares of farms in 2002 (%)

	All farms (152)	Cooperatives (101)	Companies (51)
Type of farming			
COP	13	9	22
Field crops	9	7	14
Milk	6	9	0
Cattle	2	1	3
Sheep and goats	7	8	6
Granivores	1	0	3
Mixed crops	18	15	25
Mixed livestock	8	8	8
Mixed crop and livestock	36	43	19
ESU class			
Class 7	1	0	3
Class 8	7	7	8
Class 9	24	25	22
Class 10	68	70	67

Note: Shares calculated on a reduced sample only: 124 farms, including 88 cooperatives and 36 companies.

Table 4-79: Characteristics of the farms surveyed; sample's averages in 2002

	All farms (152)	Cooperatives (101)	Companies (51)
UAA (ha)	1,866	1,904	1,791
Labour (AWU)	72.8	77.4	63.8
Shares in revenue from sales (%)			
Crop	38.2	34.6	45.2
Livestock	61.7	65.2	54.7
Other	0.1	0.2	0.1
Revenue from sales per ha (excl. subsidies) (euros)	504	464	587
Share of subsidies in total revenue (%)	21	21	20
Subsidies per ha (euros)	95	90	105

For further analyses, farms were split into two size groups, small and large farms, based on a cluster analysis using five size characteristics from 2002 FADN: UAA in ha, labour in AWU, value of capital stock, value of sales and value of total revenue including subsidies. A two-step cluster based on the log-likelihood distance was performed. Two clusters were identified; their characteristics are displayed in Table 4-80.

Table 4-80: Average size of farms in the two size clusters (2002 FADN characteristics)

	Small farms cluster (108 farms)	Large farms cluster (44 farms)
Average UAA (ha)	1,241	3,400
Average labour (AWU)	45	142
Average capital value (ths euros)	1,811	6,682
Average value of sales (ths euros)	497	1,994
Average total revenue (ths euros)	608	2,345

Table 4-81 presents the decision-making characteristics of the surveyed farms. Cooperatives have more members than companies have partners, and have more directors. But the average number of managers is similar between both legal forms. As shown in Table 8-97 in Annex 6, the majority of the respondents were managers on the farm; the rest were directors or accountants. Respondents were quite young (48 on average), and they had a relatively long education (up to 22 year old on average). There are no big differences between respondents from cooperatives and respondents from companies, except for the share having agricultural education (higher share among companies than among corporate farms).

Table 4-81: Decision-making characteristics of farms (characteristics from the survey)

	All farms (152)	Cooperatives (101)	Companies (51)
Average nb of members (cooperatives) / partners (companies)	153	202	55
Average nb of directors	6	8	1.4
Average nb of managers	4	5	4
Share of cooperatives with the rule "1 man – 1 vote"	-	53.5%	-

4.5.3. B. Stated intentions

4.5.3.1. B. Farm size

As shown by Table 4-82, in Scenario 2 more farms intend to increase their area than in Scenario 1 (34% vs. 9%). However, more farms also intend to decrease their area (9% in Scenario 2 vs. 4% in Scenario 1). When the stated intention in area change are compared between the scenarios, it shows that the introduction of SAPS gives incentives to farms to increase their area but that the majority of responses have

no discrepancy between Scenarios 2 and 3 and therefore coupled top-ups are crucial in giving incentives to farms to increase their area. Table 4-83 shows that the intended value of area increase is larger in percent than the intended value of area decrease, for the whole sample. This is in particular very obvious for companies. However, for cooperatives, it is the opposite: the value of intended decrease percentage is larger than the intended increase. As shown in Table 8-99 in Annex 6, area decrease is rather intended by reducing the land rented in, followed by converting some land to non-agricultural activity. As for area increase, the most frequent intended way is by increasing the land rented in.

Table 4-82: Intended change in area according to scenarios; shares of farms (%)

ALL FARMS

	Scenario 1	Scenario 2	Scenario 3
Decrease area	4	9	7
Farm same area	87	56	72
Increase area	9	34	21

COOPERATIVES

	Scenario 1	Scenario 2	Scenario 3
Decrease area	4	10	2
Farm same area	82	62	80
Increase area	14	28	18

COMPANIES

	Scenario 1	Scenario 2	Scenario 3
Decrease area	4	9	9
Farm same area	90	54	67
Increase area	6	37	24

Table 4-83: Intended area change according to scenarios; average changes ^a**ALL FARMS**

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-250	-185	-258
%	-10	-12	-21
	(4 respondents)	(10 respondents)	(6 respondents)
Increase in area			
Ha	201	227	273
%	20	19	24
	(12 respondents)	(42 respondents)	(22 respondents)

COOPERATIVES

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-250	-249	-302
%	-12	-18	-24
	(3 respondents)	(6 respondents)	(5 respondents)
Increase in area			
Ha	94	195	268
%	9	14	19
	(6 respondents)	(29 respondents)	(15 respondents)

COMPANIES

	Scenario 1	Scenario 2	Scenario 3
Decrease in area			
Ha	-250	-88	-40 ha
%	-4	-4	-3.7%
	(1 respondent)	(4 respondents)	(1 respondent)
Increase in area			
Ha	308	300	293
%	31	30	35
	(6 respondents)	(13 respondents)	(7 respondents)

^a Stated change in ha, and stated change as a percentage of the UAA in 2002 (=stated change in ha * 100 / UAA in ha in 2002).

4.5.3.2. B. Production activities

More respondents intend to reduce the farm idle land under Scenarios 2 and 3 than under Scenario 1 (Table 8-100 in Annex 6). More respondents intend to start or increase COP production under Scenarios 2 and 3 compared to Scenario 1 (showing the effect of SAPS), and under Scenario 2 compared to Scenario 3 (showing the effect of coupled top-ups). However, the share of respondents intending to decrease their COP area increases from Scenario 1 to 3. The share of respondents intending to decrease under Scenario 2 is less than the number intending to increase under the same scenario, but under Scenario 3 the share of respondents intending to decrease is

larger than the number intending to increase. This confirms that top-ups give incentives for crop production (Scenario 2), but that once they are removed, incentives are not so strong (Scenario 3). Regarding the roots, potatoes and field crops, more respondents intend to decrease than to increase, under all scenarios. This might be explained by the fact that such production was not supported specifically. Regarding forage and pasture, more respondents intend to increase than to decrease, under all scenarios. Regarding milk production, rearing and fattening cattle production and sheep, goat and other grazing livestock production, respondents intend to increase them, rather than decrease them. For both productions, the share of respondents willing to increase is larger under Scenario 2 than under the other scenarios, showing again the effect of top-ups. The trend is opposite for pig and poultry production. More respondents intend to decrease or quit this production rather than to increase it.

4.5.3.3. B. Non-agricultural on-farm or off-farm investment

Only a few respondents (about 15 respondents, i.e. 10%) stated holding some off-farm assets in 1999 to 2003. The problem is that for those respondents where there is no answer, we do not know whether it is because their off-farm assets are 0, or because they did not know such information. For the respondents who answered, their off-farm assets' value was about 5% of their total assets' value (Table 4-84); the maximum answered was 35%. As for the revenue and profit generated by such assets, very few persons could answer it. For the ones who answered, the off-farm asset revenue seems to be about 2% of the total revenue only (with a maximum at 15%), but their profit about 30% (with a maximum at 80%). With only a few respondents, it is difficult to identify a pattern of increase or decrease of off-farm investment over the period. If we assume that the persons who did not answer to the questions regarding off-farm assets have none of them (and not that the information was not available), we can investigate the characteristics of those holding off-farm assets (i.e. of those having answered) and of those who do not (i.e. of those having not answered). Table 8-103 in Annex 6 gives the characteristics of those farms holding some off-farm assets in at least one of the years 1999-2003, vs. those farms not holding off-farm assets in any of the years considered. Those farms holding some off-farm assets are on average larger and more livestock oriented than farms holding no off-farm assets. They are more

productive (in terms of revenue per ha) and receive more subsidies per ha. However, more of them are located in LFA than farms not holding off-farm assets (this might explain the high subsidies per ha, i.e. LFA subsidies).

Table 4-84: Importance of off-farm assets before the policy change (%)

	1999	2000	2001	2002	2003
Valuation of off-farm assets as a share of total assets					
Average	4	5	5	7	6
Share of total revenue generated by off-farm assets					
Average	2	2	1	1	4
Share of total profit generated by off-farm assets					
Average	35	41	22	28	25

Table 4-85: Intended change in non-agricultural investments (on- and off-farm), according to scenarios; shares of farms (%)

ALL FARMS

	Scenario 1 (152 respondents)	Scenario 2 (152 respondents)	Scenario 3 (152 respondents)
Start or increase	10	19	21
Decrease or stop	1	4	2
No change	89	77	77

COOPERATIVES

	Scenario 1 (101 respondents)	Scenario 2 (101 respondents)	Scenario 3 (101 respondents)
Start or increase	8	16	18
Decrease or stop	0	2	1
No change	92	82	81

COMPANIES

	Scenario 1 (51 respondents)	Scenario 2 (51 respondents)	Scenario 3 (51 respondents)
Start or increase	14	25	27
Decrease or stop	4	8	4
No change	82	67	69

Regarding respondents' intentions about non-agricultural investments (both on- and off-farm investment), Table 4-85 presents the share of respondents under each scenario. Most of the farms do not intend to change the scale of their investment activities under all scenarios. Comparing the scenarios, however, shows that the share of farms willing to start or increase the scale of their activities increases from Scenario 1 to Scenario 3. The difference between Scenario 1, on the one hand, and

Scenario 2 or 3 on the other hand, is by a factor 2: e.g. 10% of the whole sample intends to start or increase under Scenario 1, while 19% intend to start or increase under Scenario 2, and 21% under Scenario 3. This suggests that the introduction of SAPS gives incentives to invest in other sectors of the economy than agriculture. Similar trends are observed among the cooperative sub-sample, and among the company sub-sample.

As shown in Table 8-104 in Annex 6, agro-tourism and non-agricultural production are the most favoured activities to start or increase on-farm, while off-farm activities are more likely to start or increase in services and retailing. The value of intended investment, in both on-farm and off-farm non-agricultural activities, increases from Scenario 1 to Scenario 3. Only one or two respondents intend to decrease or quit their activities in non-agricultural production, services or retailing. The intended disinvestment is much lower on average than the investment intended by those wishing to increase or start activities.

4.5.4. B. Attitudes, Credibility: descriptive statistics and exploratory analysis

Respondent's values and beliefs

Table 4-86 report the average ranking of the value statements by the persons who answered the survey; possible rankings were from 1 "Strongly agree" to 5 "Strongly disagree". Corporate farms' respondents agree that farmers should produce food and fibres only (average ranking of statement 2.1.3 is 2.8) but their agreement is even stronger on the statement that farmers should produce landscape and environmental goods (average ranking of statement 2.1.4 is 1.9). They strongly disagree to statements that farmers should not be supported, in terms of price support, environmental support or income support (high ranking of statements 2.1.8, 2.1.9 and 2.1.10). Again they show their strong interest in environment, as they disagree more to the statement 2.1.9 (average ranking 4.7) than to the other support statements 2.1.8 and 2.1.10 (average rankings 4.5 and 4.4).

Table 4-86: Average ranking for the value and belief statements by the persons who answered the survey

(from 1 “Strongly agree” to 5 “Strongly disagree”)

	All (152 farms)	Cooperatives (101 farms)	Companies (51 farms)
2.1.1. A good farmer is a competitive producer of goods sold on the free market.	2.1	2.1	2.0
2.1.2. Farm land should be fully used for agricultural production.	1.9	1.9	1.8
2.1.3. Farmers should only produce food and fibres.	2.8	2.9	2.8
2.1.4. Farmers should produce landscape and environmental goods.	1.9	2.0	1.9
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	2.7	2.7	2.6
2.1.8. Farmers shouldn’t receive any commodity price support.	4.5	4.5	4.6
2.1.9. Farmers shouldn’t receive any subsidies related to environmental goods production.	4.7	4.7	4.7
2.1.10. Farmers shouldn’t receive any income support.	4.4	4.5	4.4
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	4.2	4.1	4.3
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	3.1	3.1	3.1
2.2.1. They think that farmers produce agricultural commodities, only.	2.2	2.2	2.2
2.2.2. They think that farmers produce landscape and environmental goods.	2.9	2.8	2.9
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.1	2.1	2.0

As shown by Table 4-87, there is a significant difference in ranking of several value statements between respondents who are directors in the farm and respondents who are not. Regarding the view of farming, non-directors have a stronger “producer” feeling than directors (lower average ranking of statements 2.1.2 and 2.1.3), and believe that people close to them also have such a strong feeling (lower average ranking of statements 2.2.1 and 2.2.3). Regarding the perception of the CAP, directors seem to consider the CAP less restrictive than non-directors do (higher ranking to

statement 2.1.13) and more necessary than non-directors do (higher ranking to statement 2.1.11).

Table 4-87: Average ranking for the value statements by directors and non-directors; ANOVA

	Respondent is a director (30 farms)	Respondent is not a director (122 farms)	F-test
2.1.2. Farm land should be fully used for agricultural production.	2.3	1.8	5.4 **
2.1.3. Farmers should only produce food and fibres.	3.2	2.7	4.1 **
2.1.11. My farming abilities will allow me to maintain an adequate profit level for the farm, whatever the European agricultural policy in place.	4.4	4.1	3.0 *
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	3.4	3.1	2.8 *
2.2.1. They think that farmers produce agricultural commodities, only.	2.6	2.1	4.0 **
2.2.3. They think that CAP support should help producers to maintain their farming activities.	2.4	2.0	2.9 *

Credibility of the policy

Table 4-88 report the average ranking of the three credibility statements by the persons who answered the survey; possible rankings were from 1 “Not probable at all” to 6 “Very probable”. Statements 6.1.1 and 6.1.2 ask whether the policy is credible, while statement 6.1.3 suggests that the policy is not credible. On average, corporate farms’ respondents tend to think that it is probable that there will still be some payments (6.1.2). But they seem to think equivalently that payments might be in the form of decoupled (6.1.1) or coupled (6.1.3) support. There is no strong difference in opinions between the cooperatives’ and companies’ respondents.

Table 4-88: Average ranking for the credibility statements by the persons who answered the survey

(from 1 “Not probable at all” to 6 “Very probable”)

	All (152 farms)	Cooperatives (101 farms)	Companies (51 farms)
6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	3.8	3.9	3.7
6.1.2. Farmers will receive no support payments what so ever.	2.6	2.5	2.8
6.1.3. Payments will be recoupled to agricultural production.	3.5	3.4	3.8

As shown by Table 4-89, there is a significant difference in ranking of statement 6.1.1 between respondents who are directors in the farm and respondents who are not. Directors feel it more probable that decoupled payments will be maintained. (They feel it slightly less probable that payments will be recoupled, but the difference is not significant.)

Table 4-89: Average ranking for the credibility statement 6.1.1. by directors and non-directors; ANOVA

	Respondent is a director (30 farms)	Respondent is not a director (122 farms)	F-test
6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.4	3.7	5.71 **

For further analyses, two two-step clusters based on the likelihood were performed on the three credibility statements. Firstly, the number of clusters was restricted to three. The three clusters identified represent the three different suggestions given by each statement, as shown in Table 4-90. Cluster 2 includes farms considering that no support payment is very likely in the future (high ranking of statement 6.1.2). Farms in Clusters 1 and 3 consider that payments are more likely to remain, but on a decoupled form for Cluster 1 (high ranking of statement 6.1.1) and a coupled form for Cluster 3 (high ranking of statement 6.1.3).

Table 4-90: Average ranking of credibility statements by farms in the three credibility clusters

	Cluster 1 “decoupled payments” (88 farms)	Cluster 2 “no payments” (37 farms)	Cluster 3 “coupled payments” (27 farms)
6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.7	2.9	2.3
6.1.2. Farmers will receive no support payments what so ever.	2.0	4.9	1.6
6.1.3. Payments will be recoupled to agricultural production.	2.8	3.9	5.2

Table 4-91 presents results from an ANOVA performed on the clusters’ characteristics. They show that the “no payments” farms (Cluster 2) have a high revenue from sales per hectare and a low share of subsidies in their total revenue. The “coupled payments” (Cluster 3) are more likely to be found in Eastern Slovakia. This suggests that respondents answered to question 6 on the basis of what they hoped, and not what they expect to happen.

Table 4-91: Characteristics of farms in the three credibility clusters in 2002; ANOVA

	Cluster 1a (88 farms) “decoupled”	Cluster 2a (37 farms) “no payments”	Cluster 3a (27 farms) “coupled”	F-test
Average revenue from sales per ha (thb euros / ha)	0.57	0.76	0.46	3.13 **
Average share of subsidies in total revenue (%)	22	16	23	2.63 *
Share of farms in Eastern Slovakia	27%	27%	52%	3.19 **

Secondly, another two-step cluster model was performed, restricting this time the number of clusters to two. The two clusters identified represent opinions on the form of payments: Cluster 1 includes farms rather thinking that payments will remain in a decoupled form (high ranking of statement 6.1.1) while Cluster 2 includes farms rather thinking that payments will get back to a coupled form (high ranking of statement 6.1.2), as shown in Table 4-92.

Table 4-92: Average ranking of credibility statements by farms in two credibility clusters

	Cluster 1b “decoupled payments” (87 farms)	Cluster 2b “coupled payments” (65 farms)
6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.	4.8	2.6
6.1.2. Farmers will receive no support payments what so ever.	2.1	3.4
6.1.3. Payments will be recoupled to agricultural production.	2.9	4.4

4.5.5. B. Growth decisions

In order to give insights into the determinants of corporate farms’ respondents’ intentions regarding the farm size, ANOVAs were performed as Probit models did not give results. ANOVA results are presented in several tables in Annex 6 (Table 8-105 to Table 8-110).

In Scenario 1, farms intending to decrease their area are large, rather livestock oriented, with non-agricultural activities, located in unfavourable areas, and think that payments are likely to be removed in the future. Farms intending to increase their area are small, with high productivity (revenue per ha) and high subsidies per ha. In Scenario 2, farms intending to decrease their area are large, rather livestock oriented, located in unfavourable areas. Farms intending to increase their area are small and with high productivity. In Scenario 3, farms intending to decrease their area are located in favourable areas and have high subsidies per ha. Farms intending to increase their area have high productivity (revenue per ha) and high subsidies per ha, but located in unfavourable areas. In summary, under Scenarios 1 and 2, large farms intend to decrease their area while small farms intend to increase, but under Scenario 3 there is no clear cut opposition in terms of size. Under Scenarios 1 and 2 and livestock oriented farms intend to decrease their area but there is no difference in terms of production under Scenario 3 intentions. Under Scenarios 1 and 2 farms located in LFA intend to decrease their area, while under Scenario 3, by contrast, those farms intending to increase are in LFA. Regarding productivity (revenue per ha), under all scenarios productive farms intend to increase their area. Regarding the

subsidies, under all scenarios farms intending to increase their area have high subsidies per ha. Farms intending to decrease their area under Scenario 1 have low subsidies per ha, but under Scenarios 2 and 3 have high subsidies per ha.

Comparing two scenarios show that those farms willing to decrease their area even more under Scenario 2 than under Scenario 1 are large (in terms of UAA only) and are located in unfavourable areas. Those farms willing to increase their area even more under Scenario 2 than under Scenario 1 have more diversification activities, are highly productive (revenue per ha) and have low subsidies per ha. Those farms willing to decrease their area even more under Scenario 3 than under Scenario 1 are small, are located in favourable areas, and think that payments are likely to be recoupled. Those farms willing to increase their area even more under Scenario 3 than under Scenario 1 have more diversification activities, are highly productive (revenue per ha) and have high subsidies per ha. Those farms willing to increase their area even more under Scenario 2 than under Scenario 3 are highly productive (revenue per ha), have high subsidies per ha, and think that there is more chance that payments are removed in the future.

Chapter 5: Determinants of exit and growth per country

5.1. Introduction

The current study focuses on farmers' plan to exit or remain in farming in a 5-year time horizon and, for those staying, on their plans to grow or not within the same period. Farmers were asked to state their intentions under different policy scenarios corresponding to a *status quo* scenario (continuing Agenda 2000 for EU-15 countries and continuing pre-accession policy for NMS), the current policy in place, i.e. the SFP or SAPS as implemented in the country concerned⁶, and a hypothetical scenario of full-decoupling based on area payments⁷. Plans to leave farming were recorded directly through the intention survey. For the farmers planning to remain in farming at least for the next 5 years, plans to grow were also recorded through the intention survey. Farmers were asked whether they were planning to alter the size of their farm (in area) under the different policy scenarios and if they were planning to alter the size of their farm by how much would they decrease or increase it. As explained in Chapter 3, change in farm size was transformed into a discrete variable taking value 1 if they were planning to grow and 0 otherwise to allow for a valid econometric analysis of the underlying determinants of growth.

The variables tested as determinants of exit and growth are taken both from the intention survey and matching FADN records for years prior to the change in policy (see Table 5-1). The variables tested, their computation and sources are listed in the table below. It must, however, be noted that for France the FADN records available were incomplete and therefore not fully consistent with the data available for the other countries. The data availability and definitions are therefore slightly different. Similarly, in Slovakia information on debts is not recoded in the FADN, restricting the variables useable for this country.

⁶ Except, as explained before, in England where the policy is a dynamic hybrid moving from historical payments to regional area payments. There, the second scenario is a static scheme fully based on historical payments.

⁷ In Sweden the third scenario was not analysed as it was too similar to the policy actually implemented in the country.

Table 5-1: Explanatory variables for exit and growth: name, definition and source

Name	Description	Country	Source
Age	Age of the operator (years)	All	Questionnaire
EduCont	Age when left education	F, Sw, L, Sk	Questionnaire
Educ345	Dummy for operators with college or university degree	E.	Questionnaire
Managf	Farm managerial experience of the operator (years)	All	Questionnaire
AWUF	Average time spent by the operator on the farm in a year (measured in AWU)	E, Sw, L, Sk	FADN
PT75plus	Dummy for full time farmers i.e. farmers spending 0.75 AWU or more on the farm each year	E, Sw, L, Sk	FADN
TotExpOff	Experience working off-farm (years)	All	Questionnaire
NoSucc	Dummy for farmers with no successor	All	Questionnaire
PbSucc	Dummy for farmers without an identified successor yet	All	Questionnaire
HaveSucc	Dummy for farmers with a successor	All	Questionnaire
Shinconf	Share of household income derived from farming (%)	E, F, L, Sk	Questionnaire
RevOnfHh	Value of household income derived from farming (Euros)	Sw	Questionnaire
Area	Total area of the farm (ha)	All	FADN
NotLFA	Dummy for farms not in LFA regions	E, Sw, L, Sk	FADN
LFANoMou	Dummy for farms in LFA not mountainous regions	E, Sw, L, Sk	FADN
LFAMou	Dummy for farms in LFA mountainous regions	E, Sw, L, Sk	FADN
ShRevCr	Share of crop in total revenue (%)	*All	FADN
COP	Dummy for farms specialised in COP	E, Sw, L, Sk	FADN
Milk	Dummy for farms specialised in dairy	E, Sw, L, Sk	FADN
OthCatt	Dummy for farms specialised in other cattle (not dairy)	E, Sw, L, Sk	FADN
ShareOth	Share of on-farm revenue derived from non-agricultural activities (%)	*All	FADN
Leverage	Debt to equity ratio	E, F, Sw, L	FADN

ShSub	Share subsidies in revenue (%)	*All	FADN
VANoSpA	Value added without net current subsidies per hectare computed as total value of output minus intermediate consumption and depreciation divided by farm size in hectare (Euros/ha)	#All	FADN
VANoSpW	Value added without net current subsidies per AWU computed as total value of output minus intermediate consumption and depreciation divided by total AWU working on the farm (Euros/AWU)	#All	FADN

* and # In France, as the FADN record was incomplete, the variables marked with an * are computed using the total value of output instead of the total value of sales, and the variables marked with a # are computed using total depreciation instead of depreciation of capital assets only (i.e. total depreciation minus depreciation of circulating capital).
E: England, F: France, Sw: Sweden, L: Lithuania, Sk: Slovakia

The variables tested (Table 5-1) were chosen to give a broad description of the farms sampled and to allow for the foreseen impacts of the reform to be tested. Therefore, they include farmers' characteristics relating to the likely life-cycle patterns (age and succession status). Farmers' education level, their managerial experience on-farm, their experience working outside the farm (total working experience off-farm) and a variable measuring the time spent by operators on the farm (AWU)⁸ in years were also included to take the human capital into account. Those variables capture both information on farmers' ability on-farm and their opportunities off-farm. This is important when considering a policy change expected to contribute to a re-allocation of resources on-/off-farm as the payments become independent from the production decisions. The variables tested also included a measure of household dependency on on-farm income (the share of the household income derived from farming or the value of household income derived from farming, depending on the country). Farms' characteristics were also taken into account. The farm size in hectares was included in the initial specification as it could provide an indication of the amount of support the farm was likely to receive under the decoupled schemes, based on past area payments. The same variable is also useful to measure the impact of initial farm size on the likelihood to remain in farming and to grow. An indication of the farm profitability was provided through the Value Added (VA) without net current subsidies per hectare and per AWU. Because payments differ according to farm location in LFA regions or not, and because farmers operating under more difficult agri-environmental situations

⁸ Both a continuous variable and a dummy variable taking the value 1 if operators were spending 0.75 AWU or more on farm per year before the policy change were used in turns (when available) and the significant one or the one providing for the best likelihood ratio score was kept.

have a more restricted choice of production activities, dummies for farms located in LFA and mountainous LFA regions were also included⁹. Farm specialisation may also be an important factor in terms of the impact of the policy change as the amount of payments received before the policy reform was commodity specific and because, in some countries, some payments remain coupled, as presented earlier. Therefore, farm specialisation prior to the policy reform gives an indication of whether farmers are going to lose out or gain from the policy change in terms of amount of support. Dummies for farm specialisation (COP, dairy and other cattle) were included whenever available. Share of crop in total revenue was also tested, as this variable was available for all countries. Although less precise, it can also provide an indication of farm specialisation. The overall dependency on subsidies was measured through the share of net current subsidies in the revenue. The share of the on-farm revenue derived from non-agricultural activities was also included as farmers gaining additional revenue from their farm assets might be more reluctant to exit or grow by expanding their farm area. Finally a measure of indebtedness was also included, namely leverage, as it can provide important information. First, it can provide an indication of farmers past behaviour and their risk-taking attitude. Second, the payments provided under the 2003 CAP reform constitute a transfer which can help indebted farmers taking on more loans or paying back their current ones. Indebted farmers may however also find it more difficult to adjust to a change in policy as their borrowing capacity is lower.

The variables listed in Table 5-1 were, first, tested for collinearity based on the correlation matrix. Once strongly collinear variables were removed, the set of remaining variables was used for the estimations. Statistically insignificant variables were removed one by one to achieve a parsimonious specification for each scenario. The final specification for each country includes all variables that were significant under at least one scenario or in the pulled scenario estimation to allow for easier comparisons. The model statistics are presented in the respective countries Annexes. As collinearity was a problem, for each model the condition index has been reported (collinearity problems exist when the condition index is greater than 20). The model significance, based on a likelihood ratio test, has also been reported together with the

⁹ Three categories were therefore created: “not in LFA”, “LFA mountainous” and “LFA not mountainous”. The initial specification included “LFA mountainous” and “LFA not mountainous” only, which were replaced by “not in LFA” if this served to improve the model.

share of correct predictions of the model. This is useful to assess the fit and performance of the model. Model results are also presented in Annexes. A summary of results for all five countries can be found in section 5.7.

Analyses were carried on a comparable sample across the scenarios. This means that is, only farmers stating their intentions under all the scenarios and respondents for which no information was missing on the variables tested were included in the analysis. This decreased the sample size but was necessary to make valid cross-scenario comparisons. Table 5-2 below summarises some characteristics of the samples analysed. Characteristics of farms and farmers across the five countries differ widely, both due to the country specific situation and to the characteristics of the IDEMA sample. Focusing on operators' characteristics first, the ageing of the farming community is evident, as the average age of the farm operators in all countries is high (between 50 and 55). However, in the French sample their average age is 44. This important difference might be a consequence of the fact that the data were collected through a specific interview (as opposed to other countries, where the data was collected jointly with the information required for the FADN) and that younger farmers may have been more willing to take part in the survey. The younger age of the French farmers has an impact on other key variables such as the managerial experience of farmers. French farmers tend to have less managerial experience than their other EU-15 counterpart. Farmers from the NMS, however, despite being 50 or above on average, do have little managerial experience on-farm compared to the farmers in England or Sweden. In the NMS, many of the farm managers are new, emerging due to the agricultural reform in the 1990s. This situation is further evidenced by the large off-farm experience of the operators from the NMS. In Slovakia in particular, operators have on average 19 years of off-farm work experience, compared to two or three years in England and France. Inter-generational transfers seem to create problems as 30 percent or more of the farmers interviewed in England, Sweden and Slovakia had no successor. Looking at farms' characteristics, there is a clear difference between NMS and OMS concerning the share of revenue stemming from non-agricultural activities on the farm. Indeed, the Lithuanian and Slovakian samples record a very low level of additional non-agricultural revenue generated by the farm asset (respectively six percent and two percent on average). In Sweden, this figure is still relatively low (10 percent), but greater than in the NMS. Finally in England and France, 30 percent and 55 percent, respectively, of the revenue

has been derived from non-agricultural activities. This is consistent with other studies which indicated that the diversification in NMS was limited and hindered (Chaplin, *et al.*, 2004). The share of revenue stemming from crop production is higher in the NMS (52 percent or above compared to 26 percent or below for OMS). As stated earlier, farms' leverage is an indication of indebtedness and risk-taking behaviour. It is defined as the ratio of debt over equity. The average leverage in Lithuania is negative due to two negative observations. Negative observations are very surprising as lenders should not be willing to provide loans amounting to more than the equity of the farm. However, the negative observations were kept as other collaterals may have been used (e.g. guarantees by family and friends). Overall, it still appears that the leverage ratio is lower for farms in Lithuania, as farmers tend to borrow less there than in the EU-15. Considering the share of net current subsidies in the total revenue, averages differ widely across countries. In the Swedish sample, subsidies amount to 24 percent of the revenue (which is close to the national average in 2002 of 22 percent). This means that the Swedish farmers are the more supported on average as in comparison, in the IDEMA sample, subsidies amount to 17 percent of the revenue in France and Slovakia, 14 percent in England and 10 percent in Lithuania. Farmers in NMS will see the amount of support they receive increase in the coming years, with the implementation of SAPS, while payments in the OMS are expected to remain stable. Finally, the average VA generated on-farm (excluding net current subsidies) per hectare and per AWU in the IDEMA sample is also reported. This is an indication of the farm performance. As expected, the VA (per hectare or per AWU) is greater in the OMS compared to the NMS. Among the OMS, the best performing one is England followed by France and finally Sweden. This ordering is consistent with the national averages for the total sample of FADN farms in 2002, even though, French and English farmers in the IDEMA sample perform better than their respective national averages (the average VA per AWU, including subsidies, is 25,742 euros per AWU and 32,386 euros per AWU in France and the UK respectively). Among the NMS considered, Lithuanian farmers perform better than Slovakian farmers. This is not consistent with the national averages for the total sample of FADN farms in 2004, where the figures for Lithuania and Slovakia are comparable. However, the Lithuanian farms in the IDEMA sample perform better than the national average.

Table 5-2: Sample characteristics: a comparison across countries

variable	England	France	Sweden	Lithuania	Slovakia
Age of the operator (years)	55	44	55	50	51
Farm managerial experience (years)	22	18	26	10	11
Share of full time farmers ¹⁰ (%)	93	na	79	86	86
Experience working off-Farm (years)	3	2	10	10	19
Lack of successor (%)	31	18	36	21	31
Farm area (ha)	136	98	86	94	187
Share of farms in LFA regions (%)	27	na	49	66	60
Share of crop in total revenue (%)	17	23	26	52	76
Share of on-farm revenue derived from non-agricultural activities (%)	30	55	11	6	2
Leverage	0.19	1.45	0.46	-0.10	na
Share of net current subsidies in revenue (%)	14	17	24	10	17
Value added without subsidies per hectare (Euros/ha)	1701	672	343	216	58
Value added without subsidies per AWU (Euros/AWU)	42660	29762	14343	7927	2677

Table 5-3 summarises farmers' intentions to stay and grow in the five country samples considered for the econometric analysis. Focusing on the OMS, consistently with the descriptive statistics per country presented earlier (Chapter 4), exit plans are little affected by the change in policy in England and France. For those planning to stay, very few English farmers want to grow and their plans are not changing depending on the policy in place. In France, the share of farmers willing to grow is generally greater and a larger share of interviewed farmers is planning to grow under the baseline scenario or the implemented CAP reform than under the full decoupling. In Sweden, a larger number of farmers are planning to exit under decoupled payments compared to continuing Agenda 2000, but among those staying, the share of farmers willing to grow increases with decoupling. This makes England an extreme case,

¹⁰ Farmers who spend the equivalent of 0.75 AWU on the farm or more per year.

where policies do not seem to impact on structural change. In France, it appears that structural change would have been greater if the policy chosen had moved closer to full decoupling. Finally in Sweden, the policy change can be expected to have greater consequences on structural change.

Table 5-3: Intentions to stay in farming and grow in the 5 countries studied

	England	France	Sweden	Lithuania	Slovakia
Observations	119	176	207	122	113
STAY					
Share of farmers planning to stay in farming in the next 5 years (%) Scenario 1	81.5	85.3	70.5	84.4	58.4
Share of farmers planning to stay in farming in the next 5 years (%) Scenario 2	80.6	85.3	64.7	82.8	81.4
Share of farmers planning to stay in farming in the next 5 years (%) Scenario 3	79.8	84.1		84.4	73.5
GROW					
If staying, share of farmers planning to grow within the next 5 years (%) Scenario 1	12.4	55.3	13.7	26.2	42.4
If staying, share of farmers planning to grow within the next 5 years (%) Scenario 2	13.5	55.3	18.7	57.4	52.2
If staying, share of farmers planning to grow within the next 5 years (%) Scenario 3	12.6	49.3		39.8	31.3

In the NMS, the policy change is both an increase in payments and a decoupling in the form of payments. In Slovakia, more farmers are likely to stay under decoupled payments compared to continuing pre-accession policy, and among

those planning to stay, a larger share is planning to grow under the baseline scenario than under full decoupling, but the largest share of farmers willing to grow is observed under SAPS with top-ups. In Lithuania, however, the policy change has little impact on exit decisions. Concerning growth, a larger share of farmers is planning to grow under the two accession scenarios than under the pre-accession one. The share of farmers willing to grow is greater when top-ups are distributed. Overall, farmers' plans in the NMS are consistent with an increase in payments, even though they differ across country with accession encouraging farmers to grow in Lithuania and to remain in farming in Slovakia.

The samples were used for individual analysis per country and scenario, as presented in the remaining of this chapter. They were also used in an analysis per scenario for the five countries studied simultaneously. The results of this second analysis are presented in Chapter 6, Cross-country analysis.

5.2. England

In England, the variables tested are listed in Table 5-1. However to limit the collinearity problems, one variable, namely operators' managerial experience on-farm, had to be excluded. This variable was correlated at 50 percent with age. This level of correlation may appear to be low, but the inclusion of both age and managerial experience yielded estimates with a counter-intuitive sign for age. The model validity and the estimates are presented in Annex 2 (Table 8-11 to Table 8-18). The significance of the models for stay/exit and growth decisions is high under all scenarios and the overall prediction is good. Collinearity levels among variables, as measured by the conditional number, are acceptable (below 20).

As observed by the descriptive statistics, English farmers did not intend to undertake substantial adjustments in their strategic decisions. The econometric estimates confirm this. The drivers of intentions to exit and grow remain the same irrespective of whether farmers were facing the scenario of continuation of Agenda 2000 direct payments, SFP based on historic entitlements or fully decoupled flat regional payments. Socio-economic characteristics of farmers are significant. Older farmers have a higher probability to exit, as well as COP specialised farmers and farmers who had a higher VA per hectare (without net current subsidies) before the policy reform. The latter seems counter-intuitive, but anecdotal evidence in the UK

suggests that some good farmers claim that they cannot achieve anything more in farming, so they contemplate to leave agriculture.

For those who would like to stay in farming and would like to increase the area of the farm, the main drivers are the labour productivity measured as VA without net current subsidies per AWU. Therefore, although some good farmers in England would like to leave farming, amongst those who stay, the better ones with more productive, thus probably more qualified and better managed labour, would like to expand their farm size. Less risk-averse farmers are also more likely to grow. This is substantiated by the statistical significance of the leverage for England. A higher leverage indicates a risk-taking attitude (Jensen and Langemeier, 1996). In previous studies of farm growth in the UK, it has been argued that “the entrepreneur [...] willing to take risks and increase his leverage is able to grow faster” (Upton and Haworth, 1987, p.354).

Barriers to growth seem related to the socio-economic characteristics of the farmer. Older farmers are less likely to grow, as well as farmers with a high general education, e.g. university degree or other post-school diploma. The latter might be related to the decreased attractiveness of farming to people with a higher level of general education due to the wider opportunity for non-farm activities and income generation. This has been suggested by various works studying the effect of human capital on on-/off-farm decisions (Lass and Gempeshaw, 1992; Weersink *et al.*, 1998).

In summary, England is an extreme case in which it seems that the change in policy scenarios do not change either the drivers of, or the barriers to exit and growth. At least, this is what the analysis of intentions in short- to mid-term indicates.

5.3. France

In France, one variable had to be removed to reduce the level of collinearity in the models. Similarly to England, operators' managerial experience on-farm was collinear with age (correlated at 90 percent) and could not be included in the initial specification. Tables summarising models validity and estimates are presented in Annex 3 (Table 8-31 to Table 8-38). The models for stay/exit and growth are significant at 10 percent or less under all scenarios and the overall predictions are

acceptable. Collinearity level among variables, as measured by the conditional number, is below 20 for all models.

France, similarly to England, does not show substantial adjustment of farmers' behaviour across scenarios (although, as evident by the descriptive statistics, there are slightly more farmers changing their plans across scenarios than in England). Consistent with the *ex-ante* expectations, there are no changes in the determinants of farmers' plans between Scenario 1 (continuation of Agenda 2000) and Scenario 2 which incorporates the French decision to implement partially decoupled payments. This supports the view that using all options available to avoid the decoupling of support payments does not bring any of the expected benefits of the 2003 CAP reform. However, when an artificial full decoupling scenario was imposed on the farmers, several changes in the factors stimulating exit from farming or the decision to increase the farm size emerged.

In the three scenarios, the age and the lack of successor are significant factors for the decision to exit within the next 5 years. As expected, older farmers are more likely to exit, as well as farmers who have no successor to pass on the farm to. Under the three scenarios, the standard factors influencing farmers' decision in the EU apply. Both age and the lack of successor can increase the likelihood of exit. If the 2003 CAP reform is represented by fully decoupled payments, then farmers who would like to stay are those who could capture more payments due to a larger farm area and those who might be able to compete under decoupling because of their generally good performance. Thus, farmers with larger total farm area and higher VA (excluding net current subsidies) per hectare are less likely to exit.

Similarly, regarding growth, the analysis indicates some results consistent with the prior expectations. Under Agenda 2000 and the partial decoupled payments, older farmers are less likely to grow, but farmers who benefited substantially from area payments, namely farmers with a higher share of crops in the value of output, are more likely to grow. If the payments were fully decoupled, the factor of crop specialisation would not have had any effect which indicates the potential impact of the policy change.

5.4. Sweden

In the Swedish sample, the correlation matrix did not allow to identify collinear variables and the full specification was tested. However, the variables that were not statistically significant were removed one by one to obtain parsimonious specifications. Tables summarising models validity and estimates are presented in Annex 4 (Table 8-50 to Table 8-55). Under all scenarios, the models for stay/exit and growth are highly significant and the overall predictions are acceptable. Collinearity level among variables, as measured by the conditional number, is below 20 for all models.

Farmers in Sweden are by far the most responsive of the respondents in the three OMS considered. As it can be seen from the descriptive statistics, farmers' plans change significantly across scenarios for both exit and growth decision. However, the strongest changes are observed in respect to growth.

Without a policy change the only significant drivers pushing farmers out of agriculture are the age of the farm operator and the share of subsidies in the revenue. As expected, the older the operator, the higher the probability to exit agriculture and the lower the probability to plan to expand the area of the farm. The analysis confirmed the hindrance created by the CAP subsidies to structural change. When we control for age, the farmers who received a higher share of subsidies in the revenue before the 2003 reform are less likely to leave farming. In addition, the marginal effect of subsidies on the likelihood to stay in farming is relatively high (10 percent increase in the share of subsidies in the revenue makes it 40 percent more likely that the operator will stay). The decoupling of subsidies does change the drivers. Subsidies are not anymore a significant factor affecting the farmers' strategic decisions to exit farming or grow. Only the age appears important in the decision to stay or to leave farming.

Farmers' intentions to grow under the decoupled payments provide interesting policy insights, as the determinants of growth differ across scenarios. The only common driver of growth across scenario is the VA without net current subsidies per AWU, as better performing farmers are more likely to grow under both scenarios. However, those farmers who have benefited from pillar II payments before the 2003 reform seem less likely to continue expanding their farm area under the decoupled payments. This suggests that some pillar II payments for e.g. diversification,

environment, and training might have been effective in decreasing the reliance on income generated through the growth of farm production activities. One of the losers from the reform, namely farmers specialised in COP (Ekman, 2004; Ministry of Agriculture Food and Consumer Affairs, 2004), have lower probability to grow under the 2003 CAP reform. This is another signal that the reform might be effective in its aim to reduce the policy incentives for farm productive growth.

5.5. Lithuania

In Lithuania, the variables measuring the VA without net current subsidies per hectare and per AWU were correlated at 70 percent and were therefore included in the model in turns to limit the collinearity problems and to allow for the model with the best fit to be identified. No other clear correlation was identified among variables from the correlation matrix. However, the condition index for the full-specification remained high, indicating the existence of more complex multi-collinearity problems. Removing insignificant variables one by one allowed for the identification of more parsimonious models, but for the stay/exit models the condition numbers remain high (slightly above 20) and in Scenarios 1 and 3 for growth, no model was found to be significant. Tables summarising models validity and estimates are presented in Annex 5 (Table 8-68 to Table 8-75).

Lithuania was chosen for the analysis to help understand how the newly emergent individual farmers would respond to policy changes. As explained previously, there are two policy changes incorporated in the post-accession CAP package. The first one is similar to the policy shift in the EU-15, namely the replacement of pre-accession commodity coupled policy with a flat area payment. The second one is the very introduction of the CAP instruments which has increased the level of support granted to Lithuanian farmers. As presented in Table 5-3, there is no clear evidence about the change in exit decisions according to scenario. However, with respect to growth intentions, a larger share of farmers intend to grow under Scenarios 2 and 3. This indicates that farmers are more likely to grow under the CAP either with top-up coupled payments or without them.

Looking at individual scenarios, under the continuation of pre-accession policy older farmers and farmers with a larger off-farm experience were more likely to exit in the next 5 years. The latter is consistent with previous studies which have found a significant correlation between the off-farm work experience and off-farm work participation (Mishra and Goodwin, 1997). Off-farm work experience has a positive effect on the demand for farmers' labour outside the farm (Robinson *et al.*, 1982). Controlling for farmers' age, these greater opportunities for off-farm work related to experience, could explain the higher probability of those of Lithuanian farmers who have more off-farm experience to leave agriculture early. Farmers who have not identified their successor are more likely to stay. Under the SAPS plus top-up payments, the lack of identified successor loses its importance in the decision to exit farming. Under the full decoupling, another determinant to the decision to stay in farming is the total time spent on-farm before the policy change. The full-time farmers are more likely to remain in farming.

A large share of the farmers who would like to stay in farming would like to grow. Under the pre-accession policy, highly indebted farmers were obviously constrained in their intention to grow. Leverage is negatively and significantly related to the decision to grow. Under the decoupled payments this impediment disappears. Indeed, as SAPS constitutes a stable and increasing stream of income for the beneficiaries, the payments increase farmers' repayment capacity and provide them with more ground on which to pledge for additional loans. Within this framework, if farmers are willing to borrow more funds to grow, they are more likely to find lenders (Collender and Morehart, 2004).

5.6. Slovakia

In the sample of individual farms, the total number of years spent working off-farm (totexpof) was highly correlated with age (at 80 percent) and was therefore excluded from the initial specification. Tables summarising models validity and estimates are presented in Annex 6 (Table 8-90 to Table 8-95).

Contrary to Lithuania, Slovakia has a mix of individual and corporate farms. Even the individual farms included in FADN and in the IDEMA sample are relatively large, 187 ha on average. The farmers' intentions presented in Table 5-3 seem to be consistent with the school of thought that the CAP payments would impede the

structural change in NMS (Ciaian and Swinnen, 2006). Under the CAP payments, either with or without top-ups, more farmers would like to stay in agriculture within the next five years. This seems to contradict the main spirit of the 2003 reform which aims at increasing the competitiveness of European agriculture which, in turn, necessitates structural change.

Looking at individual scenarios and focusing on the decision to exit or stay, under the CAP payments with or without top-ups, the only identified significant variable is the farm size measured as farm area before the policy change. Larger farms have a lower probability to exit within 5 years under CAP payments. Farm size does not influence exit decisions under the pre-accession policy. This suggests that the policy change is likely to provide incentives to large farmers to stay in agriculture. Those farmers will be receiving a larger amount of payments as the subsidies are paid per hectare.

Considering growth, the operators with more farm managerial experience were less likely to grow under the pre-accession conditions, probably because they were more aware of the imperfection of the land market in Slovakia and the difficulties for individual farmers to buy or even rent in more land (IDEMA Deliverable 9). It also may be the case that farmers with more managerial experience have faced years with very low returns from farming during the transition and are less keen on increasing their land area than the less experienced ones. However, this barrier to growth disappears under the other scenarios. Under the CAP payments with top-ups, farmers who have not identified a successor and are not located in LFA are less likely to grow. The latter is consistent with the fact that farmers in those regions are not receiving supports as high as in LFA regions. However, under CAP payments without top-ups, the situation is reversed. Even though the payments in LFA regions remain higher, farmers who are not in LFA regions are significantly more likely to grow than farmers in LFA regions. Farmers in non-LFA regions are those who are the most likely to generate profit through production activities and the increased freedom in the choice of production activities under full-decoupling may appeal to them.

5.7. Summary

To summarise, the variables found significant and the direction of their impact on the decision of interest are presented in Table 5-4 to Table 5-9.

Although these tables are useful to compare farmers' responses in the individual countries across the scenarios, they cannot illuminate the extent to which the countries' specific characteristics are significantly influencing the intended response to the policy change, even after controlling for such standard factors as life cycle, farm structural characteristics and farmers experience. The cross-country comparisons that can illuminate this issue are the subject of the following chapter.

Table 5-4: Summary of the significant variables for each country under Scenario 1 (continuing Agenda 2000 or pre-accession policy) – Exit plans

Stay (1) versus exit (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus	Minus	Minus	
Age when left education					
Dummy if college degree					
Managerial experience					
Time spent on-farm: hours worked yearly on farm				Plus	
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-farm				Minus	
Succession status: no successor		Minus			
Succession status: doubt on successor				Plus	
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total					
LFA not mountain					
LFA mountain					
Not in LFA					
Share of crop in total revenue		*			
Dairy					
COP	Minus				
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage					
Share subsidies in revenue		*	Plus		
Share of pillar II subsidy in total subsidies					
Value added without subsidies per hectare	Minus	*			
Value added without subsidies per AWU		*			

Table 5-5: Summary of the significant variables for each country under Scenario 1 (continuing Agenda 2000 or pre-accession policy) – Growth plans

Growth (1) versus not growth (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus	Minus		
Age when left education					
Dummy if college degree	Minus				
Managerial experience					Minus
Time spent on-farm: hours worked yearly on farm					
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-Farm					
Succession status: no successor					
Succession status: doubt on successor					
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total		*			
LFA not mountain					
LFA mountain					
Not in LFA					
Share of crop in total revenue		Plus			
Dairy					
COP					
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage	Plus			Minus	
Share subsidies in revenue		*			
Share of pillar II subsidy in total subsidies					
Value added without subsidies per hectare		*			
Value added without subsidies per AWU	Plus	*	Plus		

Table 5-6: Summary of the significant variables for each country under Scenario 2 (2003 CAP reform as implemented in the countries) – Exit plans

Stay (1) versus exit (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus	Minus	Minus	
Age when left education					
Dummy if college degree					
Managerial experience					
Time spent on-farm: hours worked yearly on farm					
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-Farm				Minus	
Succession status: no successor		Minus			
Succession status: doubt on successor					
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total					Plus
LFA not mountain					
LFA mountain					
Not in LFA					
Share of crop in total revenue		*			
Dairy					
COP	Minus				
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage					
Share subsidies in revenue		*			
Share of pillar II subsidy in total subsidies					
Value added without subsidies per hectare	Minus	*			
Value added without subsidies per AWU		*			

Table 5-7: Summary of the significant variables for each country under Scenario 2 (2003 CAP reform as implemented in the countries) – Growth plans

Growth (1) versus not growth (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus		Minus	
Age when left education					
Dummy if college degree	Minus				
Managerial experience					
Time spent on-farm: hours worked yearly on farm					
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-Farm					
Succession status: no successor					
Succession status: doubt on successor					Minus
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total					
LFA not mountain					
LFA mountain					
Not in LFA					Minus
Share of crop in total revenue		*Plus			
Dairy					
COP			Minus		
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage	Plus				
Share subsidies in revenue		*			
Share of pillar II subsidy in total subsidies			Minus		
Value added without subsidies per hectare		*			
Value added without subsidies per AWU	Plus	*	Plus		

Table 5-8: Summary of the significant variables for each country under Scenario 3 (Flat rate area payments) – Exit plans

Stay (1) versus exit (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus		Minus	
Age when left education					
Dummy if college degree					
Managerial experience					
Time spent on-farm: hours worked yearly on farm				Plus	
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-Farm				Minus	
Succession status: no successor		Minus			
Succession status: doubt on successor					
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total		Plus			Plus
LFA not mountain					
LFA mountain					
Not in LFA					
Share of crop in total revenue		*			
Dairy					
COP	Minus				
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage					
Share subsidies in revenue		*			
Share of pillar II subsidy in total subsidies					
Value added without subsidies per hectare	Minus	*Plus			
Value added without subsidies per AWU		*			

Table 5-9: Summary of the significant variables for each country under Scenario 3 (Flat rate area payments) – Growth plans

Growth (1) versus not growth (0)	England	France	Sweden	Lithuania	Slovakia
Age of the operator	Minus	Minus			
Age when left education					
Dummy if college degree	Minus				
Managerial experience					
Time spent on-farm: hours worked yearly on farm					
Time spent on-farm: dummy equal 1 if less than 0.75 AWU a year					
Experience working off-Farm					
Succession status: no successor					
Succession status: doubt on successor					
Succession status: identified successor					
Share of household income derived from farming					
Value of household income derived from farming					
Area total					
LFA not mountain					
LFA mountain					
Not in LFA					Plus
Share of crop in total revenue		*			
Dairy					
COP					
Other Cattle					
Share of on-farm revenue derived from non-agricultural activities					
Leverage	Plus				
Share subsidies in revenue		*			
Share of pillar II subsidy in total subsidies					
Value added without subsidies per hectare		*			
Value added without subsidies per AWU	Plus	*			

Chapter 6: Cross-country analysis

This chapter presents a comparative analysis of the five countries studied for the individual farms only. First, the determinants of exit and growth are investigated for the five country samples pooled together (including country dummies), under the baseline scenario (scenario 1) and the flat rate regional payment scenario (full-decoupling scenario, common to all five countries)¹¹. This develops the work presented in Chapter 5 by aiding cross-national comparison and allowing conclusions to be drawn concerning responses to policy reform at the *European* level. From this analysis, conclusions are drawn on the countries' diverging patterns of reaction to policy change. Then, a second analysis is conducted based on attitudes to agricultural policy and intentions in the context of the 2003 CAP Reform. As indicated in Chapter 3 (Methodology), groups of farmers with similarly held attitudes are identified using cluster analysis to investigate whether differences in attitudes are defined predominantly according to national country characteristics, OMS or NMS, size or other criteria.

6.1. Exit and growth: Introduction to the econometric analysis

In this section an econometric analysis of exit and growth, similar to the one performed in Chapter 4 for each country individually, is performed for the pooled sample of farms across the five countries considered. Because of the diversity of situations within the five country samples, the identification of similar or diverging patterns of adjustment to decoupling is of interest when trying to understand the differential effect of policy reform. In order to investigate these patterns, Probit models were run for the pooled sample, looking, in turn, at the decision to stay and grow. The probit models for staying in agriculture and growth follow the approach detailed in sections 3.2.2 and 3.2.3 respectively.

The choice of variables included in the cross-national analysis was restricted to those that were available for all five country samples, and is therefore a subset of the variables used in the analysis presented in Table 5-1. The set of variables tested is

¹¹ It is Scenario 3 in all countries except Sweden, where the actual implementation of SFP (Scenario 2) is quite similar to a full decoupling scenario with regional flat rate area payment, so that Scenario 2 is therefore considered for Sweden.

as follows. Variables relating to the family life-cycle were included (age and succession status), as well as operators' off-farm experience. The total area of the farm was also incorporated into the analysis. To take farms' specialisation into account, the share of crops in farm revenue was included, as well as the share of non-agricultural revenue generated on-farm. Dependency on subsidies was measured as the share of net current subsidies in total revenue. Farms' performance was initially assessed through two proxies: farm net VA without net current subsidies per hectare and per AWU. However they were not used directly, as one would expect restructuring, such as the buying and selling of land, to be principally governed by a farm's relative performance compared to others within the same country. Instead, within each country, an indicator was computed measuring the farm's relative performance. This indicator is defined as the VA per ha or AWU of the farm multiplied by 100 and divided by the VA per ha or AWU of the best performing farm in the given country. Using those scores, the impact of the policy is assessed against the relative performance of each farm, with respect to the situation in each country¹². As with the analysis of individual countries, the full specification was tested first. Insignificant variables were then removed one by one to identify more parsimonious models. Country dummies were, however, kept even if not significant to be able to directly assess their impact on the model. England was chosen as the reference category, as farmers' decisions in this country are stable across scenarios.

The sample includes 737 observations (it was described on a country by country basis in Chapter 4). Farmers' intentions to stay in farming in the next 5 years and, if they stay, to grow within the next 5 years have been presented in Table 5-3. However, as this analysis is only concerned with two scenarios, a summary of farmers' intentions under the two scenarios considered can be useful: as could be seen from the descriptive statistics per country presented earlier (Chapter 4), exit plans are little affected by the change in policy in England, France and Lithuania. For those planning to stay, once again English farmers' plans to grow are the least affected by changes in policy. However, in France, a larger share of interviewed farmers is planning to grow under the baseline scenario, but this share decreases with decoupling. Finally, the reverse is observed in Lithuania. In Sweden, a larger number of farmers are planning to exit under decoupled payments compared to a continuation

¹² A similar computation was used for land area, but its use did not change the results of the models and made the interpretation less straightforward. Land area was therefore used directly in the estimations.

of Agenda 2000, but among those staying, the share of farmers willing to grow increases with decoupling. On the contrary, in Slovakia, more farmers are likely to stay under decoupled payments compared to continuing pre-accession policy, and among those planning to stay, a larger share is planning to grow under the baseline scenario, but this share decreases with decoupling. Farmers' responses to the policy change therefore differ widely across countries and there is no simple NMS/OMS divide. Characteristics of the sample were provided in Table 5-2. Estimations' results are presented in the next section.

6.2. Determinants of exit and growth

Models of exit and growth are robust under both scenarios; being highly significant, with acceptable levels of collinearity and good overall predictions (see Table 8-111 to Table 8-116 in Appendix 7).

Focusing on the significant variables, family lifecycle factors (age and succession status) seem to be more important in explaining exit/stay rather than growth. Under the two considered scenarios, age and the absence of (or uncertain) successor have a significant impact on the decision to stay. Consistent with expectations, older farmers are more likely to exit. Farmers are more likely to stay if they have not identified a successor yet or to exit if they lack successors. Considering growth plans, only age has an impact, with older farmers being less likely to grow. The impacts of the family lifecycle factors are consistent with expectations derived from the literature (Gasson and Errington, 1993).

It is also interesting to note that farmers operating larger farms are more likely to stay in farming under all scenarios, but farm size seems to have no impact on growth. Additionally, better performing farms (in terms of relative VA without net current subsidies per AWU; variable labelled REVANSW) are more likely to grow under the decoupled policy. If the general wisdom of an efficient land market is that land passes from less to more productive users, the intention data suggest that this is likely across our sample, and also that the overall impact of the reform may fit with its objective of improving farmers' competitiveness. This is an important finding given one of the objectives of policy reform is to improve the competitiveness of European agriculture (CEC, 2002).

Additionally, in both the exit and growth models, country dummies are significant, even when family lifecycle, size, relative VA and farmers' experience are controlled for. Therefore, differences in intentions cannot purely be reduced to differences in age and family lifecycle across the samples for the different countries. Moreover, as evidenced by the magnitudes of the coefficients in Table 8-113 to Table 8-116, there is no clear divide between NMS and OMS. This suggests that in understanding structural change in European agriculture researchers should embrace a nuanced view, avoiding crude generalisations about contraction in the west and expansion in the east. Moreover, in explaining farmers' reactions to policy reform there is a need to embrace more sophisticated conceptualisations of both agency and structural (environmental) factors. Psychological models of decision-making suggest that attitudes play a crucial role in explaining behaviour (Willock *et al.* 1999a) and differences in attitudes cannot be reduced merely to an analysis of age, nationality or gender. Despite this, attitudes have received little attention in explaining farmers' decision-making and the next section seeks to provide a cross-national assessment of farmers' attitudes to agriculture and policy, understanding their linkages with decisions to exit and grow.

6.3. Descriptive statistics on farmers' attitudes

The presentation of farmers' attitudes in Chapter 4 already provided some interesting insights into the farmers' attitudes and their link with the decisions to exit and grow in individual countries. However, a comparison of attitudes across countries may provide interesting information on similarly held attitudes and differences across countries. Table 6-1 and Table 6-2 present the distribution of responses for each Likert Scale for the whole sample and the mean scores for each country respectively. Table 6-1 reveals that the majority of farmers strongly oppose policy liberalisation (in terms of the loss of price support, income support and subsidies related to the production of environmental goods). On these measures, less than 20 percent agree or strongly agree with notions of policy liberalisation with the greatest support being for subsidies linked to the production of environmental goods. The majority of farmers are pessimistic about their ability to make sufficient profits without policy support.

The agricultural focus of farmers is strong. Fifty eight percent strongly agree with the notion that “farmers should not have to work off-farm to sustain their farming activities”. Slightly more than two thirds of the sample agree or strongly agree with the statement that “farm land should be fully used for agricultural production”. There is greater disagreement surrounding the values of friends and family, particularly concerning their views on what farmers do and whether CAP support should help farmers to stay in the sector. While the subjective norms are fairly varied, motivation to comply with the wishes of close friends and family is reasonably strong: about 70 percent agree or strongly agree with the statement that “when making key decisions about the farm I consult close family and friends”. Keeping the farm running for a successor(s) is a major motive for farmers to stay in the sector. There is however a high degree of dispersion in responses to the possibility of off-farm employment: 26, 19, 21, 15 and 20 percent strongly disagree, disagree, neither agree nor disagree, agree and strongly agree respectively with the statement “I can easily find a job off-farm or increase the number of hours I work off-farm”.

The mean scores for each of the five point Likert scales by country as well as the overall sample mean are reported in Table 6-2. To check for significant differences between countries ANOVA F-test scores are reported for a comparison (a) of the five countries¹³, (b) between OMS and NMS. Significant differences are uncovered amongst countries for all of the Likert scales and between the OMS and NMS on the majority of items. Overall, the New Member States (Lithuania and Slovakia) are most strident in their opposition to policy liberalisation. Farmers in these two countries also record the highest mean scores for agreeing that “farm land should be fully used for agricultural production” and that “farmers should produce landscape and environmental goods”. French farmers, somewhat surprisingly given national stereotypes, register the highest support for policy liberalisation, although it must be acknowledged that even in this country the majority rejects such a notion.

There is no clear disparity between NMS and OMS regarding the ease of employment diversification: overall Slovak farmers are the most optimistic about finding off-farm work and farmers in England and Lithuania the most pessimistic. There is also a significant difference between Lithuania and Slovakia regarding

¹³ A comparison of all five countries is presented here rather than a pair-wise analysis, as the analysis is not concerned with differences across individual countries *per se* but rather the disparities existing within the overall group of states.

whether farmers should have to work off-farm to sustain their farming activities. Farmers in Slovakia strongly reject this assertion in contrast to Lithuania which records the lowest mean score for agreement with the statement that “farmers should not have to work off-farm to sustain their farming activities”. This divergence may stem from the differences in mean farm sizes between the two states.

While national differences are interesting to report, it is important to investigate whether the country context is the most important factor in distinguishing groups of farmers with similarly held attitudes. This is investigated in the next subsection, through the application of factor and cluster analysis.

Table 6-1: Distribution of responses for Likert Scales (from 1: Strongly disagree, to 5: Strongly agree); share of farmers (%)

Attitudinal Statement	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
<i>Attitudes to the Market</i>					
A good farmer is a competitive producer of goods sold on the free market	12.9	8.8	19.6	24.3	34.4
My farming abilities will allow me to maintain an adequate profit, whatever is European agricultural policy	34.9	20.7	25.0	12.1	7.3
<i>Policy Support</i>					
Farmers should not receive any commodity price support	46.8	16.7	16.9	9.3	10.3
Farmers should not receive any subsidies related to environmental goods production	55.1	18.6	14.2	7.5	4.5
Farmers should not receive any income support	49.1	15.2	15.8	7.0	12.9
<i>Agricultural Focus</i>					
Farmers should only produce food and fibres	17.0	17.4	22.8	15.8	27.0
Farmers should not have to work off-farm to sustain their farming activities	9.6	8.6	11.6	12.2	58.0
Farm land should be fully used for agricultural production	5.2	9.5	18.5	19.2	47.6
Farmers should produce landscape and environmental goods	4.2	8.7	25.8	29.7	31.6
Farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money	4.8	9.3	22.4	25.9	37.7
<i>Subjective Norms on Agricultural Focus</i>					
Friends and family think that farmers produce only agricultural commodities	5.6	11.8	21.1	25.2	36.2
Friends and family think that farmers produce landscape and environmental goods	13.6	23.8	26.5	21.4	14.7
Friends and family think that CAP support should help producers to maintain farming	15.3	17.2	24.9	21.1	21.6
Friends and family think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming	13.7	15.7	27.8	19.0	23.8
<i>Motivation to Comply</i>					
When making key decisions about the farm I consult close family and friends	11.9	9.3	12.1	26.9	39.9
My family and friends' views come first	13.7	14.0	26.0	20.8	25.4
<i>Employment Diversification</i>					
I can easily find a job off-farm or increase the number of hours I work off-farm	26.0	18.8	20.5	14.7	20.1
<i>Locus of Control</i>					
The CAP system of subsidies imposes too many restrictions on my future farming plans	10.5	13.0	25.8	21.9	28.8
I have to keep my farm running (to secure succession or for other reasons)	15.0	9.5	12.6	14.5	48.4

Table 6-2: Descriptive Statistics of mean Scores on Likert Scales by Country (from 1: strongly disagree to 5: strongly agree)

Attitudinal Statement	Mean ENG	Mean FRA	Mean SWE	Mean LITH	Mean SVK	Sample Mean	5 country F-test	New/old MS F-test
<i>Attitudes to the Market</i>								
A good farmer is a competitive producer of goods sold on the free market	3.83	2.51	3.75	4.27	3.92	3.59	77.1***	91.8***
My farming abilities will allow me to maintain an adequate profit level, whatever the European agricultural policy in place	1.95	2.51	2.11	2.90	2.37	2.36	19.5***	34.9***
<i>Policy Support</i>								
Farmers should not receive any commodity price support	2.59	2.82	2.41	1.35	1.36	2.20	67.0***	247.5***
Farmers should not receive any subsidies related to environmental goods production	2.01	2.10	2.17	1.44	1.25	1.88	29.9***	114.6***
Farmers should not receive any income support	2.08	2.90	2.31	1.23	2.10	2.19	49.5***	104.3***
<i>Agricultural Focus</i>								
Farmers should only produce food and fibres	2.54	4.34	2.67	2.79	3.52	3.18	93.4***	2.1
Farmers should not have to work off-farm to sustain their farming activities	4.00	4.46	3.96	2.97	4.75	4.00	58.9***	25.8***
Farm land should be fully used for agricultural production	3.61	4.10	3.80	4.02	4.25	3.95	8.1***	10.5***
Farmers should produce landscape and environmental goods	3.32	4.31	3.22	3.99	4.16	3.76	63.1***	40.6***
Farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money	4.12	4.06	3.76	3.25	4.08	3.83	21.9***	21.9***
<i>Subjective Norms on Agricultural Focus</i>								
Friends and family think that farmers produce only agricultural commodities	3.48	4.21	3.45	3.53	4.09	3.75	23.4***	0.1
Friends and family think that farmers produce landscape and environmental goods	2.92	2.71	3.00	3.12	3.43	3.00	9.2***	22.0***
Friends and family think that CAP support should help producers to maintain farming	2.99	2.57	3.09	3.74	3.76	3.16	35.5***	113.1***
Friends and family think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming	2.95	3.65	2.89	2.94	3.93	3.23	29.3***	4.0**
<i>Motivation to Comply</i>								
When making key decisions about the farm I consult close family and friends	4.03	2.93	3.96	4.04	3.99	3.74	36.2***	23.9***
My family and friends' views come first	3.44	3.04	3.45	3.73	2.73	3.30	17.4***	0.0
<i>Employment Diversification</i>								
I can easily find a job off-farm or increase the number of hours I work off-farm	2.53	2.85	2.94	2.55	3.33	2.84	8.9***	0.2
<i>Locus of Control</i>								
The CAP system of subsidies imposes too many restrictions on my future farming plans	3.16	3.90	3.55	3.57	2.55	3.45	32.7***	30.3***
I have to keep my farm running (to secure succession or for other reasons)	3.09	4.79	2.61	3.94	4.76	3.72	180.4***	80.0***

** Statistically significant at 5% level; *** statistically significant at 1% level.

6.4. Cluster analysis

In conducting the cluster analysis, initial investigations identified that the formation of clusters was hampered by multicollinearity amongst the variables. To deal with this problem, as suggested by Ketchen and Shook (1996), factor analysis was employed and the resultant factor scores for each observation used as the basis for clustering. Factor analysis defines the underlying structure in a data matrix, analysing the nature of interrelationships amongst a typically large number of variables by defining a set of common underlying dimensions (factors). Data reduction may be achieved by calculating scores for each underlying dimension and substituting them for the much larger number of original variables (Hair *et al.*, 1998). For the factor analysis in this study, the method of principal component analysis with varimax rotation was adopted. This method assures that the obtained factors are orthogonal and therefore avoids the problem of multicollinearity between the variables used in the cluster analysis. Factors presenting an eigenvalue greater than 0.9 were chosen with the cut-off applied for interpretation purposes being factor loadings greater or equal to 0.5 on at least one factor.

As explained in the methodology, the cluster analysis was performed in two stages. First, a hierarchical technique was used to identify outliers and the number of clusters, and then profile the cluster centres. Then, the observations were clustered by a non-hierarchical method with the cluster centres from the hierarchical results used as the initial seed points. To profile and validate the clusters, each is assessed in terms of structural variables and behavioural intentions that were not included as variables used to derive the clusters. This is a part of the validation process, as this helps to evaluate whether the derived clusters are meaningful (Ketchen and Shook, 1996). However, due to an absence of key variables (such as farm type and size as measured in ESU) in the French data, only the remaining four countries were included in the cluster analysis.

Two tests were applied to assess the validity of the factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy (Kaiser, 1970) is 0.61, indicating that the data matrix has sufficient correlation to justify the application of factor analysis. Bartlett's test of sphericity is large and statistically significant at the 1 percent level, therefore the hypothesis that the correlation matrix is the identity matrix can be

rejected. These measures indicate that the set of variables is appropriate for factor analysis.

A nine-factor solution is adopted, choosing the factors that present an eigenvalue greater than 0.9 (Table 6-3). This solution explains 72 percent of the total variance in the data set, which is satisfactory (Hair *et al.*, 1998). The first factor is associated with *agricultural focus*, as it relates to the statements concerning “farmers should only produce food and fibres”, “farmers should not have work off-farm to sustain their farming activities” and similar statements relating to friends and family’s views on these matters. The second factor relates to *agricultural policy support*, as the main loadings are for statements concerning whether farmers should receive commodity support, subsidies for the production of environmental goods and income support. The third factor is associated with *motivation to comply with the values of others* (“when making key decisions about the farm I consult other members of my family and close friends” and “my family and friends’ views come first”). Factor 4 can be interpreted as a measure of *family and friends’ views on agricultural policy* (highest loadings for the statements “friends and family think that CAP support should help producers to maintain their farming activities” and “friends and family think that farmers produce landscape and environmental goods”). Factor 5 is related to a statement about *lifestyle* (“farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money”). Factor 6 relates to *attitudes to the market* (“a good farmer is a competitive producer of goods sold on the free market” and “my farming abilities will allow me to maintain an adequate profit level, whatever the European agricultural policy in place”). The last three factors relate to *environmental orientation* (“farmers should produce landscape and environmental goods”), *locus of control* (“the CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities”) and *employment diversification* (“I can easily find a job off-farm or increase the number of hours I work off-farm”).

Table 6-3: Mean scores for Likert Scales by Cluster

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Total / Mean	F ²
Number of farms	148	196	146	150	153	793	
Share of the total sample (%)	18.7	24.7	18.4	18.9	19.3	100.0	
<i>Mean scores for Liker scales (from 1= strongly disagree, to 5 = strongly agree)</i>							
Friends and family think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	3.12	2.51	3.48	2.33	4.28	3.11	76.4***
Farmers should <u>only</u> produce food and fibres.	3.01	2.35	2.95	2.43	3.58	2.83	25.5***
Friends and family think that farmers produce <u>only</u> agricultural commodities.	3.70	3.59	3.56	2.78	4.41	3.61	42.1***
Farmers should not have to work off-farm to sustain their farming activities.	3.94	3.90	3.82	3.10	4.38	3.83	16.4***
Farmers should not receive <u>any</u> commodity price support.	3.36	2.02	1.71	1.52	1.24	1.97	110.4***
Farmers should not receive <u>any</u> subsidies related to environmental <u>goods</u> production.	3.07	1.55	1.94	1.23	1.18	1.77	124.5***
Farmers should not receive <u>any</u> income support.	3.32	1.78	1.63	1.37	1.78	1.96	75.9***
When making key decisions about the farm I consult other members of my family and close friends.	3.80	4.33	4.12	3.75	3.99	4.02	7.4***
My family and friends' views come first.	3.30	3.50	3.99	3.26	2.93	3.40	15.5***
Friends and family think that CAP support should help producers to maintain their farming activities.	3.18	2.30	3.62	4.08	3.93	3.36	77.2***
Friends and family think that farmers produce landscape and environmental goods.	3.03	2.73	2.40	3.94	3.42	3.09	45.8***
Farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money.	3.76	4.14	3.25	3.77	3.72	3.75	12.7***
A good farmer is a competitive producer of goods sold on the free market.	4.02	3.78	3.58	4.21	4.16	3.94	9.3***
My farming abilities will allow me to maintain an adequate profit level, whatever the European agricultural policy in place.	2.85	1.80	2.16	2.35	2.62	2.33	21.4***
Farmers should produce landscape and environmental goods.	3.32	3.90	2.25	4.03	4.40	3.61	144.6***
The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	3.49	3.06	3.47	3.73	2.68	3.27	18.4***
I can easily find a job off-farm or increase the number of hours I work off-farm.	3.11	2.31	2.49	3.29	3.11	2.83	16.6***

*** Statistically significant at 1% level.

6.5. Results from the cluster analysis

These factors form the basis of the cluster analysis. Using the criteria outlined in the methodology section, a five-cluster solution was obtained. Table 6-4 profiles the clusters presenting the mean values for each of the variables included in the factor analysis. It also displays the results for the analysis of variance (ANOVA), conducted in order to check the statistical significance of differences between clusters.

As discussed above, a set of variables excluded from the cluster analysis and related to demographic and structural characteristics is used to help profile and validate the clusters (Table 6-5 to Table 6-7). These include size as measured in ESUs, farm type, location in a LFA, employment history (years worked in farming, years spent managing a farm and years worked off-farm in manual or office work), household composition (number of household members aged under 18 and over 18), age of farmer and educational attainment proxied by the number of years in education. Table 9 details the behavioural intentions of each cluster. More specifically, behavioural intentions are assessed in terms of the proposed date of exit from agriculture (split into three time periods: within 5 years, between 5 and 10 years or after 10 years), planned activities after farming (e.g. retirement, engagement in off-farm work), plans for the farm after exiting the sector (e.g. pass on to successor, rent out land etc.) and expectations for farming activities before the cessation of own farming (which has been divided into three options: farm the same, increased and decreased land areas).

There are significant differences between the clusters in terms of the time period in which farmers expect to leave agriculture, their proposed occupational status after exiting farming and their plans whilst they remain in agriculture (Table 6-7). There is however no significant differences between the clusters in terms of the share of cluster membership who plan to pass their farm on to a successor, to sell, or rent out land after their own exit from agriculture. Similarly, there are no significant differences between the clusters in terms of the age of the respondent, number of years worked off-farm in manual work or household size (Table 6-4). This suggests that theories that claim that differences in attitudes to policy are primarily related to age might be misplaced.

Table 6-4: Profile of clusters according to demographic / structural variables external to the cluster analysis

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Total / Mean	F
Number of farms	148	196	146	150	153	793	
Share of the total panel (%)	18.7	24.7	18.4	18.9	19.3	100.0	
<i>Means</i>							
Number of years in education	12.4	12.7	12.8	14.2	15.7	13.5	14.8***
Age (years)	53.8	53.4	52.1	51.9	52.1	52.7	1.1
Number of years worked in farming	32.1	30.0	25.3	22.9	19.3	26.1	23.8***
Number of years managing a farm	23.1	19.8	19.2	17.1	12.5	18.4	22.6***
Number of years worked off-farm doing manual work	4.5	4.9	5.7	4.2	3.9	4.6	0.8
Number of years worked off-farm doing office work	2.7	2.3	3.7	6.0	10.1	4.9	19.6***
Number of Household Members aged under 18	0.8	1.0	1.0	1.0	0.9	0.9	1.1
Number of Household Members aged over 18	2.1	2.2	2.3	2.2	2.4	2.2	2.0*
European Size Units (ESU)	6.7	5.8	5.8	5.8	6.1	6.0	4.5***
<i>Share of Farms</i>							χ^2
Located in a Less Favoured Area (LFA) (%)	32.0	49.0	48.6	45.3	62.1	47.6	27.8***
Identified successor (%)	23.1	23.0	32.9	29.5	40.8	29.5	22.4***
Member of a farmers' union (%)	87.1	84.2	72.4	75.7	77.8	79.7	14.0***

*** Statistically significant at 1% level.

Note: F-test for continuous variables, χ^2 -test for dummy variables.

Table 6-5: Distribution of cluster members by country

	Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5		Total
	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number
England	30	20.3	67	34.2	27	18.5	18	12.0	7	4.6	149
Sweden	99	66.9	76	38.8	57	39.0	50	33.3	15	9.8	297
Lithuania	10	6.8	28	14.3	48	32.9	62	41.3	52	34.0	200
Slovakia	9	6.1	25	12.8	14	9.6	20	13.3	79	51.6	147
Total	148	100.0	196	100.0	146	100.0	150	100.0	153	100.0	793

Table 6-6: Distribution of cluster members by farm type

	Cluster 1		Cluster 2		Cluster 3		Cluster 4		Cluster 5		Total
	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number	% of cluster membership	Number
Specialist cereals, oilseeds & protein crops	29	19.7	43	22.2	31	21.2	44	29.3	59	38.6	206
General field cropping	21	14.3	23	11.9	24	16.4	26	17.3	32	20.9	126
Specialist dairying & cattle-dairying	55	37.4	64	33.0	46	31.5	34	22.7	24	15.7	223
Sheep, goats and other grazing livestock	5	3.4	25	12.9	10	6.8	8	5.3	7	4.6	55
Specialist granivores (e.g. pigs & poultry)	17	11.6	4	2.1	5	3.4	3	2.0	0	0.0	29
Mixed farms	19	12.9	35	18.0	29	19.9	31	20.7	30	19.6	144
Other	1	0.7	0	0.0	1	0.7	4	2.7	1	0.7	7
Total	147	100.0	194	100.0	146	100.0	150	100.0	153	100.0	790

Table 6-7: Behavioural intentions, by cluster

	% of each cluster					Mean in total sample	χ^2 -test
	1	2	3	4	5		
Intention to Leave Farming							
Leave within 5 years	27.7	19.0	23.4	18.8	15.9	20.8	15.714**
Leave within 5 and 10 years	27.0	26.5	24.1	22.2	17.4	23.6	
Leave after 10 years	45.4	54.5	52.6	59.0	66.7	55.5	
Activity after Farming							
Take early retirement	7.1	6.8	5.8	9.6	10.3	7.9	67.286***
Retire at normal age	71.4	65.3	54.7	46.6	40.7	56.2	
Engage in off-farm manual work	5.7	6.8	15.3	13.0	12.4	10.4	
Engage in off-farm non-manual work	8.6	7.9	12.4	24.0	27.6	15.7	
Other	7.1	13.2	11.7	6.8	9.0	9.8	
Proposed actions when cease farming							
Pass on farm to successor	57.7	59.8	46.2	51.1	56.6	54.7	7.087
Sell or cease renting land	21.1	27.6	29.7	26.0	24.1	25.7	3.045
Rent out land	16.1	14.5	24.2	23.1	20.7	19.4	7.029
Abandon land	5.8	3.9	0.8	2.2	0.7	2.8	10.179**
Plans before cessation of farming							
Farm same land area before cessation	61.3	70.7	59.4	63.9	49.0	61.4	17.355***
Farm increased land area	25.5	19.4	31.9	25.9	44.4	28.9	28.025***
Farm smaller land area	13.1	7.9	9.4	9.5	4.0	8.6	8.071*

* Statistically significant at the 1% level; ** Statistically significant at 5% level; *** statistically significant at 1% level.

The derived clusters are first described based on the variables included in the analysis. The description is then refined based on the structural and demographic variables presented in the previous paragraph together with intentions, which improves the profiling and validation of each cluster.

Cluster 1 – “Liberalisers”

This cluster is distinguished by significantly higher scores than other clusters for agreement with the statements that “farmers should not receive any commodity price support”, “farmers should not receive any subsidies related to environmental goods production” and “farmers should not receive any income support”. While farmers in the overall sample, on average, disagree with these statements, farmers in Cluster 1 neither agree nor disagree with them. This group also has slightly above average scores for the beliefs that “the CAP imposes too many restrictions on their future farming plans” and that “they can easily find a job off-farm or increase the number of hours they work off-farm”.

Based on Table 6-4 to Table 6-6, the profile of the group can be described further. In this group farmers from the NMS are significantly under-represented with 99 out of 148 members being Swedish. This group has above average sized farms, is significantly less likely to be located in a LFA and has the highest rate of membership of a farmers’ union. This

cluster has the highest mean number of years spent working in farming and number of years spent managing a farm despite having an average age close to the sample mean. Farmers in this group have also spent less time in formal education. One explanation for their relative indifference to the policy context and in particular to the existence of support could be that this cluster has the largest share of farmers operating in sectors that enjoy 'light' CAP support. Nearly 59 percent of the farms that can be classified as specialist granivores (i.e. pigs and poultry, which receive negligible assistance from the CAP), in the total sample, are members of this cluster. Table 6-7 indicates that this cluster contains the highest proportion of respondents that are looking to exit farming within ten years. The vast majority of these farmers will retire at the normal age (71 percent) with less than 20 percent expecting to seek other gainful activities after they have ceased farming. The majority (57.7 percent) will pass on their farm to a successor but a relatively high proportion intends to abandon land (5.8 percent). Before exiting the sector, the majority (61.3 percent) will not alter the amount of land they farm although compared to other clusters, a relatively high share are looking to downsize their farming operations (13.1 percent). The intentions of the majority of this cluster: to remain in agriculture with a constant farm size until retirement, corresponds to the findings of previous intentions studies in Western Europe (Harvey, 2000; Thomson and Tansey, 1982).

Cluster 2 – "Pessimists"

This group is distinguished by having the lowest mean scores for agreement with the statement "my farming abilities will allow me to maintain an adequate profit level, whatever the European agricultural policy in place". Farmers in this group also express the strongest disagreement with the statements "farmers should only produce food and fibres" and "I can easily find a job off-farm or increase the number of hours I work off-farm" and appear to be trading-off the most between the monetary and non-monetary benefits of farming (the strongest agreement with "farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money"). It is therefore a group recognising its dependency on support and limited skills. They also doubt their ability to find work in other sectors. Farmers in this group may be described as pessimists as they judge their adjustment abilities as quite low.

The validation based on Table 6-4 to Table 6-6 highlights important distinguishing features for this cluster. This group has the least experience of working off-farm in office jobs and a relatively low number of years in formal education. Almost one half are located in a LFA and 45 percent are based in England. When considering farm type, 45 percent can be

classified as sheep, goats and other grazing livestock farms. These farms are likely to be heavily dependent on the CAP for their viability with farmers seeing few opportunities outside of agriculture. Their low level of formal education limits the opportunities for off-farm work. Regarding their plans for when to exit agriculture, Cluster 2 is close to the mean for the overall sample with 54.5 percent expecting to leave after 10 or more years and few will take early retirement (6.8 percent). Hardly any expect to work outside of agriculture in the future and this may reflect their lack of experience of off-farm employment. The picture of both a reluctance and inability to change, painted by Harvey (2000) of farmers in northern England, is evident in this cluster: this group has the highest proportion of farmers that expect their farm size to be unchanged until they exit the sector (70.7 percent). Few have plans for expansion and in fact this cluster has the lowest proportion of farmers who are looking to expand (19.4 percent).

Cluster 3 – *“Protectionists, with a focus on primary agricultural production”*

This group is close to the sample mean for most of the Likert scales. Farmers in this cluster reject policy liberalisation and believe that farmers should concentrate on primary agriculture. They also feel that their friends and family share similar views regarding the need for an agricultural focus and a disdain for employment diversification. The cluster's members consult close friends and family when making decisions and respondents have a high motivation to comply with the views of those closest to them. One distinguishing feature of the cluster's farmers is their weak regard for environmental goods as evidenced by having the lowest mean scores for the statements “farmers should produce landscape and environmental goods” and “friends and family think that farmers produce landscape and environmental goods”. Farmers in this cluster also express the weakest agreement with the statements “a good farmer is a competitive producer of goods sold on the free market” and “farming is a more rewarding job in terms of quality of life, independence, lifestyle, than it is in terms of money”. This is therefore a group more interested in the monetary benefits of farming, opposed to the liberalisation of agricultural policies, have a weak regard for environmental goods and who are also wary of competition and a free-market.

The cluster embraces a mixture of farm types and countries, although 48 out of 146 farmers in the group are Lithuanian. As with their attitudes, the behavioural intentions of Cluster 3 are similar to the averages for the overall sample. The majority (52.6 percent) expect to remain in agriculture for at least another 10 years and farm the same land area before they cease farming (59.4 percent). However, compared to other clusters, the proportion of farmers seeking to increase their farm size in the future is high. The majority will retire at the normal

age (54.7 percent) although a relatively high proportion (15.3 percent) expect to engage in manual work after exiting agriculture. Overall their disposition to an agricultural focus and disdain for diversification is reflected in their behavioural intentions.

Cluster 4 – “Protectionists with a multifunctional focus”

This group strongly rejects notions of policy liberalisation, and judge that friends and family also strongly agree with the statement that “CAP support should help maintain their farming activities”. This group believes that “farmers should produce landscape and environmental goods” and embraces notions of multifunctional agriculture where farmers provide a range of goods, which should be supported by the state. As a result, the group registers a relatively low score for agreement with the statement that “farmers should only produce food and fibre”. Farmers in this group also seem to embrace more the notion of part-time farming as they express the strongest disagreement with the statement “friends and family think that farmers should not take off-farm jobs or embrace new careers, they should concentrate on farming” and the weakest disagreement with “farmers should not have to work off-farm to sustain their farming activities”.

From Table 6-4 to Table 6-6, it is evident that this group is comprised of farmers from a mixture of farm types but is weighted against England and Slovakia. Demographic and structural characteristics are close to the means for the sample. Cluster 4 has little intention to change their farming operations in future: 63.9 percent expect to farm the same land area up to the point that they exit. A small majority expect to pass their farm on to a successor, although only 29.5 percent have identified a successor, and most will retire at the normal age. However, compared to other clusters, in this group a higher share of farmers is planning to take early retirement or work off-farm after exiting agriculture. The proportion of farmers planning to decrease the size of their farm is also higher than the sample average.

Cluster 5 – “Enthusiastic New Entrants”

Regarding attitudes, this group strongly believes that farmers should concentrate on agriculture and “not have to work off-farm to sustain their farming activities”. They reject notions that farmers should not receive policy support and strongly endorse the view that farmers should produce landscape and environmental goods. It is also interesting to note that farmers in this cluster express the weakest agreement with the idea that the CAP system imposes too many restrictions on their future plans.

Using Table 6-4 to Table 6-6 to better profile the cluster’s members it is evident that farmers from the NMS make up 86 percent of this cluster, with the majority of the group coming from Slovakia. This group has been involved in agriculture for significantly fewer

years than other clusters with the mean number of years for having managed a farm being only 12.5. This suggests that many of the farmers in this cluster gained from land reform during the period of transition. Members of this cluster have on average spent 10 years working off-farm in office positions. The majority of farms in this cluster are engaged in arable production. This cluster has the most expansionist future plans: 44.4 percent expect to increase their farmed area and only 4 percent expect to reduce the number of hectares they manage. Few are also expecting to leave agriculture within 10 years. These expansionist tendencies may reflect the growth in protection and support to farmers that has been witnessed as a result of accession to the EU in the NMS. It appears that it is this cluster of relatively new entrants to farming that are seeking to exploit the opportunities of enlargement, rather than the farmers with a longer tradition of engagement in agriculture who predominate in Cluster 4. When members of Cluster 5 do leave agriculture, a relatively high share (27.6 percent) expect to enter non-manual work. This may again be linked to this group having more extensive employment experience outside of agriculture. As a result of these plans for non-agricultural gainful activities, only 51 percent expect to either retire at the normal age or take early retirement.

6.6. Conclusions

The econometric analysis of exit and growth in the five countries studied indicates that lifecycle characteristics, such as age and succession, have a major impact on farmers' intentions to stay in farming and grow across the countries studied. It also suggests that different policy impacts are to be expected across countries and crude generalisations contrasting the impact of decoupling between OMS and NMS should be avoided. Land is likely to be transferred from less to more productive users, increasing the competitiveness of European agriculture, but the rate of transfer is likely to remain relatively low. Only in Sweden and Slovakia do changes in agriculture policy have a noticeable effect on the decision to remain in agriculture.

Concerning the investigations of values and attitudes, the results highlight that the vast majority of farmers in the enlarged EU retain a productionist mindset, wish to maintain an agricultural focus and strongly reject notions of policy liberalisation. However while the overwhelming majority advocates protection, they are more receptive to greater flexibility in terms of the instruments through which policy support may be delivered. Overall, the strongest opposition to policy liberalisation comes from farmers in the NMS of the EU.

Chapter 7: Summary and conclusions

This report presents the findings of a study on the impact of decoupled payment system on farmers' intentions in five EU Member States. The analysis draws on primary survey data and farm accounting records. The FP6 IDEMA project collected a unique dataset of farmers' intentions regarding their planned activities in the post-accession / single payment system era in five EU Member States (France, Lithuania, Slovakia, Sweden and the UK). The choice of countries incorporates a mixture of EU-15 and NMS. Primary data were collected on intentions to exit from/stay within agriculture, change the amount of land farmed and production mix. Data were also collected about farmers' objectives, values and opinions concerning policy support. Primary data collection was linked to FADN records to enhance the understanding of the impact of farms' structural characteristics and past performance on future intentions, and reduce the amount of data which had to be collected during interviews. To understand the specific effects of the switch in policy, farmers were asked to state their intentions under two main policy scenarios:

- a) Continuation of Policies under Agenda 2000 in EU-15 / Pre-accession policies in NMS. This provides the baseline scenario of what farmers would have done under continuation of the previous policy environment.
- b) Intentions under CAP reform as implemented in each country: SFP in the EU-15 and the SAPS in the NMS.

The strategic decisions to exit from or stay in agriculture, and to increase farm area have been analysed through two Probit models for individual countries and the pooled sample of the five countries studied. Data on farmers' values and objectives across all five countries have been studied through cluster analysis in order to identify groups of farmers with similarly held beliefs and objectives, and understand their characteristics. The main conclusions are first summarised country by country and then on a cross-country basis.

According to farmers' intentions, the introduction of decoupled payments will have little direct effect on structural change in England. Few farmers plan to modify their exit or growth decisions under SFP arrangements compared to what they would have done if they faced a continuation of the Agenda 2000 policy environment. Under both scenarios the key characteristics of farmers seeking to exit in the short-term (defined as the next five years) were the same: elderly farmers, specialised in COP production and with high value added without net current subsidies per hectare.

The more pronounced adjustment concerns production choices (even though the majority of the respondents are not planning to change their output mix, some intend to decrease their cattle production) and to a certain extent diversification to off-farm activities. Therefore, this early empirical research suggests that in England the adjustments to the 2003 CAP reform are likely to be subtle and to concern mainly production activity choices and diversification.

A direct comparison between England and France would be illuminating due to the differences in the implementation of decoupling and different regulations concerning trade of entitlements in the two states. Unfortunately, due to the difficulties with data collection in France, direct comparisons are difficult to draw. The French sample is restricted in its geographical coverage and mountainous regions were not covered. Additionally, the regions surveyed are relatively homogenous and the farmers interviewed in general rely only partially on their on-farm income and are younger than the national average. Nevertheless, the French results are similar to the findings from England in that few farmers intend to alter their plans to exit or grow as a result of the introduction of the SFP. Intentions are little affected by the switch to SFP in France, which may be expected given the conservative manner in which France has chosen to implement the SFP. Relatively greater adjustment is likely to be witnessed, however, in the output mix of farms and the allocation of time devoted to farm/off-farm work.

In contrast to England and France, in Sweden the implementation of SFP is more likely to stimulate the structural change as some farmers are planning to exit earlier than they would have done under Agenda 2000. Very little land is however likely to be abandoned as the demand for land for farm growth persists after the change in policy. The predicted changes in production mix are also relatively stronger in the Swedish case and likely to be characterised by (a) a movement away from COP and (b) the extensification of their livestock production. They also intend to keep some land in GAEC without producing on it. These plans are consistent with prior expectations concerning the impact of decoupling, i.e. a reduced incentive to produce and to intensify farming practices.

Summarising our results, it becomes evident that farmers plan to apply a *minimal adjustment strategy* in response to changes in agricultural policy, at least in France and England. There is no strong evidence that farmers intend to drastically change their strategic decisions to exit agriculture. Few farmers are interested in merely keeping land in good agricultural and environmental condition (GAEC) and not producing. From this point of view, the results of our study are in line with previous studies which have sought to investigate

farmers intentions in response to policy change (Harvey, 2000; Tranter *et al.*, 2004; Chatellier and Delattre, 2005; Breen *et al.*, 2005). However, results for Sweden are in slight contrast with this, as farmers are intending to change their exit and growth plans depending on the policy in place.

In the NMS (Lithuania and Slovakia), the implementation of the 2003 CAP reform has a different meaning. The implementation of the SAPS in the NMS means a significant increase in the degree of protection afforded to farmers in the form of both higher and more predictable payments. Therefore, it is not surprising that in Lithuania the main impact of the payments is evidenced in a greater willingness to operate larger farms. As the returns to agricultural activities are expected to rise, farmers are less interested in diversification and have no wish to leave land uncultivated under GAEC. This comparable pattern is repeated in Slovakia: the switch from the pre-accession policy to the SAPS induces a significant rise in the numbers who wish to stay in agriculture. However, in Lithuania and Slovakia, the characteristics of those seeking to stay or expand do vary. Decision to stay or grow were poorly explained by the set of variable available for the analysis in Slovakia, while in Lithuania, farmers' characteristics were shown to be determinant (age, succession status and off-farm work experience). In Slovakia, likelihood of expansion is related to managerial experience and farm location (LFA regions). In Lithuania, expansion plans are linked to lifecycle variables (age and succession status).

In analysing the differences between the EU-15 countries and NMS, it should be noted, however, that what has been studied in the NMS is not so much the effect of a switch from coupled to decoupled payments but the effect of the introduction of the CAP payments as a result of EU accession. From this point of view, the differences in responses between the EU-15 and NMS are justified as the farmers respond to contrasting policy changes.

The comparative cross-country analysis generates several important insights for policy, stemming from the analysis of farmers' attitudes across the pooled sample of five states. First, most farmers still possess a productionist mindset and do not accept the idea that they could survive or be competitive without policy support. The sampled farmers strongly disagree with statements advocating the removal of policy support and, at the same time, express preferences for the full utilisation of agricultural land for agricultural production and concentration on farming. More than one-third of the respondents strongly disagree with the notion that good farming skills are sufficient to run a profitable business whatever the design of European policies. At the same time, a half of the respondents think that the CAP system of support imposes restrictions on their future farming plans. So, it appears that farmers rely on

policy support although a large proportion of them realise that this support might be conditional on some restrictions on their farming activities. The only farmers who endorse policy liberalisation are those who are largely based in sectors that traditionally receive little CAP support (pigs and poultry).

Second, the often advocated strategy of diversification and development of multiple income sources still creates difficulties for a substantial proportion of European farmers. This is due to a mixture of beliefs that farmers should focus on the production of food and fibre, and a lack of appropriate skills and off-farm opportunities. More than 40 percent of the respondents do not think they can easily find a job off-farm or increase the number of hours devoted to off-farm work. This emphasises once again the limitations of rural development policies that are focused solely on the farming community. Farmers are unlikely to create a significant number of new jobs through the pursuit of enterprise diversification, which is an infeasible option for many, and their own future prosperity depends on the availability of work in the non-farm rural economy. Pessimism surrounding the opportunities for diversification is not confined to the relatively poorer NMS. In fact, upland grassland farmers in England are the most pessimistic about their ability to adapt.

Third, although the overwhelming majority advocate protection, farmers are more flexible in terms of the instruments through which policy support might be delivered. One of the positive messages emerging from this research is that the majority of respondents agree with the need for farmers to produce attractive landscapes and positive environmental externalities, and be paid for this. The non-pecuniary benefits of farming also feature prominently. The latter are crucial for understanding why farmers' responses to policy reforms have been rather modest or at least more modest than expected.

Finally, the strongest opposition to policy liberalisation comes from farmers in the NMS. Newcomers to farming in the NMS strongly reject policy liberalisation and endorse notions that farmers should concentrate on agriculture which corroborates with the previously mentioned intentions to stay longer in agriculture or grow more. For them diversification seems to be associated with liberalisation tendencies. These views are likely to have important implications for the decision-making processes surrounding agricultural policy reform in the EU. The new entrants to the Union are expected to strengthen the political opposition to agricultural policy reform and undermine attempts to extend the reform measures, including the capping and further modulation of the Single Farm Payment.

References list

- Agreste (2003) L'Agriculture, la Forêt et les Industries Agroalimentaires. *GraphAgri*, Ministère de l'Agriculture et de la Pêche, 171 p.
- Ajzen, I. (1998) Attitudes, Personality and Behaviour, Milton Keynes: Open University Press.
- Ajzen, I. and Driver, B. L. (1992) Application of the Theory of Planned Behavior to Leisure Choice. *Journal of Leisure Research*, 24, 207-224.
- Andersson, F. (2004) Decoupling: The concept and past experiences. *IDEMA project. Deliverable 1*.
- Baffes, J. (2004) Experience with Decoupling Agricultural Support. University of Georgia.
- Bagozzi, R.P. (1981). Attitudes, intentions and behavior: A test of some key hypothesis. *Journal of Personality and Social Psychology*, 41, 607-627.
- Balkhausen, O., Banse, M., Grethe, H. and Nolte, S. (2005) Modelling the Effects of Partial Decoupling on Crop and Fodder Area and Ruminant Supply in the EU: Current State and Outlook. *Paper prepared for presentation at the 89th seminar of the EAAE, Parma, Italy, 3-5 February 2005*.
- Bergevoet, R.H.M., Ondersteijn, C.J.M., Saatkamp, H.W., van Woerkum, C.M.J. and Huirne, R.B.M. (2004), Entrepreneurial behaviour of Dutch dairy farmers under a milk quota system: goals, objectives and attitudes, *Agricultural Systems*, 80(1), 1-21
- Brady, M. (2006) Descriptions of Agricultural Regions in Sweden. Personal communication. June 2006.
- Breen, J. P., Hennessy, T. C. and Thorne, F. S. (2005) The Effect of Decoupling on the Decision to Produce: An Irish Case Study. *Food Policy*, 30.
- Chaplin, H., Davidova, S. and Gorton M. (2004), Agricultural adjustment and the diversification of farm households and corporate farms in Central Europe, *Journal of Rural Studies*, 20(1), 61-77.

- Chatellier, V. and Delattre, F. (2005) Les Soutiens Directs et le Decouplage dans les Exploitations Agricoles de Montagne. *Communication au Symposium international "Territoires et enjeu du developpement regional", Lyon, France, 9-11 Mars 2005.*
- Ciaian, P. and Swinnen, J. (2005) Market Imperfections and Agricultural Policy Effects on Structural Change and Competitiveness in an Enlarged EU. *Paper prepared for presentation at the XIth Congress of the EAAE "The Future of Rural Europe in the Global Agri-Food System", Copenhagen, Denmark, August 24-27, 2005.*
- Ciaian, P. and Swinnen, J. (2006) Land Market Imperfections and Agricultural Policy Impacts in the New EU Member States: A partial Equilibrium Analysis. *American Journal of Agricultural Economics*, 88, 799-815.
- Collender, R., Mitchell, M. (2004). Decoupled Payments to Farmers, Capital Markets, and Supply Effects. Chapter 5, pp 40-48 IN USDA/ERS. *Decoupled Payments in a Changing Policy Setting*. Agricultural Economic report No. 838.
- CEC (2002), 'Communication from the Commission to the Council and the European Parliament. Mid-term Review of the Common Agricultural Policy', COM(2002) 394 final, Brussels.
- Council of the European Union (2003) Council Regulation (EC) No 1782/2003. *Official Journal of the European Union*, L270, 1-69.
- Cruse, L. and Maybery, D. (2003), Personality, Objectives, Attitudes, Intentions and Behaviour: Modelling the Adoption of Current Recommended Practice by Farmers in the NSW Murray Catchment. *Paper Presented at the Australian Agricultural and Resource Economics Society Conference*, February, Fremantle
- Douarin, E. (2006) Impact of the Implementation of the Single Farm Payment in Sweden on Farmers' Decision to Remain in the Sector and Produce. *Paper prepared for presentation at the 93rd seminar of the EAAE, Prague, Czech Republic, 22-23 September 2006.*
- Douarin, E., Bailey, A., Blaas, G., Bozik, M., Davidova, S. and Latruffe, L. (2006) Potential Impact of the CAP Single Area Payment on the Structural Change in Slovakia. *Paper prepared for presentation at the 96th seminar of the EAAE, FAT Tanikon, Switzerland, 10-11 January 2006.*
- Ehrensaft, P., LaRamee, P., Bollman, R. D. and Buttel, F. H. (1984) The Microdynamics of Farm Structural Change in North America: The Canadian Experience and Canada-U.S.A. Comparisons. *American Journal of Agricultural Economics*, 66, 823-828.

Ekman, S. (2004) Policies in Regions - Sweden. *Internal communication IDEMA project*.

Eurobarometer (2000). Farmers' Attitudes Towards the CAP, Eurobarometer Flash Study No.86, DG Agriculture, mimeo.

European Commission (2005). Agriculture in the European Union: statistical and economic information 2004, Brussels: DG for Agriculture and Rural Development, mimeo.

Fiegenbaum, A. and Thomas, H. (1993). Industry and of strategic group dynamics: competitive strategy in the insurance industry, 1970-84. *Journal of Management*, 30, 69-105.

Gasson, R. and Errington, A. (1993). *The Farm Family Business*. CAB International, Wallingford.

Goodwin, B. K. and Mishra, A. K. (2005) Another Look at decoupling: Additional Evidence on the Production Effects of Direct Payments. *American Journal of Agricultural Economics*, 87, 1200-1210.

Gorton, M., Douarin, E., Davidova, S. and Latruffe, L., (2006). Attitudes to Farming and Agricultural Policy in the Context of 2003 CAP Reform: a comparison of farmers in selected established and new Member States. Paper prepared for presentation at the 93rd seminar of the EAAE, Prague, Czech Republic, 22-23 September 2006.

Gullstrand, J. (2005) Who Survives and Who Grows After EU Membership? The Case of Swedish Milk Farmers. *SLI Working Paper*, 4, 19 p.

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C., (1998). *Multivariate Data Analysis* (Fifth Edition). Prentice Hall International, New Jersey.

Harsche, J. (2005) Determinants of the Extension of Part-time Farming - Results from a Probit. *Paper prepared for presentation at the XIth Congress of the EAAE. "The Future of Rural Europe in the Global Agri-Food System". Copenhagen, Denmark August 24-27, 2005.*

Harvey, D. R. (2000) Farmers' Intentions Survey, 1994-1997: Final Report. *Special Studies in Agricultural Economics*.

Heckman, J. J. (1979) Sample Selection Bias as a Specification Error. *Econometrica*, 47, 153-162.

- Hennessy, D. A. (1998) The Production Effects of Agricultural Income Support Policies under Uncertainty. *American Journal of Agricultural Economics*, 80, 46-57.
- Jensen, H. G. and Frandsen, S. E. (2003) Impacts of the Eastern European Accession and the 2003-reform of the CAP: Consequences for Individual Member Countries. *Danish Research Institute of Food Economics (FOI) - Working Paper*.
- Jensen, F. and Langemeier, L. (1996) Optimal Leverage with Risk Aversion: Empirical Evidence. *Agricultural Finance Review*, 56, 85-97.
- Kaiser, H.F. (1970). A Second Generation Little Jiffy. *Psychometrika*, 35, 401-415.
- Kay, A. (1998). *The Reform of the Common Agricultural Policy: The case of the MacSharry reforms*. Wallingford: CAB International.
- Ketchen, D.J., Shook, C.L. (1996). The Application of Cluster Analysis in Strategic Management Research: an Analysis and Critique. *Strategic Management Journal* 17, 441-458.
- Kim, M.S. and Hunter, J.E. (1993). Attitude-Behavior Relations: A Meta-Analysis of Attitudinal Relevance and Topic. *Journal of Communication*, 43(1), 101-142.
- Kimhi, A. (2000) Is Part-Time Farming Really a Step in the Way Out of Agriculture? *American Journal of Agricultural Economics*, 82, 38-48.
- Kimhi, A. and Bollman, R. (1999) Family Farm Dynamics in Canada and Israel: the Case of Farm Exits. *Agricultural Economics*, 21, 69-79.
- Kjeldahl, R. and Tracy, M. (1994). *Renationalisation of the Common Agricultural Policy?* Copenhagen: Institute of Agricultural Economics; and La Hutte, Belgium: Agricultural Policy Studies.
- Lass, D.A. and Gempeshaw, C.M. (1992). The Supply of Off-Farm Labour: a random Coefficients Approach. *American Journal of Agricultural Economics*, 74, 400-411.
- Leone, L., Perugini, M. and Ercolani, A.P. (1999). A comparison of three models of attitude-behavior relationships in the studying behavior domain. *European Journal of Social Psychology*, 29(2-3), 161-189.

- Leung, S. F. and Yu, S. (1996) On the Choice Between Sample Selection and Two-Part Models. *Journal of Econometrics*, 72, 197-229.
- Leung, S. F. and Yu, S. (2000) Collinearity and Two-Step Estimation of Sample Selection Models: Problems, Origins, and Remedies. *Computational Economics*, 15, 173-199.
- Ministry of Agriculture Food and Consumer Affairs (2004) Implementation of the EU agricultural reform in Sweden.
- Peerlings, J. (2005) Effects on Investment of the 2003 CAP Reform: A Household Production Model for Dutch Dairy Farms. *paper prepared for presentation at the XIth Congress of the EAAE "The Future of Rural Europe in the Global Agri-Food System", Copenhagen, Denmark, August 24-27, 2005.*
- Pietola, K., Vare, M. and Oude Lansink, A. (2003) Timing and type of exit from farming: farmers' early retirement programmes in Finland. *European Review of Agricultural Economics*, 30, 99-116.
- Puhani, P. A. (2000) The Heckman Correction for Sample Selection and its Critique. *Journal of Economic Surveys*, 14, 53-68.
- Punj, G. and Stewart, D. (1983). Cluster Analysis in Marketing Research: Review and Suggestions for Application. *Journal of Marketing Research*, 20, 134-148.
- Renwick, A., Revell, B. and Hodge, I. (2003) Preliminary Analysis of Partial Decoupling: Final Report for the Department for the Environment, Food and Rural Affairs. IN Cambridge, H. A. U. C. a. U. o. (Ed.).
- Revell, B. and Oglethorpe, D. (2003) Decoupling and UK Agriculture: a Whole Farm Approach. An Appraisal of the Impact on the Livestock Sector., DEFRA.
- Rizov, M. and Mathijs, E. (2003) Farm Survival and Growth in Transition Economies: Theory and Empirical Evidence from Hungary. *Post-Communist Economies*, 15, 227-242.
- Roberts, M. (2004) Effects of Government payments on Land Rents, Distribution of Payment Benefits, and Production. IN USDA, Burfisher, M. & Hopkins, J. (Eds.) *Decoupled Payments in a Changing Policy Setting.*
- Saba, A. and Vassallo, M. (2002), Consumer attitudes toward the use of gene technology in tomato production, *Food Quality and Preference*, 13(1), 13-21

- Sadoulet, E., De Janvry, A. and Davis, B. (2001) Cash Transfer Programs with Income Multipliers: PROCAMPO in Mexico. *World Development*, 29, 1046-1056.
- Serra, T., Goodwin, B. K. and Featherstone, A. M. (2005a) Agricultural Policy Reform and Off-Farm Labour Decisions. *Journal of Agricultural Economics*, 56, 271-285.
- Serra, T., Zilberman, D., Goodwin, B. K. and Featherstone, A. M. (2005b) Effects of Decoupling on Agricultural Output Mean and Variability. *AEEM Lunchtime Seminar, Wye College*.
- Slangen, L.H.G., van Kooten, G.C. and Suchánek, P. (2004). Institutions, Social Capital and agricultural change in Central and Eastern Europe, *Journal of Rural Studies*, 20(2), 245-56.
- Stiglbauer, A. M. and Weiss, C. R. (2000) Family and Non-Family Succession in the Upper-Austrian Farm Sector. *Cahiers d'Economie et Sociologie Rurales*, 54, 6-26.
- Swinbank, A. and Tangermann, S. (2000) A Proposal for the Future of Direct Payments under the CAP.
- Swinbank, A., Tranter, R., Daniels, J. and Wooldridge, M. (2004) An Examination of Various Theoretical Concepts behind Decoupling and Review of Hypothetical and Actual Decoupled Support Schemes in some OECD Countries. *GENEDEC Project, Deliverable D1.1*.
- Thomson, K. J. and Tansey, A. W. (1982) Intentions Surveys in Farming. *Journal of Agricultural Economics*, 33, 83-88.
- Tranter, R., Costa, L., Knapp, T., Little, J. and Sottomayor, M. (2004) Asking Farmers about their Response to the Proposed Bond Scheme. IN Swinbank, A. & Tranter, R. (Eds.) *A Bond Scheme for Common Agricultural Policy Reform*. CABI Publishing.
- Upton, M. and Haworth, S. (1987) The Growth of Farms. *European Review of Agricultural Economics*, 14, 351-366.
- USDA (2003) Decoupled Payments: Households Income Transfers in Contemporary US. ERS USDA.

USDA (2004) Decoupled Payments in a Changing Policy Setting. *Agricultural Economic Report No. 838*. ERS, USDA.

Vare, M., Weiss, C. R. and Pietola, K. (2005) Should One Trust a Farmer's Succession Plan? Empirical Evidence on the Intention-Behaviour Discrepancy from Finland. *paper prepared for presentation at the XIth Congress of the EAAE "The Future of Rural Europe in the Global Agri-Food System", Copenhagen, Denmark, August 24-27, 2005.*

Walford, N. (2003), Productivism is allegedly dead, long live productivism. Evidence of continued productivist attitudes and decision-making in South-East England, *Journal of Rural Studies*, 19(4), 491-502.

Webber, D. (1999). Franco-German Bilateralism and Agricultural Politics in the European Union: The Neglected Level, *West European Politics*, 22(1), 45-67.

Weersink, A., Nicholson, C. and Weerhewa, J. (1998). Multiple Job-Holding among Dairy Farm Families in New York and Ontario. *Agricultural Economics*, 18, 127-143.

Willock, J., Deary, I.J., Edwards-Jones, G., Gibson, G., McGregor, M.J., Sutherland, A., Dent, J.B., Morgan, O. and Grieve, R. (1999a). The role of attitudes and objectives in farmer decision-making: Business and environmentally oriented behaviour in Scotland. *Journal of Agricultural Economics*, 50(3), 286-303.

Willock J., Deary, I., McGregor, M., Sutherland, A., Edward-Jones, G., Morgan, O., Dent, B., Grieve, R., Gibson, G. and Austin, E., (1999b). Farmers' attitudes, objectives, behaviors, and personality traits: The Edinburgh study of decision-making on farms. *Journal of Vocational Behavior*, 54(1), 5-36.

Wooldridge, M., Tranter, R., Bamiere, L., Kuepker, B., Kelly, P., Arfini, P., Donati, M., Ferro, S. and Pecci, F. (2005) A Report Summarising Stakeholders' Reactions to the Introduction of Decoupled Support System for Agriculture in France, Germany, Ireland, Italy and the United Kingdom. *GENEDEC Project. Deliverable D1.2.*

Chapter 8: Appendices

Annex 1: Survey questionnaire (England)

The logo consists of a dark green rounded rectangle with the word "IDEMA" written in a white, serif, all-caps font, centered within the rectangle.

IDEMA

Impact of the Single Farm Payment on Farmers' Strategic Decisions

Introduction and questionnaire

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Introduction

2005 heralds a significant change in the way that the European Union (EU) channels monetary support to farmers under the Common Agricultural Policy (CAP). From 2005, farmers will receive payments independent of their level of production (with the exception of milk and sugar) or type of production, as long as they keep their land in 'good agricultural and environmental condition'. This change in policy represents a major shift in the CAP and might change farmers' incentives to produce and to invest. As the new payment system will no longer be related to the type of production chosen or the level of production achieved, farmers are expected to adopt more market oriented behaviour.

This study forms an important component of the EU funded IDEMA project (The Impact of Decoupling and Modulation in the Enlarged Union: a sectoral and farm level assessment). This study is focusing on how the implementation of Single Farm Payment (SFP) might change farmers' strategic decisions. The two main foci of this study are on a) the impacts of this decoupled policy on farmers and b) the behaviour of farmers in utilising the SFP itself.

Similar studies will be simultaneously conducted in other EU countries, namely France, Sweden, Lithuania and Slovakia.

This study will:

- Provide information on farmers' opinions toward, and their intentions to react to, the change in policy.
- Provide information on the effect of decoupling of interest for the agricultural economists and policy analysts.

It is hoped that the results of this study will inform policy analysis in the European context (reports will be transmitted to the European Commission) to ensure that policy implementation contributes toward stated policy objectives.

Objectives

Understand how the change in policy, planned at the European level for 2005, will affect farmers' strategic decisions.

Sample

The data collected will be matched with their FADN entries for 1999-2002. This will help have an idea about the immediate effect of Agenda 2000 and provide a dynamic view of the business. It is therefore important that the farms selected in the sample were in the FADN since 1999.

Then, this change in policy will not affect every type of business and we therefore choose to limit our study to the following farm' types:

- cereals & oilseeds;
- beef & dairy;
- specialist livestock.

Following the codes for the types of farming (TF) in the Community typology, the farms' types of interest are:

TF	Description	Corresponding FBS Type
13	Specialist cereals, oilseed and protein crops	1, 21
14	General field cropping	2, 22
41	Specialist dairying	9, 10
42	Specialist cattle- rearing and fattening	12, 14, 15
43	Specialist cattle- dairying, rearing and fattening combined	13, 14, 15
44	Sheep, goats and other grazing livestock	11, 13, 14, 15, 23
50	Specialist granivores	7, 8, 20
71, 72	Mixed livestock	20, 22
81, 82	Mixed crops	16, 17, 18, 19, 22

These TF correspond to the two first digits of the EUPFT (European Union Particular Farm Types), calculated from the FBS returns and available on the "per-validation output" received from DEFRA. The corresponding FBS types are given here for information.

Sample selection:

The aim is to generate a stratified sub-sample (of N farms) reminiscent of a "scaled-down" image sample (the FADN population) which is itself a stratified image of the sub-sample of the population.

This can be accomplished in one of two ways:

Either;

1. Use the FADN weights to determine the number of farms in each farm type and size group such that the total for the FADN sub-sample = N . From this you can derive a quantity, N_i , the number of desired observations in type/size group i . Ensure that these quantities are rounded up to whole numbers.
2. Select farms as random draws and place in the respective group. Keep that observation if the number in that group is less than the total desired, N_i .
3. Stop the process once all N_i are satisfied.

Or;

1. Perform 1 above.
2. Split the FADN sample into type/size groups and select N_i observations within each group at random.

Sample size: N as specified on your contract.

Confidentiality

The data collected will be handled as confidential and will not be released to a third party. When releasing the results, Imperial College will ensure that data relating to groups of less

than 3 individuals are neither disclosed to third parties in any form nor allow the identification of any individual farm or company.

Submission of record

Once records have been checked for readability and accuracy, hard copies should be sent by mail to:

Elodie Douarin
AEBM Department
Imperial College London
High Street, Wye
Ashford Kent
TN25 5AH

Timetable

Date	Activity
See contract	Local coordinator send 50 % of records to Wye
See contract	Local coordinator send 100 % of records to Wye

Queries

You can address all your queries by e-mail to Miss Elodie Douarin at Wye (elodie.douarin@imperial.ac.uk)

Questionnaire to the farm operator:

This questionnaire should be answered by only one of the farm partners. It consists of 6 independent sections. Many thanks in advance for your time and help.

FBS Farm Reference No.

EUPFT (sampling):.....

Section 1: Your Background

Part 1.1. You:

- 1.1.1. How many years from the age of 16
have you worked in farming? (years)
of those have you managed a farm? (years)

- 1.1.2. Did you receive a formal agricultural or farming specific education?

Yes ☐

No ☐

- 1.1.3. How many years have you worked off-farm:

Doing manual work (years)

Doing office or non-manual work (years)

- 1.1.4. Please tick the description that fits you best:

I am a member of a farmers' union and I regularly attend the meetings ☐

I am a member of a farmers' union but rarely attend the meetings ☐

I am not a member of a farmers' union ☐

Part 1.2. Your household's composition:

- 1.2.1. In your household, how many people are:

under 18?

over 18?

Part 1.3. Successor:

- 1.3.1. Have you identified a (or several) successor(s) for your farm? Tick one box only.

No ☐

Too early to say ☐

Yes ☐

If you have ticked "no" or "too early to say", go to **Section 2**.

- 1.3.2. Does your successor(s) work on your farm (whether full time or not)?

Yes ☐

No ☐

Questionnaire

Section 2: Your values

Part 2.1. Your opinions:

How do the following statements fit with your **own opinions or beliefs** without consideration of what others think or to what the politicians seem to want from you? Please circle a number according to your level of agreement (rating scale going from 1 strongly agree to 5 strongly disagree).

	strongly agree					strongly disagree				
2.1.1. A good farmer is a competitive producer of goods sold on the free market.	1	2	3	4	5					
2.1.2. Farm land should be fully used for agricultural production.	1	2	3	4	5					
2.1.3. Farmers should only produce food and fibres.	1	2	3	4	5					
2.1.4. Farmers should produce landscape and environmental goods.	1	2	3	4	5					
2.1.5. Farmers should not have to work off-farm to sustain their farming activities	1	2	3	4	5					
2.1.6. Farming is a more rewarding job in terms of quality of life, independence, life style, than it is in terms of money.	1	2	3	4	5					
2.1.7. I can easily find a job off-farm or increase the number of hours I work off-farm.	1	2	3	4	5					
2.1.8. Farmers shouldn't receive any commodity price support.	1	2	3	4	5					
2.1.9. Farmers shouldn't receive any government or European payments related to environmental goods production.	1	2	3	4	5					
2.1.10. Farmers shouldn't receive any income support.	1	2	3	4	5					
2.1.11. My farming abilities will allow me to maintain an adequate profit level, whatever the European agricultural policy in place.	1	2	3	4	5					
2.1.12. I have to keep my farm running (to secure my succession or for other reasons).	1	2	3	4	5					
2.1.13. The CAP system of subsidies imposes too many restrictions on my plans for the future of my farming activities.	1	2	3	4	5					

Questionnaire

Part 2.2. Your environment's point of view.

How do the following statements fit with **your perception** of the **opinions of others** in your circle of friends, family and other people of importance to you? Please circle a digit according to your level of agreement (rating scale going from 1 strongly agree to 5 strongly disagree).

	strongly agree				strongly disagree
2.2.1. They think that farmers produce agricultural commodities, only.	1	2	3	4	5
2.2.2. They think that farmers produce landscape and environmental goods.	1	2	3	4	5
2.2.3. They think that CAP support should help producers to maintain their farming activities.	1	2	3	4	5
2.2.4. They think that farmers should not take off-farm jobs or embrace new careers. They should concentrate on farming.	1	2	3	4	5

Part 2.3. Your decisions

How do the following statements fit with the way you make your decisions? Please circle a digit according to your level of agreement (rating scale going from 1 strongly agree to 5 strongly disagree).

	strongly agree				strongly disagree
2.3.1. When making key decisions about the farm I consult other members of my family and close friends.	1	2	3	4	5
2.3.2. When making key decisions about the farm I consult agricultural or other business advisors and other figureheads.	1	2	3	4	5
2.3.3. My family and friends' views come first.	1	2	3	4	5

Questionnaire

Section 3: Your household investments and goals

(If you do not hold any off-farm assets please proceed to Q 3.2)

3.1. In each of the preceding 5 years, what proportion of your total business assets did you, or any member of your household, hold off-farm? In the following, these assets will be referred to as off-farm assets.

What share of your household total (on- and off-farm) revenue and total (on- and off-farm) profit did these assets generate?

Please fill in the following table.

	2003	2002	2001	2000	1999
Valuation of off-farm assets, as a share of total assets%%%%%
Share of total revenue generated by off-farm assets%%%%%
Share of total profit generated by off-farm assets%%%%%

3.2. What is the % contribution of the following income sources to your total **household** income (including both on- and off-farm incomes)?

Please fill in the following table to the nearest 5% points.

Income stemming from:	% of households total combined income
Income from on-farm activities (agricultural or non-agricultural) (private drawings) (%)
Self-employment income from off-farm activities (private drawings) (%)
Paid work on another farm (%)
Paid work outside farming (%)
Others (pensions, incomes from investments, etc) (%)

(Total = 100.)

Questionnaire

3.3. This is a 3 part question. We are now interested in your objectives when making decisions concerning your farming and non-farming activities. In the following table, 5 possible objectives are listed in column *A*. Please answer the questions in column *B*, *C* and *D*.

<i>A</i> ↓	<i>B</i> ↓	<i>C</i> ↓	<i>D</i> ↓
<i>Goals/Objectives</i>	<i>Please rank the objectives listed in column A from 1 to 5 (with 1 for the most important for you and 5 for the least important).</i>	<i>Please state the value you aim for each objective <u>per year</u>. This value should reflect your usual aspiration while making decisions. It may not reflect what you are really achieving for the moment but should represent your realistic objectives.</i>	<i>What percentage of the amount stated in column C are you prepared to fund by debt?</i>
Provide for needs of the household	£.....%
Investment in activities on the farm (agricultural or non agricultural)	£.....%
Investment in activities off-farm	£.....%
Maximise farm profit		
Avoid excessive debt		

Instructions

Section 4: Future of your farm

The objective of this section is to allow us to gain an understanding of the future you would anticipate for your farm under 3 different European agricultural policy scenarios. Three policy scenarios will be presented to you in, and the same questions will be asked for each of the three scenarios.

Please note that in this section, our definition of farming includes keeping your land “in good agricultural and environmental conditions” without producing.

Scenario 1: Status quo: pre-2004 policy remains in place

Imagine that the agricultural policy in place in 2004 will be maintained in the coming years. We would like to know what you would be doing in this context.

Please describe in the fourth column of the following table what you would do under this scenario.

Scenario 2: Introduction of the Single Farm Payment (Historic basis)

In 2005, the CAP direct payments will shift to a Single Farm Payment (SFP) given to farmers with no obligation to produce, as long as the land is kept in “good environmental and agricultural condition”. This payment will replace most of the former payments given through the CAP and will be calculated according to the farmer’s historic claims of payment only for the foreseeable future.

Please describe in the fifth column of the following table what you would do under this scenario.

Scenario 3: Full decoupling policy (Regional basis)

Imagine that from 2005 onwards, the Single Farm Payment will be 100% on a regional basis, that is to say not based on your historical claim at all. Farmers will receive a flat-rate area payment for all their agricultural land, except areas under permanent crops (e.g. orchards and vineyard). To receive these payments, they will have no obligation to produce as long as they keep their land in good agricultural and environmental condition.

Please describe in the sixth column of the following table what you would do under this scenario.

Questionnaire
Section 4 (see reverse for instructions)

Section 4 (see reverse for instructions)

	Question	Possible responses	Scenario 1 (No Change to policy)	Scenario 2 (Historic Basis)	Scenario 3 (Regional Basis)
4.1.	When would you plan to cease farming? (that is to say, stop producing and stop keeping your land in "good agricultural and environmental condition")	Between 2005 and 2010 Between 2011 and 2015 Beyond 2015	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.2.	When you ceased farming, what would you do?	Take early retirement Retire at the normal age Be self-employed in manual work Be self employed in non-manual work Be employed off-farm in manual work Be employed off-farm in non-manual work Other	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.3.	What would you do with the farm when you ceased farming?	Pass on to successor Sell or cease renting in land Let out Abandon	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.4.	What would you do with your land in the interim period (before ceasing to farm) Please tick one box only and state how the change would happen in terms of hectares.	Farm the same area Increase the area you farm by: a. Reduce area of Set-Aside b. Seeking to purchase land c. Seeking to increase rented in land d. Decrease rented out land e. Conversion of land from non-agricultural activity (e.g. forestry) Decrease the area you farm by: a. Increase area of Set-Aside b. Seeking to sell land c. Decrease land rented in d. Seeking to increase rented out land e. Pass on land to successor f. Conversion of land to a non-agricultural activity (e.g. forestry) g. Withdraw land from production but maintain in good environmental and agricultural condition	<input type="checkbox"/> <input type="checkbox"/> Ha change: <input type="checkbox"/> Ha change:	<input type="checkbox"/> <input type="checkbox"/> Ha change: <input type="checkbox"/> Ha change:	<input type="checkbox"/> <input type="checkbox"/> Ha change: <input type="checkbox"/> Ha change:

Questionnaire

	Question		Scenario 1 (No Change to policy)	Scenario 2 (Historic Basis)	Scenario 3 (Regional Basis)
4.5.	IF it would be your intention to still be farming in 5 years time, AND you would change your system in the light of the different scenarios, please indicate how it would change:	<p>Cereals, Oilseed and Protein crops:</p> <p>a. Start b. Increase c. Decrease d. Quit e. No change</p> <p>Planned change to Hectares :</p> <p>.....Ha</p> <p>Roots, Potatoes, field vegetables, other field crops:</p> <p>a. Start b. Increase c. Decrease d. Quit e. No change</p> <p>Planned change to Hectares :</p> <p>.....Ha</p> <p>Forage and pasture:</p> <p>a. Start b. Increase c. Decrease d. Quit e. No change</p> <p>Planned change to Hectares :</p> <p>.....Ha</p> <p>Milk Production</p> <p>a. Start b. Increase c. Decrease d. Quit e. No change</p> <p>Planned change to numbers:</p> <p>.....Head</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Head</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Head</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Ha</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>.....Head</p>

Questionnaire

			Scenario 1 (No Change to policy)	Scenario 2 (Historic Basis)	Scenario 3 (Regional Basis)
4.5.		Rearing, fattening cattle:			
cont		a. Start	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		b. Increase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		c. Decrease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		d. Quit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		e. No change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planned change to numbers:	.....Head	.....Head	.....Head
		Sheep, goats and other grazing cattle:			
		a. Start	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		b. Increase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		c. Decrease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		d. Quit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		e. No change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planned change to numbers:	.....Head	.....Head	.....Head
		Pigs and poultry:			
		a. Start	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		b. Increase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		c. Decrease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		d. Quit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		e. No change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planned change to numbers:	.....Head	.....Head	.....Head
		Other, please specify			
		a. Start	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		b. Increase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		c. Decrease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		d. Quit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		e. No change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Planned change to numbers/hectares:	.....Ha/Head	.....Ha/Head	.....Ha/Head

Questionnaire

[illegible]

Section 5: Other types of subsidies

5.1. What percentage of the total level of subsidy payments you received in 2003 do organic and agri-environmental payments represent?%

Section 6: Credibility

6.1. By 2013, what do you think will have happened to EU payments to farmers? Please circle a digit according to your opinion (rating scale going from 1 "not probable at all" to 6 "very probable").

	Not probable at all						Very probable
	1	2	3	4	5	6	
6.1.1. Payments decoupled from production but conditional on other service provision will be maintained.							
6.1.2. Farmers will receive no support payments what so ever.							
6.1.3. Payments will be recoupled to agricultural production.							

Thank you for your time and help!

Annex 2: England

This appendix presents the tables referring to the English survey, not provided in the core of the text.

Description of the sample

Table 8-1: Characteristics of the farms surveyed, %, shares of farms in 2002

Legal form (share of farms)	
Sole trader	54
Partnership	43
Company	3
Share of farms in regions	
1. Newcastle	43
2. Askham Bryan	10
6. Wye	16
9. Exeter	31
Share of farms in LFA	
Any LFA	26
Mountain LFA	19
Share of farms in structural fund zones	
In Objective 1 area	0
In Objective 2 area	37

Table 8-2: Characteristics of the persons who answered the survey

	Mean (or share)	Std dev
<i>Age and education</i>		
Age	55.0	9.5
Share of respondents according to their education, %		
School only	24	
GCSE or equivalent	27	
A-level or equivalent	10	
College	19	
Degree	10	
Postgraduate	3	
Apprenticeship	6	
Other	1	
Share of respondents having agricultural education, %	56	

<i>Work experience</i>		
Time worked in farming (years)		
In total	35.2	10.0
As a farm manager	22.0	9.9
Time worked off-farm (years)		
In total	3.5	9.3
As a white collar	3.0	7.6
As a blue collar	1.2	5.8
<i>Participation in farmers' union</i>		
Share of respondents, %, being		
Active members	19	
Passive members	62	
Not members	19	
<i>Household composition</i>		
Number of people in household		
Under 18	0.9	1.1
Over 18	2.1	0.9
<i>Successor</i>		
Share of respondents, %		
Having identified a successor	25	
Thinking it is too early to say	45	
Having not identified a successor	31	
Share of respondents having identified a successor with successor on-farm, %	15	

^a This figure is probably due to the fact that one respondent did not count himself/herself in the number of people over 18 in his/her household.

Table 8-3: Sources of household income; % of household's total combined income

	Mean	Std dev
Income from on-farm activities (agricultural or not)	75.2	27.2
Self-employment income from off-farm activities	4.4	16.4
Paid work on another farm	2.4	10.1
Paid work outside farming	8.0	17.3
Others (pensions, incomes from investments, etc)	9.8	17.0

(From question 3.2 in questionnaire)

Stated intentions: Exit/stay

Table 8-4: Intended activity when exiting according to the scenarios; Share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Normal retirement	75	75	74
Early retirement	5	5	5
Self-employed in manual work	2	2	2
Self-employed in non-manual work	2	2	2
Employed off-farm in manual work	1	1	1
Employed off-farm in non-manual work	2	2	2
Other	11	11	12
Missing answers	2	2	2

Table 8-5: Intended future of the farm when exiting according to scenarios; Share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Pass on to successor	49	49	49
Sell or cease renting in land	29	28	29
Rent	9	10	10
Abandon	1	1	1
Missing answers	16	16	15
Total	104	104	104

Stated intentions: Farm size

Table 8-6: Intended ways of implementing the change for those willing to stay, according to scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Sell of land	n/a (0 respondent)	n/a (0 respondent)	20 (1 respondent)
Decrease in land rented in	48 (3 respondents)	48 (3 respondents)	43 (7 respondents)
Increase in land rented out	48 (1 respondent)	48 (1 respondent)	48 (1 respondent)
Pass on land to successor	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Conversion to non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	10 (1 respondent)

Increase area by:			
Purchase of land	38 (9 respondents)	37 (9 respondents)	37 (9 respondents)
Increase in land rented in	31 (7 respondents)	31 (6 respondents)	30 (5 respondents)
Decrease in land rented out	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Conversion from non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: Production activities

Table 8-7: Change in land kept idle or in GAEC for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Increase set-aside land	n/a (0 respondent)	4 (1 respondent)	4 (1 respondent)
Withdraw from production but maintain in GAEC		34 (1 respondent)	34 (1 respondent)
Increase area by:			
Reduce set-aside land	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Table 8-8: Intention of change in specific productions according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (90 respondents)	Scenario 2 (90 respondents)	Scenario 3 (86 respondents)
Start production	1	1	1
Increase production	3	6	6
Decrease production	8	12	10
Quit production	2	4	6
No change in production	86	77	77

Root, potato, field vegetable and other field crop production

	Scenario 1 (60 respondents)	Scenario 2 (60 respondents)	Scenario 3 (56 respondents)
Start production	0	0	0
Increase production	0	0	0
Decrease production	0	2	2
Quit production	0	0	0
No change in production	100	98	98

Forage and pasture

	Scenario 1 (116 respondents)	Scenario 2 (116 respondents)	Scenario 3 (112 respondents)
Start production	0	0	0
Increase production	15	16	15
Decrease production	3	3	5
Quit production	2	1	2
No change in production	80	80	78

Milk production

	Scenario 1 (65 respondents)	Scenario 2 (65 respondents)	Scenario 3 (61 respondents)
Start production	0	0	0
Increase production	15	17	18
Decrease production	2	2	2
Quit production	8	9	10
No change in production	75	72	70

Rearing and fattening cattle production

	Scenario 1 (108 respondents)	Scenario 2 (108 respondents)	Scenario 3 (104 respondents)
Start production	0	0	0
Increase production	13	12	14
Decrease production	4	18	20
Quit production	3	3	3
No change in production	80	67	63

Sheep, goat and other grazing cattle production

	Scenario 1 (107 respondents)	Scenario 2 (107 respondents)	Scenario 3 (103 respondents)
Start production	0	2	2
Increase production	5	7	7
Decrease production	8	12	15
Quit production	14	12	10
No change in production	73	67	66

Pig and poultry production

	Scenario 1 (54 respondents)	Scenario 2 (54 respondents)	Scenario 3 (50 respondents)
Start production	0	2	2
Increase production	2	4	4
Decrease production	2	4	2
Quit production	0	0	0
No change in production	96	90	92

Other production

	Scenario 1 (51 respondents)	Scenario 2 (51 respondents)	Scenario 3 (47 respondents)
Start production	0	0	0
Increase production	4	8	8

Decrease production	0	0	0
Quit production	0	0	0
No change in production	96	92	92

Table 8-9: Intended change in specific productions according to the scenarios; averages, in ha or heads

Cereal, oilseed and protein crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	65 (2 respondents)	41 (4 respondents)	41 (4 respondents)
Decrease or quit production	-34 (6 respondents)	-24 (10 respondents)	-25 (9 respondents)

Root, potato, field vegetable and other field crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Decrease or quit production	n/a (0 respondent)	2 (1 respondent)	2 (1 respondent)

Forage and pasture, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	33 (15 respondents)	21 (14 respondents)	19 (12 respondents)
Decrease or quit production	-30 (3 respondents)	-30 (4 respondents)	-31 (6 respondents)

Milk production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	46 (9 respondents)	41 (9 respondents)	41 (9 respondents)
Decrease or quit production	-40 (1 respondent)	-58 (2 respondents)	-58 (2 respondents)

Rearing and fattening cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	43 (13 respondents)	41 (13 respondents)	108 (15 respondents)
Decrease or quit production	-57 (3 respondents)	-31 (18 respondents)	-30 (20 respondents)

Sheep, goat and other grazing cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	200 (3 respondents)	86 (7 respondents)	84 (6 respondents)
Decrease or quit production	-73 (8 respondents)	-146 (12 respondents)	-137 (14 respondents)

Pig and poultry production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	10,000 (1 respondent)	37,167 (3 respondents)	37,167 (3 respondents)
Decrease or quit	-130	-130	-130

production	(1 respondent)	(1 respondent)	(1 respondent)
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Stated intentions: non-agricultural on-farm or off-farm investment

Table 8-10: Intended value and type of non- agricultural investment on- and off-farm investment change

For those intending to start or increase activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
Agro-tourism	5	2	7	2	7	2
Retailing, business	3	1	4	1	4	1
Industrial letting	4	1	4	1	4	2
Equine activities	1	-	1	-	1	-
Contract work	1	1	1	1	1	2
Environmental scheme	1	-	1	-	1	-
Shooting activities	1	-	1	-	1	-
Land management for others	-	1	-	1	-	1
Average value of investment (ths £)	9.7	69.0	8.7	69.0	8.7	69.0
(ths euros) ^a	13.7	97.9	12.3	97.9	12.3	97.9

Note: "-" means no valid observation.

^a Calculated with the exchange rate on 1 January 2005.

Determinants of intentions:

Table 8-11: Model validity: Condition index, significance and correct predictions, England – Stay/Exit

	Scenario 1	Scenario 2	Scenario 3
Condition index	13	13	13
Significance (likelihood ratio test)	0.000	0.000	0.000
Share of 0 correctly predicted (%)	86	85	83
Share of 1 correctly predicted (%)	86	86	83
Overall correct predictions (%)	86	85	83

Table 8-12: Model validity: Condition index, significance and correct predictions, England – Grow/Not grow

	Scenario 1	Scenario 2	Scenario 3
Condition index	15	15	15
Significance (likelihood ratio test)	0.000	0.000	0.000
Share of 0 correctly predicted (%)	50	60	50
Share of 1 correctly predicted (%)	88	89	89
Overall correct predictions (%)	88	88	87

Table 8-13: Model Results, England – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	4.678	1.113	4.203	0.000
AGEQ	-0.060	0.018	-3.277	0.001
COP13	-0.858	0.393	-2.184	0.029
VANOSPA (kEuros)	-0.095	0.043	-2.206	0.027

Table 8-14: Model Results, England – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.101	1.486	2.087	0.037
AGEQ	-0.089	0.031	-2.857	0.004
ED345	-0.880	0.489	-1.799	0.072
LEVERAV	0.567	0.258	2.200	0.028
VANOSPW (kEuros)	0.006	0.003	1.954	0.051

Table 8-15: Model Results, England – Stay/Exit – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	4.472	1.075	4.161	0.000
AGEQ	-0.057	0.018	-3.239	0.001
COP13	-0.793	0.389	-2.040	0.041
VANOSPA (kEuros)	-0.089	0.040	-2.190	0.029

Table 8-16: Model Results, England – Grow/Not grow – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.324	1.506	2.207	0.027
AGEQ	-0.093	0.032	-2.946	0.003
ED345	-1.056	0.509	-2.078	0.038
LEVERAV	0.602	0.263	2.285	0.022
VANOSPW (kEuros)	0.008	0.003	2.314	0.021

Table 8-17: Model Results, England – Stay/Exit – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.814	0.980	3.893	0.000
AGEQ	-0.047	0.016	-2.890	0.004
COP13	-0.723	0.381	-1.901	0.057
VANOSPA (kEuros)	-0.080	0.038	-2.110	0.035

Table 8-18: Model Results, England – Grow/Not grow – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.035	1.517	2.000	0.045
AGEQ	-0.088	0.032	-2.793	0.005
ED345	-0.984	0.511	-1.924	0.054
LEVERAV	0.586	0.262	2.236	0.025
VANOSPW (kEuros)	0.008	0.003	2.319	0.020

Annex 3: France

This appendix presents the tables referring to the French survey, not provided in the core of the text.

Description of the sample

Table 8-19: Characteristics of the farms surveyed, share of farms in %

Legal form (share of farms)	
Sole trader	35.6
Partnership	49.8
Other	5.0
Missing	9.6
Share of farms in “départements”	
11 Aude (Languedoc-Roussillon)	16.7
22 Côtes d’Armor (Bretagne)	7.1
32 Gers (Midi Pyrénées)	11.7
35 Ille et Vilaine (Bretagne)	14.9
43 Haute Loire (Auvergne)	16.7
53 Mayenne (Pays de la Loire)	6.8
56 Morbihan (Bretagne)	6.4
80 Somme (Picardie)	19.6
Share of farmers applying organic methods of production	2
Share of farmers involved in a local development programme (CTE/CAD)	34
Stage achieved in the adoption of environmental norms:	
- Farms complying with norms	41.3
- Compliance in progress	8.2
- Initial study done or in progress	8.2
- Nothing done yet	5.3
- Not applicable (no livestock units)	35.2
- Missing	1.8

Table 8-20: Characteristics of the persons who answered the survey

	Mean (or share)	Std dev
<i>Age and education</i>		
Age	42.6	9.1
Share of respondents according to their education (%)		
Age 16 or before, with short technical formation (CAP/BEP) or nothing	42.3	
Age 18, A-level ("Baccalauréat")	26.0	
Aged 20, 2 years in university or equivalent	24.6	
Age 21, 3 years in university or equivalent	1.4	
Age 23, 5 years in university or equivalent	5.0	
Missing	0.7	
Share of respondents having agricultural education (%)	90.0	
<i>Work experience</i>		
Time worked in farming (years)		
In total	17.7	10.3
As a farm manager	17.0	9.1
Time worked off-farm (years)		
In total	1.5	4.4
As a white collar	0.5	2.8
As a blue collar	1.0	3.4
<i>Participation in farmers' union and other</i>		
Share of respondents being part of:		
Farmers' union	27%	
Economic organisation (machinery cooperatives, producer group, etc.)	38%	
Technical organisation	42%	
Other responsibilities (council board, etc)	41%	
<i>Household composition</i>		
Number of people in household		
Under 18	1.2	1.2
Over 18	2.1	1.0
<i>Successor</i>		
Share of respondents		
Having identified a successor	16.0	
Thinking it is too early to say	66.2	
Having not identified a successor	17.8	
Share of respondents having identified a successor with successor on-farm	73%	

Table 8-21: Sources of household income; thousand euros

	Mean	Std dev
Income from on-farm activities (agricultural or not)	19.7	16.2
Wages	4.4	8.5
Other activities	0.2	1.6
Investments	73.0	1,035.0
Others (pensions, etc)	48.3	703.0

Stated intentions: Exit/stay

Table 8-22: Change in exit time across scenarios, taking plans under Agenda 2000 as a reference, %

Benchmark: Agenda 2000	SFP	Full decoupling
Earlier	1	2
No change	99	97
Later	0	1

Table 8-23: Change in exit time across scenarios, taking plans under SFP as a reference, %

Benchmark: SFP	Full decoupling
Earlier	2
No change	97
Later	1

Table 8-24: Intended activity when exiting according to the scenarios, share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Retirement (normal or early)	77	77	74
Employment	2	2	4
Other activity	0	1	1
Other	4	4	4
Missing answers	17	16	17

Table 8-25: Intended future of the farm when exiting according to the scenarios, share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Pass on to successor	52	50	50
Increase the area of some other farm	8	9	9
Farm cannot be taken by anyone	0	1	0
Do not know	40	40	41

Stated intentions: Farm size

Table 8-26: Intended ways of implementing the change for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Sell land	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Decrease land rented in	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Increase land rented out	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Pass on land to successor	60 (2 respondents)	60 (2 respondents)	60 (2 respondents)
Conversion to non-agricultural activity	5 (2 respondents)	4 (3 respondents)	4 (3 respondents)
Increase area by:			
Purchase land	42 (28 respondents)	44 (26 respondents)	44 (26 respondents)
Increase rented in land	33 (65 respondents)	33 (66 respondents)	33 (57 respondents)
Decrease land rented out	60 (1 respondent)	60 (1 respondent)	n/a (0 respondent)
Conversion from non-agricultural activity	10 (1 respondent)	10 (1 respondent)	10 (1 respondent)

Stated intentions: Production activities

Table 8-27: Change in land kept idle or in GAEC for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Increase set-aside land or withdraw land from production but maintain in GAEC	1 (1 respondent)	1 (1 respondent)	26 (2 respondents)

Table 8-28: Intentions of change in specific productions according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (181 respondents)	Scenario 2 (179 respondents)	Scenario 3 (175 respondents)
Start production	0	0	1
Increase production	18	15	15
Decrease production	20	23	27
Quit production	1	2	3
No change in production	57	57	51
Not applicable	4	3	3

Root, potato, field vegetable and other field crop production

	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	0	0	0
Increase production	5	7	6
Decrease production	7	8	8
Quit production	0	0	1
No change in production	19	16	17
Not applicable	69	69	68

Seed production

	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	2	2	2
Increase production	4	4	3
Decrease production	2	2	2
Quit production	2	2	3
No change in production	9	8	8
Not applicable	81	82	82

Energy crop production

	Scenario 1 (174 respondents)	Scenario 2 (172 respondents)	Scenario 3 (166 respondents)
Start production	12	11	12
Increase production	14	18	19
Decrease production	0	0	0
Quit production	0	1	1
No change in production	25	20	19
Not applicable	49	50	49

Forage and pasture

	Scenario 1 (179 respondents)	Scenario 2 (180 respondents)	Scenario 3 (175 respondents)
Start production	0	1	0
Increase production	20	23	26
Decrease production	1	2	3

Quit production	0	0	0
No change in production	54	49	46
Not applicable	25	25	25

Pasture: stocking density

	Scenario 1 (121 respondents)	Scenario 2 (120 respondents)	Scenario 3 (117 respondents)
Increase	72	67	61
Decrease	16	18	18
No change	9	12	19
Not applicable	3	3	2

Forage: Ratio grass/maize

	Scenario 1 (114 respondents)	Scenario 2 (114 respondents)	Scenario 3 (110 respondents)
Increase	75	72	66
Decrease	12	16	20
No change	10	9	12
Not applicable	3	3	2

Set-aside area

	Scenario 1 (179 respondents)	Scenario 2 (177 respondents)	Scenario 3 (172 respondents)
Start	0	0	0
Increase	3	4	11
Decrease	4	5	3
Quit	2	3	7
No change	64	62	52
Not applicable	27	26	27

Irrigated area

	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start	1	1	1
Increase	2	1	1
Decrease	2	2	2
Quit	1	1	2
No change	9	9	9
Not applicable	85	85	84

Milk production

	Scenario 1 (181 respondents)	Scenario 2 (180 respondents)	Scenario 3 (174 respondents)
Start production	0	0	0
Increase production	35	35	34
Decrease production	0	0	1
Quit production	0	0	2
No change in production	26	26	24
Not applicable	39	39	39

Fattening cattle production

	Scenario 1 (177 respondents)	Scenario 2 (175 respondents)	Scenario 3 (171 respondents)
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Start production	3	3	3
Increase production	5	6	6
Decrease production	1	1	1
Quit production	0	1	1
No change in production	25	23	24
Not applicable	66	66	66

Rearing cattle production

	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	1	2	2
Increase production	2	3	3
Decrease production	1	0	0
Quit production	2	2	2
No change in production	9	8	8
Not applicable	85	85	85

Sheep production

	Scenario 1 (170 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	1	1	1
Increase production	4	3	4
Decrease production	1	1	1
Quit production	0	0	0
No change in production	2	3	2
Not applicable	92	92	92

Goat and other grazing cattle production

	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	0	0	0
Increase production	1	1	1
Decrease production	0	0	0
Quit production	0	0	0
No change in production	1	1	1
Not applicable	98	98	98

Pig production

	Scenario 1 (174 respondents)	Scenario 2 (172 respondents)	Scenario 3 (168 respondents)
Start production	1	1	1
Increase production	2	2	2
Decrease production	1	1	1
Quit production	1	1	1
No change in production	8	8	8
Not applicable	87	87	8

Poultry production

	Scenario 1	Scenario 2	Scenario 3
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	(173 respondents)	(170 respondents)	(167 respondents)
Start production	0	0	0
Increase production	0	0	0
Decrease production	0	1	0
Quit production	1	1	1
No change in production	6	6	6
Not applicable	93	92	93

Other production			
	Scenario 1 (173 respondents)	Scenario 2 (171 respondents)	Scenario 3 (167 respondents)
Start production	2	2	2
Increase production	2	2	1
Decrease production	0	0	0
Quit production	0	0	1
No change in production	1	1	1
Not applicable	95	95	95

Table 8-29: Intended change in specific productions according to the scenarios, averages, in ha or heads

Cereal, oilseed and protein crop production, in ha			
	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+12 (32 respondents)	+11 (26 respondents)	+12 (27 respondents)
Decrease or quit production	-9 (37 respondents)	-9 (42 respondents)	-13 (46 respondents)

Root, potato, field vegetable and other field crop production, in ha			
	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+7 (9 respondents)	+7 (13 respondents)	+7 (11 respondents)
Decrease or quit production	-4 (12 respondents)	-3 (14 respondents)	-6 (14 respondents)

Seed production, in ha			
	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+6 (9 respondents)	+6 (9 respondents)	+7 (8 respondents)
Decrease or quit production	-9 (5 respondents)	-10 (6 respondents)	-11 (8 respondents)

Energy crop production, in ha			
	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+7 (41 respondents)	+6 (46 respondents)	+8 (47 respondents)
Decrease or quit production	n/a (0 respondent)	-50 (1 respondent)	-3 (1 respondent)

Set-aside area, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+3 (5 respondents)	+4 (8 respondents)	+12 (17 respondents)
Decrease or quit production	-5 (9 respondents)	-4 (12 respondents)	-7 (13 respondents)

Irrigated area, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+10 (5 respondents)	+13 (4 respondents)	+15 (4 respondents)
Decrease or quit production	-14 (5 respondents)	-18 (5 respondents)	-17 (7 respondents)

Forage and pasture, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+15 (34 respondents)	+15 (41 respondents)	+15 (40 respondents)
Decrease or quit production	-3 (2 respondents)	-3 (4 respondents)	-6 (3 respondents)

Milk production, in 1000 litres

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+134 (62 respondents)	+124 (62 respondents)	+129 (58 respondents)
Decrease or quit production	n/a (0 respondent)	n/a (0 respondent)	-260 (2 respondents)

Fattening cattle production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+21 (13 respondents)	+5 (18 respondents)	+14 (14 respondents)
Decrease or quit production	-11 (2 respondents)	-16 (2 respondents)	-16 (2 respondents)

Rearing cattle production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+20 (5 respondents)	+16 (8 respondents)	+21 (9 respondents)
Decrease or quit production	-11 (3 respondents)	-5 (1 respondent)	-6 (2 respondents)

Sheep production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+76 (8 respondents)	+76 (8 respondents)	+79 (7 respondents)
Decrease or quit production	-60 (1 respondent)	-60 (1 respondent)	-60 (1 respondent)

Goat and other grazing cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	+50 (1 respondent)	+50 (1 respondent)	+50 (1 respondent)
Decrease or quit production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Pig production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Decrease or quit production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Poultry production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Decrease or quit production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: non-agricultural on-farm or off-farm investment

Table 8-30: Intended value and type of non-agricultural on- and off-farm investment change

For those intending to start or increase activities

	Scenario 1 (69 respondents)	Scenario 2 (69 respondents)	Scenario 3 (73 respondents)
Average value of investment (ths euros)	242.0	242.0	982.2

For those intending to decrease or quit activities

	Scenario 1 (0 respondent)	Scenario 2 (0 respondent)	Scenario 3 (0 respondent)
Average value of investment (ths euros)	n/a	n/a	n/a

n/a: no valid observation.

Determinants of intentions:

Table 8-31: Model validity: Condition index, significance and correct predictions, France – Stay/Exit

	Scenario 1	Scenario 2	Scenario 3
Condition index	15	15	15
Significance (likelihood ratio test)	.000	.000	.000
Share of 0 correctly predicted (%)	95	95	93
Share of 1 correctly predicted (%)	86	86	74
Overall correct predictions (%)	94	94	90

Table 8-32: Model validity: Condition index, significance and correct predictions, France – Grow/Not grow

	Scenario 1	Scenario 2	Scenario 3
Condition index	15	15	15
Significance (likelihood ratio test)	.012	.050	.080
Share of 0 correctly predicted (%)	63	60	59
Share of 1 correctly predicted (%)	59	55	59
Overall correct predictions (%)	62	59	59

Table 8-33: Model Results, France – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	11.321	2.157	5.249	0.000
AGE	-0.220	0.042	-5.225	0.000
AREATOT	0.007	0.005	1.456	0.145
NOSUCC	-0.761	0.393	-1.935	0.053
VAPHA	0.001	0.001	1.385	0.166
LEVERAGE	-0.037	0.047	-0.794	0.427

Table 8-34: Model Results, France – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.794	0.693	2.588	0.010
AGE	-0.037	0.014	-2.625	0.009
SHCROP	0.007	0.004	1.702	0.089
PBSUCC	-0.382	0.246	-1.553	0.120

Table 8-35: Model Results, France – Stay/Exit – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	11.321	2.157	5.249	0.000
AGE	-0.220	0.042	-5.225	0.000
AREATOT	0.007	0.005	1.456	0.145
NOSUCC	-0.761	0.393	-1.935	0.053
VAPHA	0.001	0.001	1.385	0.166
LEVERAGE	-0.037	0.047	-0.794	0.427

Table 8-36: Model Results, France – Grow/Not grow – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.369	0.686	1.997	0.046
AGE	-0.028	0.014	-1.997	0.046
SHCROP	0.007	0.004	1.668	0.095
PBSUCC	-0.319	0.243	-1.311	0.190

Table 8-37: Model Results, France – Stay/Exit – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	8.941	1.672	5.347	0.000
AGE	-0.182	0.034	-5.302	0.000
AREATOT	0.010	0.005	2.017	0.044
NOSUCC	-0.653	0.371	-1.762	0.078
VAPHA	0.001	0.000	1.660	0.097
LEVERAGE	-0.046	0.038	-1.204	0.229

Table 8-38: Model Results, France – Grow/Not grow – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.511	0.685	2.205	0.027
AGE	-0.032	0.014	-2.302	0.021
SHCROP	0.003	0.004	0.710	0.477
PBSUCC	-0.367	0.241	-1.522	0.128

Annex 4: Sweden

This appendix presents the tables referring to the Swedish survey, not provided in the core of the text.

Description of the sample

Table 8-39: Characteristics of the farms surveyed; shares of farms in 2002

Type of farming (share of farms) ^a	
COP (TF13)	16%
General cropping (TF14 and 60)	16%
Milk (TF41)	43%
Drystock (TF42, 43 and 44)	7%
Granivores (TF50)	4%
Mixed (TF 70-80)	12%
Other	1%
Share of organic farms	
Not Organic	83%
Converting	17%
Share of farms in zones (NUTS2 regions)	
710	67 %
720	21 %
730	12%
Share of farms in LFA	
Not in LFA	54%
Not-mountain LFA	36%
Mountain LFA	10%
Share of farms in structural fund zones	
In Objective 1 area	2%
In Objective 2 area	15%
Share of farms in areas with environmental restrictions	16%

Table 8-40: Characteristics of the persons who answered the survey

	Mean (or share)	Std dev
<i>Age and education</i>		
Age	54.5	9.2
Share of respondents according to their education (%)		
Compulsory elementary school	41	
Gymnasium (high school)	29	
University	8	
PhD or equivalent	1	
Other education	11	
Missing	10	
Share of respondents according to agricultural education		
Agricultural education	49	
Non-agricultural education	37	
Missing	13	
<i>Work experience</i>		
Time worked in farming (years)		
In total	34.1	10.8
As a farm manager	25.7	10.3
Time worked off-farm (years)		
In total	8.9	12.1
As a white collar	2.5	7.2
As a blue collar	5.8	8.2
As a self-employed	3.1	8.3
<i>Participation in farmers' union</i>		
Share of respondents (%) being		
Active members	25	
Passive members	60	
Not members	4	
Missing	11	
<i>Household composition</i>		
Number of people in household		
Under 18	0.8	1.2
Over 18	2.0	0.8
<i>Successor</i>		
Share of respondents %		
Having identified a successor	21	
Thinking it is too early to say	51	
Having not identified a successor	28	
Missing	0	
Share of respondents having identified a successor with successor on-farm, %	33	

^a This figure is probably due to the fact that one respondent did not count himself/herself in the number of people over 18 in his/her household.

Table 8-41: Household income off-farm

	Mean	Std dev
Self-employment income from off-farm activities	14,331	12,891
Paid work outside farming	19,102	17,974
Investments	4,916	9,744
Total revenue off-farm	33,612	24,414

Stated intentions: Exit/stay

Table 8-42: Change in exit time across scenarios, taking plans under Agenda 2000 as a reference, %

Benchmark: Agenda 2000	SFP
Earlier	11
No change	86
Later	3

Table 8-43: Intended activity when exiting, according to the scenarios; share of farmers (%)

	Continuing Agenda 2000	SFP
Normal retirement	71	66
Early retirement	5	5
Self-employed in manual work	2	2
Self-employed in non-manual work	3	4
Employed off-farm in manual work	1	2
Employed off-farm in non-manual work	3	4
Other	11	11
Missing answers	4	6

Table 8-44: Intended future of the farm when exiting according to the scenarios; share of farmers (%)

	Continuing Agenda 2000	SFP
Pass on to successor	50	44
Sell or cease renting in land	18	20
Rent	22	22
Abandon	4	6
Missing	6	8

Stated intentions: Farm size

Table 8-45: Intended ways of implementing the change for those willing to stay, according to the scenarios; average changes, ha

	Continuing Agenda 2000	SFP
Decrease area by:		
Sell of land	n/a (0 respondent)	n/a (0 respondent)
Decrease in land rented in	16 (6 respondents)	16 (11 respondents)
Increase in land rented out	n/a (0 respondent)	30 (1 respondent)
Pass on land to successor	n/a (0 respondent)	n/a (0 respondent)
Conversion to forestry	n/a (0 respondent)	7 (2 respondents)
Conversion to non-agricultural activity (excluding forestry)	1 (1 respondent)	1 (1 respondent)
Increase area by:		
Purchase of land	112 (15 respondents)	83 (22 respondents)
Increase in land rented in	54 (27 respondents)	54 (27 respondents)
Decrease in land rented out	20 (1 respondent)	20 (1 respondent)
Conversion from forestry	21 (1 respondent)	21 (1 respondent)
Conversion from non-agricultural activity (excluding forestry)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: Production activities

Table 8-46: Change in land kept idle or in GAEC for those willing to stay according to the scenarios; average changes, ha

	Continuing Agenda 2000	SFP
Decrease area by:		
Increase set-aside land	8 (6 respondents)	6 (9 respondents)
Withdraw from production but maintain in GAEC		51 (5 respondents)
Increase area by:		
Reduce set-aside land	15 (2 respondents)	33 (6 respondents)

Table 8-47: Intention of change in specific productions according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (272 respondents)	Scenario 2 (259 respondents)
Start production	1	0
Increase production	12	11
Decrease production	7	19
Quit production	3	6
No change in production	71	56
Missing	6	8

Root, potato, field vegetable and other field crop production

	Scenario 1 (218 respondents)	Scenario 2 (210 respondents)
Start production	0	1
Increase production	2	2
Decrease production	1	2
Quit production	4	5
No change in production	68	65
Missing	25	25

Forage and pasture

	Scenario 1 (266 respondents)	Scenario 2 (257 respondents)
Start production	0	1
Increase production	16	26
Decrease production	3	4
Quit production	4	5
No change in production	69	56
Missing	8	8

Milk production

	Scenario 1 (228 respondents)	Scenario 2 (219 respondents)
Start production	0	0
Increase production	9	10
Decrease production	1	2
Quit production	6	10
No change in production	62	56
Missing	22	22

Rearing and fattening cattle production

	Scenario 1 (253 respondents)	Scenario 2 (244 respondents)
Start production	1	2
Increase production	13	12
Decrease production	4	9

Quit production	5	8
No change in production	64	56
Missing	13	13

Sheep, goat and other grazing cattle production

	Scenario 1 (198 respondents)	Scenario 2 (192 respondents)
Start production	0	2
Increase production	5	5
Decrease production	1	1
Quit production	4	5
No change in production	58	56
Missing	32	31

Pig and poultry production

	Scenario 1 (198 respondents)	Scenario 2 (194 respondents)
Start production	0	0
Increase production	4	5
Decrease production	0	1
Quit production	5	7
No change in production	59	56
Missing	32	31

Other production

	Scenario 1 (42 respondents)	Scenario 2 (39 respondents)
Start production	1	1
Increase production	2	2
Decrease production	0	0
Quit production	0	0
No change in production	12	14
Missing	85	83

Table 8-48: Intended change in specific productions according to the scenarios; averages, in ha or heads

Cereal, oilseed and protein crop production, in ha

	Scenario 1	Scenario 2
Start or increase production	53 (12 respondents)	57 (11 respondents)
Decrease or quit production	-17 (6 respondents)	-21 (21 respondents)

Root, potato, field vegetable and other field crop production, in ha

	Scenario 1	Scenario 2
Start or increase production	10 (2 respondents)	10 (2 respondents)
Decrease or quit	-1	-5

production	(1 respondent)	(3 respondents)
<u>Forage and pasture, in ha</u>		
	Scenario 1	Scenario 2
Start or increase production	31 (12 respondents)	25 (25 respondents)
Decrease or quit production	-50 (1 respondent)	-9 (3 respondents)
<u>Milk production, in heads</u>		
	Scenario 1	Scenario 2
Start or increase production	69 (13 respondents)	65 (10 respondents)
Decrease or quit production	-150 (1 respondent)	-97 (4 respondents)
<u>Rearing and fattening cattle production, in heads</u>		
	Scenario 1	Scenario 2
Start or increase production	43 (10 respondents)	42 (5 respondents)
Decrease or quit production	-30 (1 respondents)	-38 (11 respondents)
<u>Sheep, goat and other grazing cattle production, in heads</u>		
	Scenario 1	Scenario 2
Start or increase production	110 (6 respondents)	90 (8 respondents)
Decrease or quit production	-20 (1 respondent)	-20 (2 respondents)
<u>Pig and poultry production</u>		
	Scenario 1	Scenario 2
Start or increase production	84 (5 respondents)	356 (5 respondents)
Decrease or quit production	n/a (0 respondent)	-340 (3 respondents)

Stated intentions: non-agricultural on-farm or off-farm investment

Table 8-49: Intended value and type of on- and off-farm investment change

For those intending to start or increase activities				
	Scenario 1		Scenario 2	
	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)				
1. Activities related to agriculture (contracting, direct sales, etc.)	19	3	22	4
2. Forest	3	7	3	6
3. Energy production (wind farm, etc.)	2	4	2	7
4. Agri-tourism	1	-	1	1
5. Contracting not related to agricultural activities	3	9	6	8
6. Shares	-	2	-	2
7. Health care	-	1	-	1
Average value of investment (ths SEK)	1,865	2,087	2,402	2,727
(ths euros)	206.8	231.4	266.3	302.3
For those intending to decrease or stop activities				
	Scenario 1		Scenario 2	
	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)				
1. Activities related to agriculture (contracting, direct sales, etc.)	18	3	21	2
2. Forest	3	5	2	5
3. Energy production (wind farm, etc.)	2	4	2	7
4. Agri-tourism	0	0	1	1
5. Contracting not related to agricultural activities	3	8	6	7
6. Shares	-	3	-	3
7. Health care	-	1	-	1
Average value of investment (ths SEK)	1,953	2,138	1,248	2,727
(ths euros)	216.5	237.0	138.4	302.3

Note: "-" means no valid observation.

^a Calculated with the exchange rate on 1 January 2005.

Determinants of intentions:

Table 8-50: Model validity: Condition index, significance and correct predictions, Sweden – Stay/Exit

	Scenario 1	Scenario 2
Condition index	14	14
Significance (likelihood ratio test)	.000	.000
Share of 0 correctly predicted (%)	82	76
Share of 1 correctly predicted (%)	67	68
Overall correct predictions (%)	78	74

Table 8-51: Model validity: Condition index, significance and correct predictions, Sweden – Grow/Not grow

	Scenario 1	Scenario 2
Condition index	16	17
Significance (likelihood ratio test)	.000	.001
Share of 0 correctly predicted (%)	71	80
Share of 1 correctly predicted (%)	89	84
Overall correct predictions (%)	88	84

Table 8-52: Model Results, Sweden – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	5.573	0.869	6.416	0.000
AGEQ	-0.096	0.015	-6.395	0.000
SHSUB	0.018	0.007	2.534	0.011

Table 8-53: Model Results, Sweden – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.480	0.920	1.608	0.108
AGEQ	-0.065	0.018	-3.717	0.000
COP13	-0.601	0.664	-0.906	0.365
VANOSPAWU (kEuros)	0.017	0.008	2.145	0.032
SHP2INSU	0.011	0.008	1.277	0.202

Table 8-54: Model Results, Sweden – Stay/Exit – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.824	0.651	5.875	0.000
AGEQ	-0.066	0.011	-5.824	0.000
SHSUB	0.010	0.007	1.516	0.129

Table 8-55: Model Results, Sweden – Grow/Not grow – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	-1.131	0.933	-1.212	0.226
AGEQ	0.016	0.016	1.000	0.317
COP13	-1.358	0.546	-2.487	0.013
VANOSPAWU (kEuros)	0.012	0.007	1.712	0.087
SHP2INSU	-0.020	0.008	-2.376	0.017

Annex 5: Lithuania

This appendix presents the tables referring to the Lithuanian survey, not provided in the core of the text.

Description of the sample

Table 8-56: Characteristics of the farms surveyed; shares of farms in 2002

Share of farms applying organic methods in 2002, %:	
Not applying	91
Converting	6
Organic farms	3
Share of farms in LFA in 2002, %	
Not LFA	40
LFA not mountain	60

Table 8-57: Characteristics of the persons who answered the survey

	Mean (or share)	Std dev
<i>Age and education</i>		
Age		
Share of respondents having left formal education	50.2	11.9
aged 20 or more	49.5	
Share of respondents according to agricultural education		
Agricultural education	64.1	
Non-agricultural education	27.3	
Missing	8.6	
<i>Work experience</i>		
Time worked in farming (years)		
In total	10.4	3.4
As a farm manager	10.1	3.3
Time worked off-farm (years)		
In total	9.5	11.7
As a white collar	5.3	9.0
As a blue collar	4.1	9.8
<i>Participation in farmers' union</i>		
Share of respondents being		
Active members	31.2	
Passive members	26.6	
Not members	42.3	
Missing	0.9	

<i>Household composition</i>		
Number of people in household		
Under 18	0.9	1.1
Over 18	2.2	1.0
<i>Successor</i>		
Share of respondents		
Having identified a successor	35.0	
Thinking it is too early to say	40.0	
Having not identified a successor	23.2	
Missing	1.8	
Share of respondents having identified a successor with successor on-farm	26.0	

Table 8-58: Sources of household income; % of household's total combined income

	Mean	Std dev
Income from on-farm activities (agricultural or not)	89.2	18.9
Self-employment income from off-farm activities	8.2	2.1
Paid work on another farm	0.6	6.0
Paid work outside farming	3.9	12.0
Others (pensions, incomes from investments, etc)	4.0	10.2

(From question 3.2 in questionnaire)

Stated intentions: Exit/stay

Table 8-59: Change in exit time across scenarios, taking plans under pre-accession policy as a reference, %

Benchmark: Pre-accession policy	SAPS	Full decoupling
Earlier	4	7
No change	86	86
Later	10	7

Table 8-60: Change in exit time across scenarios, taking plans under SAPS as a reference, %

Benchmark: SAPS	Full decoupling
Earlier	4
No change	87
Later	10

Table 8-61: Intended activity when exiting according to the scenarios; share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Normal retirement	34	30	32
Early retirement	9	12	13
Self-employed in manual work	18	18	17
Self-employed in non-manual work	9	13	11
Employed off-farm in manual work	9	8	6
Employed off-farm in non-manual work	17	13	14
Other	0	0	0
Missing answers	4	6	7

Table 8-62: Intended future of the farm when exiting according to the scenarios; Share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Pass on to successor	46	51	16
Sell or cease renting in land	21	15	15
Rent	22	22	55
Abandon	2	1	0
Missing answers	9	11	14

Stated intentions: Farm size

Table 8-63: Intended ways of implementing the change for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Sell of land	10 (1 respondent)	10 (1 respondent)	10 (1 respondent)
Decrease in land rented in	39 (4 respondents)	n/a (0 respondent)	35 (2 respondents)
Increase in land rented out	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Pass on land to successor	78 (3 respondents)	50 (2 respondents)	50 (2 respondents)
Conversion to non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Increase area by:			
Purchase of land	68 (20 respondents)	64 (50 respondents)	73 (30 respondents)
Increase in land rented in	67 (19 respondents)	57 (41 respondents)	62 (25 respondents)
Decrease in land rented out	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Conversion from non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: Production activities

Table 8-64: Change in land kept idle for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Increase idle land	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Withdraw land from production (GAEC)		n/a (0 respondent)	n/a (0 respondent)
Increase area by:			
Reduce idle land	n/a (0 respondent)	16 (5 respondents)	7 (2 respondents)

Table 8-65: Intention of change in specific productions (by sub-sector) according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	2	1	1
Increase production	25	43	21
Decrease production	4	1	8
Quit production	0	0	0
No change in production	69	55	70

Root, potato, field vegetable and other field crop production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	1	2	2
Increase production	7	9	4
Decrease production	3	6	8
Quit production	0	0	0
No change in production	89	83	86

Forage and pasture

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
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Start production	1	1	0
Increase production	10	20	16
Decrease production	6	6	3
Quit production	0	0	0
No change in production	83	73	81

Milk production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	3	1	1
Increase production	14	18	14
Decrease production	5	4	7
Quit production	1	0	0
No change in production	78	77	78

Rearing and fattening cattle production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	1	2	2
Increase production	8	15	11
Decrease production	3	2	3
Quit production	0	0	0
No change in production	88	81	84

Sheep, goat and other grazing cattle production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	1	1	0
Increase production	1	2	3
Decrease production	1	1	1
Quit production	0	0	0
No change in production	97	96	96

Pig and poultry production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	1	0	0
Increase production	2	1	1
Decrease production	3	2	1
Quit production	0	0	0
No change in production	95	97	98

Other production

	Scenario 1 (156 respondents)	Scenario 2 (157 respondents)	Scenario 3 (154 respondents)
Start production	0	0	0
Increase production	1	1	2
Decrease production	0	1	1
Quit production	0	0	0

No change in production	99	98	97
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Table 8-66: Intended change in specific productions according to the scenarios; averages, in ha or heads

Cereal, oilseed and protein crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	48 (31 respondents)	53 (59 respondents)	69 (28 respondents)
Decrease or quit production	-26 (6 respondents)	-15 (2 respondents)	-26 (9 respondents)

Root, potato, field vegetable and other field crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	10 (10 respondents)	10 (12 respondents)	16 (7 respondents)
Decrease or quit production	-5 (3 respondents)	-10 (6 respondents)	-9 (8 respondents)

Forage and pasture, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	15 (16 respondents)	16 (28 respondents)	21 (22 respondents)
Decrease or quit production	-7 (8 respondents)	-5 (8 respondents)	-13 (4 respondents)

Milk production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	20 (22 respondents)	18 (28 respondents)	23 (21 respondents)
Decrease or quit production	-15 (6 respondents)	-14 (4 respondents)	-10 (9 respondents)

Rearing and fattening cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	20 (11 respondents)	19 (23 respondents)	21 (17 respondents)
Decrease or quit production	-8 (2 respondents)	n/a (0 respondent)	-6.7 (5 respondents)

Sheep, goat and other grazing cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	3 (1 respondent)	19 (4 respondents)	15 (10 respondents)
Decrease or quit production	-20 (1 respondent)	n/a (0 respondent)	n/a (0 respondent)

Pig and poultry production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	18 (4 respondents)	18 (2 respondents)	13 (2 respondents)
Decrease or quit production	-2 (1 respondent)	-10 (1 respondent)	n/a (0 respondent)

Stated intentions: non-agricultural on-farm or off-farm investment

Table 8-67: Intended value and type of non agricultural on- and off-farm investment change

For those intending to start or increase activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
All activities	5	7	4	5	4	7
Average value of investment (ths LT)	51.0	59.1	73.3	36.0	83.3	47.3
(ths euros) ^a	14.8	17.1	21.2	10.4	24.1	13.7

For those intending to decrease or stop activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
All activities	0	0	0	1	0	0
Average value of investment (ths LT)	-	-	-	800.0	-	-
(ths euros) ^a	-	-	-	231.7	-	-

Note: “-” means no valid observation.

^a Calculated with the exchange rate on 1 January 2005.

Determinants of intentions:

Table 8-68: Model validity: Condition index, significance and correct predictions, Lithuania – Stay/Exit

	Scenario 1	Scenario 2	Scenario 3
Condition index	22	22	22
Significance (likelihood ratio test)	.000	.000	.000
Share of 0 correctly predicted (%)	90	90	94
Share of 1 correctly predicted (%)	100	83	86
Overall correct predictions (%)	90	89	93

Table 8-69: Model validity: Condition index, significance and correct predictions, Lithuania – Grow/Not grow

	Scenario 1	Scenario 2	Scenario 3
Condition index	14	14	14
Significance (likelihood ratio test)	.254	.084	.580
Share of 0 correctly predicted (%)	100	65	67
Share of 1 correctly predicted (%)	74	63	62
Overall correct predictions (%)	75	64	62

Table 8-70: Model Results, Lithuania – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.317	1.348	0.977	0.329
AGE	-0.031	0.015	-2.070	0.038
AWUFAV	1.679	1.017	1.650	0.099
TOTEXPOF	-0.031	0.012	-2.580	0.010
PBSUCC	0.633	0.352	1.801	0.072

Table 8-71: Model Results, Lithuania – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.163	0.718	0.227	0.821
AGE	-0.013	0.014	-0.935	0.350
SHREVCR	0.001	0.002	0.677	0.498
VANOSPA	0.000	0.001	-0.081	0.935
HAVESUCC	-0.370	0.323	-1.144	0.253
LEVERAV	-0.857	0.484	-1.772	0.076

Table 8-72: Model Results, Lithuania – Stay/Exit – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	2.412	1.319	1.828	0.068
AGE	-0.046	0.014	-3.180	0.001
AWUFAV	1.466	0.990	1.480	0.139
TOTEXPOF	-0.034	0.012	-2.842	0.004
PBSUCC	0.218	0.327	0.667	0.505

Table 8-73: Model Results, Lithuania – Grow/Not grow – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	1.967	0.737	2.668	0.008
AGE	-0.032	0.014	-2.192	0.028
SHREVCR	-0.003	0.002	-1.542	0.123
VANOSPA	0.000	0.000	0.308	0.758
HAVESUCC	-0.212	0.286	-0.741	0.459
LEVERAV	-0.308	0.326	-0.944	0.345

Table 8-74: Model Results, Lithuania – Stay/Exit – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	2.116	1.453	1.456	0.145
AGE	-0.055	0.017	-3.268	0.001
AWUFAV	2.803	1.095	2.560	0.010
TOTEXPOF	-0.053	0.015	-3.607	0.000
PBSUCC	0.348	0.394	0.883	0.377

Table 8-75: Model Results, Lithuania – Grow/Not grow – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.109	0.687	0.159	0.874
AGE	-0.006	0.014	-0.471	0.638
SHREVCR	0.000	0.002	-0.107	0.915
VANOSPA	0.001	0.000	1.035	0.301
HAVESUCC	-0.456	0.293	-1.554	0.120
LEVERAV	-0.091	0.335	-0.272	0.786

Annex 6: Slovakia

This appendix presents the tables referring to the Slovakian survey, not provided in the core of the text.

INDIVIDUAL FARMS

Description of the sample

Table 8-76: Characteristics of the farms surveyed; shares of farms in 2002

Individual commercial farms.	
Number of partners:	
1	70%
2	20%
3	6%
4	2%
5 or more	2%
Share of farms in regions	
East Slovakia	37%
Middle Slovakia	22%
West Slovakia	49%
Share of farms in LFA (2002)	
Not in LFA	41%
LFA not Mountain	51%
LFA Mountain	8%

Table 8-77: Characteristics of the persons who answered the survey

	Mean (or share)	Std dev
<i>Age and education</i>		
Age	51.1	10.8
Share of respondents having left formal education aged 20 or more, %	45.4	
Share of respondents having agricultural education, %	52.6	
<i>Work experience</i>		
Time worked in farming (years)		
In total	21.6	11.2
As a farm manager	11.5	3.1
Time worked off-farm (years)		
In total	17.9	11.0
As a white collar	12.0	11.7
As a blue collar	5.8	10.8

<i>Participation in farmers' union</i>		
Share of respondents (%) being		
Active members	54	
Passive members	22	
Not members	24	
<i>Household composition</i>		
Number of people in household		
Under 18	0.7	1.0
Over 18	2.7	1.4
<i>Successor</i>		
Share of respondents (%)		
Having identified a successor	41	
Thinking it is too early to say	30	
Having not identified a successor	29	
Share of respondents having identified a successor with successor on-farm, %	84	

Table 8-78: Sources of household income; % of household's total combined income

	Mean	Std dev
Income from on-farm activities (agricultural or not)	77.9	26.9
Self-employment income from off-farm activities	3.6	13.3
Paid work on another farm	1.6	7.7
Paid work outside farming	8.8	19.1
Others (pensions, incomes from investments, etc)	8.0	18.5

(From question 3.2 in questionnaire)

Stated intentions: Exit/stay

Table 8-79: Change in exit time across scenarios, taking plans under pre-accession policy as a reference, %

Benchmark: Pre-accession policy	SAPS	Full decoupling
Earlier	24	26
No change	31	32
Later	45	42

Table 8-80: Change in exit time across scenarios, taking plans under SAPS as a reference, %

Benchmark: SAPS	Full decoupling
Earlier	14
No change	80
Later	6

Table 8-81: Intended activity when exiting according to the scenarios; share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Normal retirement	17	13	16
Early retirement	33	40	36
Self-employed in manual work	5	4	5
Self-employed in non-manual work	21	18	18
Employed off-farm in manual work	4	4	5
Employed off-farm in non-manual work	7	8	7
Other	12	12	12
Missing answers	1	1	1

Table 8-82: Intended future of the farm when exiting according to the scenarios; share of farmers (%)

	In Scenario 1	In Scenario 2	In Scenario 3
Pass on to successor	53	60	56
Sell or cease renting in land	30	24	27
Rent	19	17	18
Abandon	2	1	1
Missing answers	0	0	0

Stated intentions: Farm size

Table 8-83: Intended ways of implementing the changes for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Sell land	n/a (0 respondent)	12 (2 respondents)	10 (1 respondent)
Decrease land rented in	105 (5 respondents)	56 (2 respondents)	90 (4 respondents)
Increase land rented out	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Pass on land to successor	50 (1 respondent)	100 (1 respondent)	190 (2 respondents)
Conversion to non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)
Increase area by:			
Purchase land	67.7 ha (13 respondents)	62.6 ha (19 respondents)	70.5 ha (19 respondents)
Increase rented in land	155 (22 respondents)	85 (46 respondents)	97 (33 respondents)
Decrease land rented out	300 (1 respondents)	200 (3 respondents)	300 (1 respondent)
Conversion from non-agricultural activity	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: Production activities

Table 8-84: Change in land kept idle for those willing to stay, according to the scenarios; average changes, ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Increase idle land	20 (1 respondent)	16 (2 respondents)	30 (1 respondent)
Increase area by:			
Reduce idle land	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Table 8-85: Intention of change in specific production activities for those willing to stay according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	0	1	1
Increase production	21	35	26
Decrease production	1	1	3
Quit production	0	0	2
No change in production	23	22	19
Missing	55	42	49

Root, potato, field vegetable and other field crop production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	0	1	0
Increase production	4	3	3
Decrease production	2	2	3
Quit production	1	5	7
No change in production	16	19	13
Missing	77	70	74

Forage and pasture

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	2	2	0
Increase production	9	11	11
Decrease production	2	1	2
Quit production	3	1	3
No change in production	8	10	11
Missing	76	75	74

Milk production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	0	1	0
Increase production	7	3	2
Decrease production	3	1	1
Quit production	0	2	2
No change in production	7	10	10
Missing	83	83	85

Rearing and fattening cattle production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	4	4	6
Increase production	9	14	5
Decrease production	0	2	2

Quit production	0	0	2
No change in production	15	9	11
Missing	72	71	74

Sheep, goat and other grazing cattle production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	0	1	1
Increase production	7	5	5
Decrease production	1	1	2
Quit production	2	3	4
No change in production	10	11	10
Missing	80	79	78

Pig and poultry production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	0	2	4
Increase production	6	6	4
Decrease production	0	0	0
Quit production	2	3	3
No change in production	12	14	13
Missing	80	76	77

Other production

	Scenario 1 (90 respondents)	Scenario 2 (116 respondents)	Scenario 3 (103 respondents)
Start production	3	4	5
Increase production	0	0	0
Decrease production	0	0	0
Quit production	0	0	0
No change in production	2	2	2
Missing	95	94	93

Table 8-86: Intended change in specific productions for those willing to stay, according to the scenarios; averages, in ha or heads

Cereal, oilseed and protein crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	142 (18 respondents)	88 (39 respondent)	102 (24 respondents)
Decrease or quit production	n/a (0 respondent)	-10 (1 respondent)	-50 (2 respondents)

Root, potato, field vegetable and other field crop production, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	19 (4 respondents)	29 (4 respondents)	37 (3 respondents)

Decrease or quit production	-205 (1 respondent)	-39 (4 respondents)	-67 (5 respondents)
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Forage and pasture, in ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	68.9 ha (9 respondents)	38.1 ha (15 respondents)	74.2 ha (11 respondents)
Decrease or quit production	1.0 ha (1 respondent)	-100.0 ha (1 respondent)	n/a (0 respondent)

Milk production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	90 (5 respondents)	63 (5 respondents)	100 (1 respondent)
Decrease or quit production	n/a (0 respondent)	-100 (1 respondent)	n/a (0 respondent)

Rearing and fattening cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	40 (9 respondents)	40 (18 respondents)	51 (10 respondents)
Decrease or quit production	n/a (0 respondent)	-6 (2 respondents)	-20 (2 respondents)

Sheep, goat and other grazing cattle production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	122 (5 respondents)	150 (6 respondents)	196 (5 respondents)
Decrease or quit production	-300 (1 respondent)	-150 (1 respondent)	-250 (2 respondents)

Pig and poultry production, in heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	204 (5 respondent)	183 (9 respondents)	303 (9 respondents)
Decrease or quit production	n/a (0 respondent)	n/a (0 respondent)	n/a (0 respondent)

Stated intentions: non-agricultural on-farm or off-farm investment

Table 8-87: Intended value and type of on- and off-farm investment change

For those intending to start or increase activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
Agro-tourism	4	0	12	2	8	1
Activities related to production	1	0	2	0	2	0
Forestry and related activities	3	2	3	2	2	2
Bio-energy	2	0	2	0	3	0
Services	2	0	1	2	1	2
Investment	0	0	0	1	0	1
Other businesses	1	5	9	5	10	4
Average value of investment (ths SKK)	4,650.0	593.8	3,827.8	1,595.8	3,955.8	865.0
(ths euros) ^a	117.7	15.7	98.8.8	41.2	102.1	22.3

For those intending to decrease or stop activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
Agro-tourism	-	-	0	0	-	-
Activities related to production	-	-	0	0	-	-
Forestry and related activities	-	-	0	0	-	-
Bio-energy	-	-	0	0	-	-
Services	-	-	0	0	-	-
Investment	-	-	0	0	-	-
Other businesses	-	-	1	0	-	-
Average value of investment (ths SKK)	-	-	-	-	-	-
(ths euros) ^a	-	-	-	-	-	-

Note: “-” means no valid observation.

^a Calculated with the exchange rate on 1 January 2005.

Determinants of intentions:

Table 8-88: Model validity: Condition index, significance and correct predictions, Slovakia – Stay/Exit

	Scenario 1	Scenario 2	Scenario 3
Condition index	3	3	3
Significance (likelihood ratio test)	.243	.076	.064
Share of 0 correctly predicted (%)	60	83	75
Share of 1 correctly predicted (%)	75	67	67
Overall correct predictions (%)	60	82	74

Table 8-89: Model validity: Condition index, significance and correct predictions, Slovakia – Grow/Not grow

	Scenario 1	Scenario 2	Scenario 3
Condition index	9	9	9
Significance (likelihood ratio test)	.007	.032	.004
Share of 0 correctly predicted (%)	72	63	71
Share of 1 correctly predicted (%)	69	57	79
Overall correct predictions (%)	70	60	77

Table 8-90: Model Results, Slovakia – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.084	0.179	0.470	0.638
AREATOHA	0.000	0.001	0.498	0.618
PBSUCC	0.406	0.275	1.475	0.140
MILK41	-0.989	0.738	-1.341	0.180

Table 8-91: Model Results, Slovakia – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	2.105	0.856	2.459	0.014
PBSUCC	-0.327	0.363	-0.901	0.368
LFANO	0.177	0.338	0.524	0.600
MANAGONF	-0.198	0.068	-2.901	0.004

Table 8-92: Model Results, Slovakia – Stay/Exit – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.615	0.215	2.864	0.004
AREATOHA	0.002	0.001	1.800	0.072
PBSUCC	0.233	0.318	0.731	0.465
MILK41	-1.065	0.694	-1.536	0.125

Table 8-93: Model Results, Slovakia – Grow/Not grow – Scenario 2

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.224	0.561	0.399	0.690
PBSUCC	-0.695	0.309	-2.248	0.025
LFANO	-0.478	0.278	-1.718	0.086
MANAGONF	0.019	0.044	0.433	0.665

Table 8-94: Model Results, Slovakia – Stay/Exit – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.305	0.192	1.584	0.113
AREATOHA	0.001	0.001	2.020	0.043
PBSUCC	0.452	0.303	1.493	0.136
MILK41	-0.723	0.689	-1.050	0.294

Table 8-95: Model Results, Slovakia – Grow/Not grow – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	-0.286	0.674	-0.424	0.671
PBSUCC	0.307	0.334	0.920	0.358
LFANO	0.995	0.309	3.221	0.001
MANAGONF	-0.067	0.056	-1.200	0.230

CORPORATE FARMS**Description of the sample****Table 8-96: Characteristics of the farms surveyed; shares of farms in 2002**

	All farms (152)	Cooperatives (101)	Companies (51)
Share of farms partly or totally organic	62	63	61
Share of farms in LFA, %			
Any LFA	77	80	71
Mountain LFA	15	19	8
Share of farms in regions, %			
West Slovakia	48	46	51
Middle Slovakia	20	22	18
East Slovakia	32	32	31

Table 8-97: Characteristics of the persons who answered the survey

	All farms (152)	Cooperatives (101)	Companies (51)
<i>Status, %</i>			
Share of respondents who are directors	20	23	14
Share of respondents who are managers	43	39	51

<i>Age and education</i>			
Average age of respondents	48.1	48.5	47.2
Average age of respondents when they left formal education	22.2	22.0	22.5
Share of respondents having agricultural education, %	68	64	75
<i>Work experience</i>			
Average time worked in farming (years)			
In total	24.0	24.6	22.6
As a farm manager	12.9	12.6	13.5
Average time worked off-farm (years)			
In total	3.0	3.1	2.7
In a non-manual job	2.7	2.7	2.5
In manual job	0.3	0.4	0.2

Stated intentions: Farm size

Table 8-98: Change of intentions between two scenarios; share of respondents (%)

	Between Scenarios A and B		
	A=1 and B=2	A=1 and B=3	A=2 and B=3
Intended change in A minus intended change in B is negative	23	12	5
Intended change in A minus intended change in B is zero	67	69	67
Intended change in A minus intended change in B is positive	7	8	17
Missing answers	3	11	11

Table 8-99: Intended ways of implementing the change according to the scenarios, in ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Sell land	n/a (0 respondent)	30 (1 respondent)	n/a (0 respondent)
Decrease land rented in	283 (3 respondents)	180 (6 respondents)	338 (4 respondents)
Increase land rented out	n/a (0 respondent)	100 (1 respondent)	n/a (0 respondent)
Conversion to non-agricultural activity	150 (1 respondent)	159 (4 respondents)	100 (2 respondents)

Increase area by:			
Purchase land	200 (1 respondent)	174 (5 respondents)	290 (5 respondents)
Increase rented in land	201 (11 respondents)	204 (38 respondents)	236 (17 respondents)
Decrease land rented out	n/a (0 respondent)	325 (2 respondents)	600 (1 respondent)
Conversion from non-agricultural activity	n/a (0 respondent)	83 (3 respondents)	n/a (0 respondent)

Stated intentions: Production activities

Table 8-100: Change in land kept idle or in GAEC for those willing to stay, according to the scenarios; average changes, in ha

	Scenario 1	Scenario 2	Scenario 3
Decrease area by:			
Increase idle land	50 (1 respondent)	18 (4 respondents)	100 (1 respondent)
Increase area by:			
Reduce idle land	313 (3 respondents)	143 (13 respondents)	153 (11 respondents)

Table 8-101: Intentions of change in specific production activities according to the scenarios; shares of farms (%)

Cereal, oilseed and protein crop production

	Scenario 1 (151 respondents)	Scenario 2 (151 respondents)	Scenario 3 (151 respondents)
Start production	0	1	1
Increase production	11	31	15
Decrease production	5	13	20
Quit production	0	1	1
No change in production	84	54	63

Root, potato, field vegetable and other field crop production

	Scenario 1 (127 respondents)	Scenario 2 (127 respondents)	Scenario 3 (127 respondents)
Start production	0	0	0
Increase production	3	5	2
Decrease production	8	15	17
Quit production	3	5	7
No change in production	86	75	74

Forage and pasture

	Scenario 1 (146 respondents)	Scenario 2 (146 respondents)	Scenario 3 (146 respondents)
Start production	0	0	1
Increase production	8	27	21

Decrease production	2	12	11
Quit production	1	1	3
No change in production	89	60	64

Milk production

	Scenario 1 (137 respondents)	Scenario 2 (138 respondents)	Scenario 3 (137 respondents)
Start production	1	1	2
Increase production	34	40	24
Decrease production	1	5	9
Quit production	1	2	4
No change in production	63	52	61

Rearing and fattening cattle production

	Scenario 1 (140 respondents)	Scenario 2 (140 respondents)	Scenario 3 (140 respondents)
Start production	1	1	1
Increase production	19	30	17
Decrease production	4	10	11
Quit production	1	1	3
No change in production	75	58	68

Sheep, goat and other grazing cattle production

	Scenario 1 (97 respondents)	Scenario 2 (97 respondents)	Scenario 3 (97 respondents)
Start production	1	4	3
Increase production	16	21	15
Decrease production	0	1	5
Quit production	1	1	3
No change in production	82	73	74

Pig and poultry production

	Scenario 1 (126 respondents)	Scenario 2 (126 respondents)	Scenario 3 (126 respondents)
Start production	0	1	0
Increase production	12	14	6
Decrease production	5	13	10
Quit production	6	9	14
No change in production	77	63	70

Other production

	Scenario 1 (47 respondents)	Scenario 2 (47 respondents)	Scenario 3 (47 respondents)
Start production	0	0	0
Increase production	4	6	6
Decrease production	0	2	0
Quit production	0	0	2
No change in production	96	92	92

Table 8-102: Intended change in specific production activities, according to the scenarios; averages, in ha or heads

Cereal, oilseed and protein crop production, ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	188 (16 respondents)	183 (49 respondents)	225 (24 respondents)
Decrease or quit production	-145 (8 respondents)	-148 (19 respondents)	-177 (30 respondents)

Root, potato, field vegetable and other field crop production, ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	83 (3 respondents)	112 (6 respondents)	100 (2 respondents)
Decrease or quit production	-66 (13 respondents)	-64 (26 respondents)	-80 (31 respondents)

Forage and pasture, ha

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	118 (12 respondents)	141 (39 respondent)	227 (32 respondents)
Decrease or quit production	-98 (4 respondents)	-124 (18 respondents)	-217 (18 respondents)

Milk production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	63 (41 respondents)	85 (51 respondents)	72 (29 respondents)
Decrease or quit production	-65 (4 respondents)	-81 (9 respondents)	-112 (16 respondents)

Rearing and fattening cattle production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	105 (28 respondents)	95 (44 respondents)	124 (26 respondents)
Decrease or quit production	-69 (7 respondents)	-61 (14 respondents)	-101 (18 respondents)

Sheep, goat and other grazing cattle production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	173 (16 respondents)	163 (24 respondents)	208 (17 respondents)
Decrease or quit production	n/a (0 respondent)	-25 (1 respondent)	-146 (6 respondents)

Pig and poultry production, heads

	Scenario 1	Scenario 2	Scenario 3
Start or increase production	14,973 (15 respondents)	12,594 (18 respondents)	27,763 (8 respondents)
Decrease or quit production	-1,192 (12 respondents)	-748 (27 respondents)	-876 (27 respondents)

Stated intentions: non-agricultural on-farm or off-farm investment

**Table 8-103: Characteristics of farms in 2002 holding or not off-farm assets;
ANOVA**

	Farms holding off-farm assets (19 farms)	Farms not holding off-farm assets (133 farms)	F-test
Average UAA (ha)	2,469	1,780	4.5 **
Share of farms in large size cluster, %	47	26	3.6 **
Average share in sale revenue (%):			
crop production	24	40	6.9 ***
livestock production	76	60	7.0 ***
other production	0.07	0.12	0.3
Average revenue per ha (ths euros)	0.89	0.56	7.3 ***
Average subsidies per ha (ths euros)	0.12	0.09	4.7 **
Average share of subsidies in total revenue (%)	22.0	20.7	0.1
Share of farms in LFA, %	95	74	3.9 **
Share of farms in mountain LFA, %	26	14	2.1
Share of farms in "no payments" cluster (vs. "payments" see Table 10), %	37	63	1.9
Share of farms in "coupled payments" cluster (vs. "decoupled payments" see Table 12), %	16	26	0.9

Table 8-104: Intended value and type of non-agricultural on-and off-farm investment change

For those intending to start or increase activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
Agro-tourism	5	1	7	1	8	1
Non-agricultural production	3	-	7	-	8	-
Services	1	2	2	3	1	4
Retailing, business	1	1	3	2	2	4
Forestry	-	1	2	1	2	1
Average value of investment (ths SKK)	3,611	950	7,344	4,250	6,944	10,000
(ths euros) ^a	93.2	24.5	189.6	109.7	179.2	258.1

For those intending to decrease or stop activities

	Scenario 1		Scenario 2		Scenario 3	
	On-farm	Off-farm	On-farm	Off-farm	On-farm	Off-farm
Type of activity (nb of respondents)						
Agro-tourism	-	-	-	-	-	-
Non-agricultural production	1	-	2	-	1	-
Services	-	-	1	-	-	-
Retailing, business	-	-	-	1	-	1
Forestry	-	-	-	-	-	-
Average value of investment (ths SKK) (ths euros) ^a	-	-	1,600 41.3	1,000 25.8	-	1,000 25.8

Note: “-” means no valid observation.

^a Calculated with the exchange rate on 1 January 2005.

Table 8-105: Characteristics of farms in 2002 according to their intention regarding the future farm area in Scenario 1, ANOVA

	Decrease area (6 farms)	Same area (131 farms)	Increase area (13 farms)	F-test
Average UAA (ha)	2,671	1,901	1,269	2.4 *
Share of farms in large size cluster, %	50	28	15	1.2
Average share in sale revenue (%):				
crop production	30	38	50	1.6
livestock production	70	62	50	1.6
other production	0.61	0.10	0.05	5.4 ***
Average revenue per ha (ths euros)	0.51	0.49	0.65	0.6
Average subsidies per ha (ths euros)	0.08	0.09	0.14	4.4 ***
Average share of subsidies in total revenue (%)	19	21	22	0.1
Share of farms in LFA, %	83	78	69	0.3
Share of farms in mountain LFA, %	17	17	0	1.3
Share of farms in “no payments” cluster (vs. “payments” see Table 10), %	33	24	23	0.1
Share of farms in “coupled payments” cluster (vs. “decoupled payments” see Table 12), %	83	41	46	2.1

Table 8-106: Characteristics of farms in 2002 according to their intention regarding the future farm area in Scenario 2

	Decrease area (14 farms)	Same area (84 farms)	Increase area (51 farms)	F-test
Average UAA (ha)	2,337	1,933	1,636	1.7
Share of farms in large size cluster, %	43	24	29	1.0
Average share in sale revenue (%):				
crop production	26	40	40	1.8
livestock production	74	60	60	1.8
other production	0.13	0.09	0.14	0.3
Average revenue per ha (ths euros)	0.50	0.45	0.60	1.3
Average subsidies per ha (ths euros)	0.10	0.09	0.10	0.3
Average share of subsidies in total revenue (%)	19	21	20	0.11
Share of farms in LFA, %	86	77	75	0.4
Share of farms in mountain LFA, %	21	14	14	0.3
Share of farms in “no payments” cluster (vs. “payments” see Table 10), %	29	21	29	0.6
Share of farms in “coupled payments” cluster (vs. “decoupled payments” see Table 12), %	43	39	49	0.6

Table 8-107: Characteristics of farms in 2002 according to their intention regarding the future farm area in Scenario 3; ANOVA

	Decrease area (9 farms)	Same area (97 farms)	Increase area (29 farms)	F-test
Average UAA (ha)	1,749	1,877	1,612	0.5
Share of farms in large size cluster, %	22	27	28	0.1
Average share in sale revenue (%):				
crop production	43	40	39	0.1
livestock production	57	60	61	0.1
other production	0.11	0.9	0.18	0.7
Average revenue per ha (ths euros)	0.42	0.45	0.74	3.9 ***
Average subsidies per ha (ths euros)	0.12	0.08	0.14	8.8 ***
Average share of subsidies in total revenue (%)	23	20	22	0.2
Share of farms in LFA, %	67	77	76	0.3
Share of farms in mountain LFA, %	11	14	14	0.0
Share of farms in “no payments” cluster (vs. “payments” see Table 10), %	22	27	21	0.2
Share of farms in “coupled payments” cluster (vs. “decoupled payments” see Table 12), %	33	48	31	1.6

Table 8-108: Characteristics of farms in 2002 according to their change in intention regarding the future farm area between Scenario 1 and 2; ANOVA

	Decrease area more in Scenario 2 (15 farms)	Same area in both Scenarios (90 farms)	Increase area more in Scenario 2 (43 farms)	F-test
Average UAA (ha)	2,193	1,830	1,830	0.5
Share of farms in large size cluster, %	33	23	35	1.1
Average share in sale revenue (%):				
crop production	31	41	38	1.0
livestock production	69	59	62	1.0
other production	0.12	0.07	0.20	2.0
Average revenue per ha (ths euros)	0.50	0.47	0.59	0.8
Average subsidies per ha (ths euros)	0.11	0.10	0.08	1.0
Average share of subsidies in total revenue (%)	20	22	19	0.4
Share of farms in LFA, %	87	76	77	0.4
Share of farms in mountain LFA, %	20	13	16	0.3
Share of farms in "no payments" cluster (vs. "payments" see Table 10), %	33	20	33	1.5
Share of farms in "coupled payments" cluster (vs. "decoupled payments" see Table 12), %	53	37	53	2.0

Table 8-109: Characteristics of farms in 2002 according to their change in intention regarding the future farm area between Scenarios 1 and 3; ANOVA

	Decrease area more in Scenario 3 (15 farms)	Same area in both Scenarios (96 farms)	Increase area more in Scenario 3 (24 farms)	F-test
Average UAA (ha)	1,564	1,875	1,712	0.5
Share of farms in large size cluster, %	13	28	29	0.8
Average share in sale revenue (%):				
crop production	50	39	39	1.2
livestock production	50	61	61	1.2
other production	0.08	0.07	0.29	3.4 **
Average revenue per ha (ths euros)	0.40	0.48	0.70	2.1
Average subsidies per ha (ths euros)	0.10	0.09	0.12	2.0
Average share of subsidies in total revenue (%)	24	20	22	0.5
Share of farms in LFA, %	73	76	79	0.1
Share of farms in mountain LFA, %	7	15	17	0.4
Share of farms in "no payments" cluster (vs. "payments" see Table 10), %	27	25	25	0.0
Share of farms in "coupled payments" cluster (vs. "decoupled payments" see Table 12), %	53	43	42	0.3

Table 8-110: Characteristics of farms in 2002, according to their change in intention regarding the future farm area between Scenario 2 and 3; ANOVA

	Decrease area more in Scenario 3 (29 farms)	Same area in both Scenarios (101 farms)	Increase area more in Scenario 3 (5 farms)	F-test
Average UAA (ha)	1,523	1,900	1,693	1.0
Share of farms in large size cluster, %	24	28	20	0.1
Average share in sale revenue (%):				
crop production	46	38	50	1.5
livestock production	54	62	50	1.5
other production	0.08	0.12	0.11	0.3
Average revenue per ha (ths euros)	0.44	0.52	0.72	0.7
Average subsidies per ha (ths euros)	0.08	0.09	0.18	6.8 ***
Average share of subsidies in total revenue (%)	19	22	18	0.5
Share of farms in LFA, %	69	78	80	0.5
Share of farms in mountain LFA, %	10	16	0	0.7
Share of farms in "no payments" cluster (vs. "payments" see Table 10), %	31	22	60	2.2
Share of farms in "coupled payments" cluster (vs. "decoupled payments" see Table 12), %	59	39	60	2.1

Annex 7: All countries

Table 8-111: Model validity: Condition index, significance and correct predictions, All countries – Stay/Exit

	Scenario 1	Scenario 3
Condition index	17	16
Significance (likelihood ratio test)	.000	.000
Share of 0 correctly predicted (%)	79	80
Share of 1 correctly predicted (%)	54	52
Overall correct predictions (%)	77	77

Table 8-112: Model validity: Condition index, significance and correct predictions, All countries – Grow/Not grow

	Scenario 1	Scenario 3
Condition index	14	15
Significance (likelihood ratio test)	.000	.000
Share of 0 correctly predicted (%)	60	53
Share of 1 correctly predicted (%)	78	72
Overall correct predictions (%)	74	69

Table 8-113: Model Results, All countries – Stay/Exit – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	3.745	0.411	9.105	0.000
AGE	-0.053	0.006	-8.406	0.000
AREATOT	0.001	0.000	1.900	0.057
PBSUCC	0.421	0.139	3.034	0.002
SLOVAKIA	-1.071	0.200	-5.363	0.000
LITHUANI	-0.148	0.213	-0.694	0.487
FRANCE	-0.469	0.206	-2.277	0.023
SWEDEN	-0.338	0.177	-1.908	0.056

Table 8-114: Model Results, All countries – Grow/Not grow – Scenario 1

	Coeff.	Std.Err.	t-ratio	P-value
ONE	0.291	0.382	0.762	0.446
AGE	-0.028	0.007	-4.154	0.000
SLOVAKIA	0.914	0.229	3.983	0.000
LITHUANI	0.391	0.217	1.798	0.072
FRANCE	1.010	0.207	4.869	0.000
SWEDEN	0.007	0.215	0.032	0.975

Table 8-115: Model Results, All countries – Stay/Exit – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	4.135	0.392	10.548	0.000
AGE	-0.059	0.006	-9.602	0.000
AREATOT	0.002	0.001	3.070	0.002
NOSUCC	-0.283	0.121	-2.347	0.019
SLOVAKIA	-0.607	0.199	-3.050	0.002
LITHUANI	-0.065	0.212	-0.308	0.758
FRANCE	-0.450	0.201	-2.238	0.025
SWEDEN	-0.523	0.171	-3.063	0.002

Table 8-116: Model Results, All countries – Grow/Not grow – Scenario 3

	Coeff.	Std.Err.	t-ratio	P-value
ONE	-0.645	0.372	-1.734	0.083
AGE	-0.011	0.006	-1.813	0.070
REVANSW	0.006	0.003	1.903	0.057
SLOVAKIA	0.713	0.225	3.165	0.002
LITHUANI	0.855	0.212	4.026	0.000
FRANCE	0.955	0.209	4.573	0.000
SWEDEN	0.250	0.210	1.192	0.233