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EXECUTIVE SUMMARY

This executive summary provides an overview of research carried out by the WRO between July and December 2011 to investigate farmers' decision making in Wales.

This research addresses the following questions:

1. What are the key factors that influence farmers' decision-making in relation to their farm businesses and participation in agri-environment schemes?
2. How can participation in agri-environment initiatives and the delivery of ecosystem services be more effectively incentivised?
3. How can farmers be supported to operate more sustainable businesses, which are resilient to future challenges of CAP reform, market volatility, and increasing input costs?

This work is designed to inform agri-environment and other rural policy mechanisms, which target the delivery of ecosystem goods and services, there-in contributing towards the delivery of Wales' Natural Environment Framework and Rural Development Plan. Equally, this research is intended to contribute to the planning of CAP reform and future agricultural policy measures to improve the resilience and sustainability of farming in Wales.

A mixed methods approach was applied, drawing on secondary survey data from the WRO 2010 Farm Household Survey and IBERS Farm Business Surveys, with primary data collected through 51 semi-structured interviews with farmers across Wales. The sample was chosen on the basis of farm size (ESU). Interviews were also conducted with case study groups where ecosystem services delivery was being pioneered, including the Cambrian Mountains Initiative and the LIFE sponsored 'Blanket Bog Wales' Project. Project officers from the case studies were also interviewed, as well as Farming Union and Organic Centre Wales representatives.

The research was conducted by a team at Aberystwyth University.

KEY FINDINGS & RECOMMENDATIONS

Question 1: Factors influencing business and agri-environment decision making:

Segmentation of farmers is more effective when they are differentiated in terms of business engagement and adaptability, rather than dividing them according to fixed identity types, or levels of engagement with agri-environment initiatives.

The majority of farmers are now prepared to consider agri-environment participation as a means to increase the resilience of their businesses. Environmental measures are not simply adopted for ideological reasons, but increasingly as a business strategy.

Agri-environment uptake continues to depend on a suitable balance of financial incentive and fit with existing management plans.

Just under a third of the farmers interviewed were in the process of applying to Glastir. However, as many were still in the Tir Gofal extension phase final uptake figures were not clear.

Worryingly some former Tir Gofal participants were choosing not to join Glastir. However, despite the poor perception of Glastir, the scheme did have a higher number of applicants in the first year than any of the previous schemes.

The main criticisms of Glastir include low payment levels, a perception of high restriction levels, and a lack of engagement with the aims of the scheme.

Question 2: Incentivisation of agri-environment schemes and ecosystem services:

There is still a degree of uncertainty and limited understanding of the aims and objectives of Glastir among farmers, and this is a significant factor in non-participation.

Most farmers questioned the perceived emphasis on conservation priorities at a time of increasing concerns about food security.

Low input, organic, and agro-ecology systems are seen as important models to meet these combined goals, with many farms adopting elements of these systems to increase the resilience of their businesses.

Most farmers are not prepared to compromise the food producing capacity of their farms, even for short term financial gain, as they are concerned to maintain their farm business for future generations. Appreciating these priorities will be essential for the development of ecosystem service delivery.

The capacity of some farmers to participate in agri-environmental schemes is restricted by limited areas of suitable habitat, which makes the economics of placing a whole farm in a scheme less attractive.

There is a very poor understanding of the ecosystem services concept. Clear communication, through effective demonstration projects and project officer support, has been shown to improve levels of engagement.

Tensions and misunderstandings between farmers and conservationists can negatively affect farmers' perceptions of agri-environmental practices and schemes.

Question 3: Supporting farm businesses:

Farm business statistics demonstrate very high levels of vulnerability to future reductions in the Single Farm Payment. Nevertheless, in this study half of the respondents outlined that they were considering how to adapt.

Small, niche businesses, with a strong local consumer base, were particularly resilient and seen as an important model in the move towards low carbon economies.

Accounting and financial management was the weakest area of business skills amongst respondents. Many found peer-learning and support groups helpful to develop these skills.

Most farmers preferred to improve the quality and efficiency of their farming skills, instead of diversifying their businesses. Diversification is not always the best solution for farms where human capacity is limited.

Special branding and adding value were seen to have limits. It may be more effective to improve the resilience of farming systems by improving livestock health, lowering input costs, and reducing the length of supply chains.

Whilst restrictions on environmental capacity were important to levels of business adaptation, willingness to change and human capacity were the main determinants. Exposure to new ideas and outside influences are particularly affective. Here the influence of extension services were particularly notable.

A high proportion of farmers see themselves as independent and competitive in their businesses. This encourages a reluctance to be directed or coerced in their decision-making.

The majority of farms are run as family enterprises, with decision-making involving partners and other family members, not just the farmer.

A high proportion of farmers would prefer to receive better prices for their produce in place of the Single Farm Payment. Greater public engagement and support was outlined as a prerequisite to enable change in this area.

Recommendations

1. Further communication of Glastir's aims and objectives is needed to encourage wider engagement.
2. Agri-environmental initiatives should be positioned within a coherent farming strategy, with an integrated approach to the challenges of conservation, climate change adaptation and food security.
3. Low-input, organic, and agro-ecology approaches should be supported as mechanisms to combine conservation and food production objectives.
4. A small grant scheme to support targeted conservation work on farms that are not appropriate for full inclusion in Glastir would provide an instrument for engaging more farmers with agri-environmental objectives.
5. A communications strategy should be developed to explain and demonstrate the ecosystem services approach to farmers.
6. Behaviour change strategies, focusing on engagement, encouragement, and leading by example, should be employed to promote environmental practices by farmers and promote a more constructive relationship between farmers and conservationists.
7. Extension services and discussion groups should be maintained and supported to enable on-farm and peer learning.
8. Effective engagement strategies to encourage behavior change and scheme participation by farmers should target and address farmers' perceptions of independence and competitiveness.
9. Business support mechanisms and the communication of policy messages should be aimed at the whole farm household rather than a lone decision maker

SECTION 1: INTRODUCTION

Project Aims

This report details the findings of research carried out by the WRO between July and December 2011 to investigate farmers' decision making in Wales. This research is intended contribute to the evidence base required for the development of agri-environment and other rural policy mechanisms, which target the delivery of ecosystem goods and services; and agricultural policy to improve the resilience and sustainability of farming in Wales. Specifically, the WRO investigated the following questions:

1. What are the key factors that influence farmers' decision-making in relation to the farm business, including their participation in agri-environment schemes?
2. How can participation in agri-environmental initiatives and the delivery of ecosystem services be more effectively incentivised?
3. How can farmers be supported to operate more sustainable businesses, which are more resilient to future challenges of CAP reform, market volatility and increasing input costs?

These broad questions were divided up in to the following areas, which have guided the research process and final report structure:

- Motivations and engagement with agri-environment schemes.
- Engagement and attitudes towards Glastir.
- Perception of nature conservation.
- Engagement with the concept of ecosystem service delivery.
- Perception of role and identity.
- Business orientation.
- Perception of CAP reform / Single Farm Payments.
- Perception of risk.
- Decision making processes.

Policy Context

The research questions addressed by this report have been formulated in the context of understanding farmers' decision-making with respect to current and recent policy initiatives in Wales, and their attitudes towards a number of potential future policy developments.

Most immediately, discussion of farmers' decision-making with respect to agri-environmental practices has been framed by the introduction of the **Glastir** scheme by the Welsh Government in 2009 as a mechanism through which to deliver ecosystem goods and services, with a focus on climate change mitigation; flood mitigation; water quality (particularly Nitrate Vulnerable Zones); biodiversity; historic and cultural landscapes. It replaced four previous schemes, Tir Cynnal, Tir Gofal, Tir Mynydd and the Organic Farming Scheme.

Glastir forms part of a wider agricultural policy shift to reduce subsidy dependence, support greater market integration, diversification activities, and public value for money through a more effective delivery of public goods. This wider agenda has been set by reforms to the European Union **Common Agricultural Policy**, and articulated in Welsh Government policy by the 2009 paper '**Farming, Food and Countryside: Building a Secure Future – A new strategy for farming**', which outlines the Welsh Government's rural policy priorities to 2020.

Glastir is funded under the **Wales Rural Development Plan for 2007-13** – which is intended to promote sustainable *and* integrated rural development, addressing a legacy of economic and social deprivation in rural Wales, and challenging the threat posed by the current economic climate. Here farming families are noted as key components of vulnerable rural communities, providing both economic

and social inputs. Equally, it is acknowledged that the dynamics of agricultural and rural communities have undergone significant changes in recent years, with diversification, tourism and the role of other small businesses now coming to the fore.

Additionally, in emphasising environmental outcomes, Glastir is also part of the Welsh Government's approach to environmental management and its response to climate change. The **Natural Environment Framework: A Living Wales**, adopted in 2011 focuses on the former, emphasising the importance of an ecosystems approach and the need to value ecosystem goods and services. The Welsh Government's **Climate Change Strategy**, meanwhile, places emphasis upon the importance of public engagement and effective communication of the issues, to facilitate positive behaviour change. Specifically, the need to exemplify, enable, and encourage people is highlighted alongside engagement. This strategy is seen as part of a wider focus on improving behaviour change governance across the UK (MindSpace 2010).

As the research has sought to examine farmers' decision-making with respect to potential future policy developments as well as to current instruments, the study has also been informed by a number of wider developments. These include:

EU CAP Reform Proposals, announced October 12th 2011, for the capping of Pillar 1 Single Farm Payments to ensure greater distribution of money and targeting 'active' farmers; greening of 'direct' payments to ensure that 7% of agricultural land enters set-aside or permanent pasture; reduced bureaucracy with cross-compliance; greater emphasis on delivery of public goods from Pillar 2 monies; capping of overall budget, reducing the subsidies over the longer term. These reform proposals follow longstanding EU pressures on the delivery of environmental and public benefits from agriculture, as exemplified by agri-environment and rural development regulations. Along with on-

going EU pressures to meet biodiversity and water quality directive targets, in accordance with the Water Framework Directive and designations of Natura 2000 sites.

An increasing international emphasis upon the **economic value of ecosystems** and biodiversity, as exemplified by the Millennium Ecosystem Assessment, TEEB, and UKNEA; leading to the prioritisation of payments for ecosystem services. International Climate Change policy targets and associated measures, including emissions trading and offsetting schemes, which increase pressure to place economic value on ecosystem services including carbon sequestration.

Global food security pressures, as summarised in the recent Foresight Report (2011), with particular concerns around the need to climate proof food production systems, ensuring resilience to future environmental shocks. Security is also highlighted in relation to economic shocks, and the challenges of trade equity and poverty alleviation. Relating these global issues to Wales, questions emerge regarding the extent of food sovereignty required and the ecological resilience of agricultural production methods. Of particular note is the challenge set out by the UK All Party Parliamentary Group on Agro-Ecology (Smaje and Rowlett 2011), emphasising the importance of self-sufficiency and small scale production, which also resonates with the findings of the 2008 IAASTD report.

SECTION 2: LITERATURE REVIEW

This report has been informed by a range of academic and policy literature. Policy orientated reports consulted include: CCRI's (2009) 'Entry and Exit from agri-environment schemes in Wales'; the Wales Audit Office's (2007) 'Tir Gofal' report; Defra's (2008) 'Behavioural typology of farmers in England'; CCRI / Macaulay's (2007) 'Understanding and influencing positive behaviour change in farmers and rural land managers'; and the Rees Roberts Independent Review of Glastir.

In terms of academic research, the report draws on a wide body of literature addressing farmers' behaviour (eg. Gasson, 1973; Davies and Hodge, 2006; Potter and Morris, 1995; Wilson, 1997; Wilson and Hart, 2000). These have been reviewed at length in previous reports (see particularly CCRI/Macaulay 2007; CCRI 2009).

In light of the interest in ecosystem service delivery, empirical analyses of Payments for Ecosystem Service (PES) schemes have also been consulted (eg. Corbera et.al 2007; Kosoy et.al 2008; McAfee and Shapiro 2010).

Taken together, these literatures highlight the importance of assessing the multi-scalar dynamics affecting farmers' participation in conservation schemes. This ranges from questions about individual behaviour through to a consideration of institutional context and governance structures.

In particular, studies on PES highlight the importance of cultural understandings, suggesting that conservation management cannot be ensured by adequate payment levels alone, and that a respectful attitude towards the environment is a prerequisite to successful schemes. Building on this point, it has been argued that payments which simply compensate communities for the 'opportunity cost' of conservation management are inappropriate, and that a

more positive investment of funds in sustainable modes of production is required. In other words, success is best achieved by avoiding an accentuated division between conservation and production.

Here, it is important to note the availability of different production and diversification strategies, as farmers with lower diversification capacity are less likely to engage in conservation management which will jeopardise their production practises even with adequate compensation payments, simply due to risk aversion. But management that strengthens production opportunities and enhances cultural capital is seen to increase the sustainability of the community, and is therefore more acceptable. A final point to take from work on PES is the need to attend to collective goods and questions of intergenerational justice, again emphasising the importance of non-monetary benefits.

Studies into farmers' behaviour in the EU demonstrate that farmers, like most people, are not simply rational economic actors that prioritise financial gain above all other factors. For many, farming is expressed as a lifestyle choice as well as a business, with a range of complex factors coming into play affecting how they make business and wider management decisions. Nevertheless, financial motivations are listed alongside the fit with existing management plans as the main reasons for farmers' participation in agri-environment schemes. This demonstrates that economic priority is still central, if not always the final determinant of decisions.

Critically, it is also evident that positive attitudes towards the environment *do not* equate with agri-environment uptake or pro-environmental behaviour. Exploring other potential areas of correlation in farmers' behaviour, including farm size, profitability, and farmers' age, the literature overall indicates that there are

no clear correlations between agri-environment uptake and variables including farm type, demographics, educational background, and value judgements. Instead, agri-environment decisions are seen as a complex combination of contextual variables, which are best summarised as a balance of capacity, willingness and engagement.

Given these complexities, segmentation through the construction of farmer typologies is accepted as a useful tool for policy makers to effectively target these differentiated audiences, whilst accommodating the variety in their behavioural motivations.

Overall, the literature demonstrates a number of ambiguities surrounding farmers' economic priorities and how their business decisions are made. With mixed messages evident about the extent to which, and ways in which, farmers' are seen to be business and profit orientated. The literature also suggests that attitudinal data alone is not helpful in determining behavioural outcomes. Rather, research needs to consider social norms and self-identity as key factors alongside attitudes (Burton 2004). Similarly, Burton et.al. (2008) suggests that social capital and questions of self-perception and identity are critical to understanding whether conservation conflicts with how farmers' perceive their role.

Equally, it is evident that questions around what is meant by 'environment' are not fully explored in surveys, leading to analytical discrepancies, and conflating the extent to which farmers are actually engaged with environmental concerns.

In light of these issues, it was decided that the present study should employ a qualitative approach to develop a richer data set, beyond attitudinal statements, which could delve deeper into questions of self-perception and identity as well as exploring the nuances of decision making

processes. This is outlined further in the next section.

Summary: From the literature it is evident that there are no simple patterns of correlation in agri-environment uptake and a more in-depth understanding of decision making processes is needed which addresses questions of identity and social influences.

SECTION 3: METHODOLOGY

The study employed a mixed methods approach, drawing on quantitative data from an earlier telephone survey (WRO 2010), IBERS' (2009, 2010) Farm Business Surveys, and CCRI's (2009) study of 'entry and exit into agri-environment schemes in Wales', with primary data collection in the form of 60 in-depth, semi-structured interviews. Whilst the interviews were not designed to provide statistically significant data, (given the qualitative approach) they were aimed to cover a broadly representative sample of farmers across Wales, to avoid biases associated with particular locales, farm types, size and so forth. Respondents were chosen from a list of ~1000 contacts used for the earlier 2010 survey work, with a sample of 50 constructed according to farm size, mirroring the ratios used for wider national surveys. The final sample is detailed further in section 4.

In addition, interviews were conducted with case study groups where an ecosystem service approach had been piloted, to see if there was clearer engagement with conservation goals amongst these farmers.

These case studies include farmers involved with the LIFE project blanket bog restoration work in the Berwyns, and on the Mignient in North Wales www.blanketbogswales.org; and the Cambrian Mountain Lamb Co-operative, part of the wider Cambrian Mountains Initiative <http://www.cambrianmountains.co.uk>.

These case study groups were chosen as the most developed examples of ecosystem service delivery in Wales, with a focus on goods and services associated with climate change mitigation, flood alleviation, and water quality issues, which are regarded as priority issues for the new Glastir scheme and the Natural Environment Framework. The projects have undertaken a range of scientific monitoring work, to assess the effectiveness of management applications

aimed to deliver ecosystem goods and services. Farmer and community liaison work has also been conducted in these areas to improve the levels of engagement with the conservation work being undertaken.

The following non-farmers were also interviewed:

- A LIFE Project Officer and CCW conservationist associated with the LIFE project.
- A CCW representative for the Cambrian Mountains Initiative Ecosystems workstream was consulted in the design of the project.
- NFU Wales and FUW Officials
- 2 Farm and Wildlife Advisory Group staff – one in North Wales and one in South Wales.
- A representative from the Organics Centre Wales.
- A representative from the Welsh Government.

Interviews were intended to explore decision making *processes*. This was done by exploring issues from a number of angles, asking repeat although reframed questions, and considering the importance of temporal aspects upon decision making. For instance, asking about what had affected particular decisions in the past, what they thought about these issues now, and what their priorities were over the longer term. Longitudinal analysis was also possible by comparing individuals' interview responses with their answers in the 2010 survey data set. Questioning also focused heavily upon the discussion of particular experiences, to avoid abstracted or 'ideal-type' answers, where respondents say what they think you want to hear / they 'should' say. In addition, the importance of identity and social-norms were incorporated in question design, along with a need to attend to potential disparities between the various discourses of 'environment' and 'conservation'.

Areas of questioning included:

- Reasons for and experiences of agri-environment participation.
- Whether there was any conflict between conservation and their role as a farmer.
- Whether they had heard of ecosystem services (particularly in relation to Glastir).
- Whether they would be prepared to undertake more conservation work if the payments were appropriate.
- Whether the framing of payments in terms of 'income foregone' influenced their perception of conservation.
- The extent of their business orientation and skills.
- Plans and concerns for the future, including perception of CAP reform.

Interview schedules are included in Appendix 4.

Questions were developed from the initial areas of investigation outlined in the introduction, with more particular lines of inquiry developed through consultation with Welsh Government staff and representatives from the case study projects and Farming Unions.

It should be noted that given the very poor understandings of 'ecosystem services', as a concept, there was a degree of disparity between the way that respondents were questioned about this issue. With those who showed a greater understanding questioned further, whilst those who showed least engagement were simply asked whether they would be prepared to do more conservation work if they were paid to do so. The difficulties of communicating 'ecosystem services' was discussed at length with Union Officials prior to interviewing the farmers. In interviews, ecosystem services were normally explained through reference to climate change mitigation, carbon

sequestration, catchment scale management, and a more holistic conception of conservation, beyond biodiversity management.

Interviews were largely conducted face-to-face, although some telephone interviews were conducted. Interviews were recorded and transcribed, with notes taken during the interview recording any additional observations. This data was then coded using NVivo, applying codes which emerged from the data along with codes pre-selected to fit the areas of questioning.

Respondent characteristics and key responses were also cross tabulated, to enable comparisons and the construction of different farmer typologies (appendix 3). Written summaries were also made for each respondent to aid with this process (appendix 2).

Summary: This study has employed a mixed methods approach drawing on secondary survey data from the WRO 2010 Farm Household Survey and IBERS Farm Business Surveys, with primary data in the form of 60 in-depth interviews with farmers and conservationists across Wales, to explore decision making processes.

SECTION 4: SAMPLE OVERVIEW

Respondent Characteristics

This section gives an overview of the interview sample and the different respondents' characteristics.

A total of 51 farmers were interviewed for this study, with 6 of those involved in the case study projects.

Respondents were selected from contacts made through the earlier WRO (2010) survey, with a sample of 50 constructed according to their European Size Unit¹ and ratios used in the previous survey in order to give a 'representative sample'. However, it is important to acknowledge that the purpose of this study was not to provide statistically significant quantitative data, but to provide a more in-depth qualitative insight into decision making processes. Ultimately the inclusion of respondents came down to availability for interview, therefore the final sample varies somewhat from the original designed (see figure 1 below).

ESU	Original Sample	Final Sample
Very Small	16	9
Small	18	15
Medium	10	11
Large (and very large)	7	10

Figure 1: Table to show the number and size of farms in the sample selection (note that the farms in the case study were of unknown size).

¹European Size Units are a measure of the economic size of a farm business based on the gross margin inputted from standard coefficients for each commodity on the farm. One ESU roughly corresponds to 1.3 hectares of cereals, or one dairy cow, or 25 ewes.

Notably the final sample contained a higher proportion of large (mostly dairy) farms than the national average, as the research team decided it would be beneficial to speak with more representatives from this group, as they were a particular target audience for the new Glastir scheme. Also, very small farms which respondents classed as small-holdings were largely not involved in schemes, and consequently were not then interviewed in depth.

Respondents were selected to provide a wide geographical coverage across the country, although a higher proportion were interviewed from the Mid-Wales area, given the practicalities of travelling associated with conducting the interviews.

Interviews were conducted on an individual farm household basis rather than with groups of farmers, to provide the opportunity for more personal responses than if a focus group setting was used. Interviews were conducted with individual farmers and families, depending on the respondents' own personal preferences. This was seen to provide a useful insight into how decision making was conducted as a family, or husband and wife partnership, and the dynamics of these situations were noted alongside the interview transcript. The plurality of decision makers was noted as a point of significance given that the WRO 2010 survey focused on the response of a principle decision maker, and therefore did not capture these dynamics. Also, the 2010 survey recorded a mix of 26% female respondents to 74% male, whereas in this study nearly 50% of the interviews were with a husband-wife partnership.

As well as the plurality of decision makers, it was also noted that the question of succession had a major bearing on respondents decision making, with at least

a quarter of respondents identifying a successor and explicitly considering their future needs as part of decision making processes. Others had children who they hoped could take over the farm, but who were too young to fully consider yet. However, it was also noted that just over 10% of farmers were in the opposite situation, where they were at retirement age but with no one to take on the farm. By comparison, the WRO 2010 survey shows that 60% of farmers had a likely successor and 47 % had succession plans, further supporting the consideration of succession as a key factor in farmers' decision making.

Respondents' age was not recorded but the 2010 WRO survey shows that the majority (71%) of farmers are between 40 and 65 years of age.

The majority of farms were beef and sheep, with only 3 mixed farms growing cereals and keeping a range of animals; although it should be noted that a number of Tir Gofal farms were growing cereals and fodder crops, but they did not identify themselves as mixed farms at the outset. One farm kept hens commercially (a number of farms had chickens for personal consumption). No horticultural specialists were interviewed. Six respondents identified themselves as small holdings. Eight dairy farmers were interviewed.

The majority of farms had a significant proportion of land with 'Less Favoured Area' status. This was not just the hill farms, but also those in coastal settings or with other physical constraints. Most of the dairy farms were non-LFA. These capacity factors had an important influence on respondents' ability to join agri-environment schemes, and their differing business strategies.

The majority of farms owned their own land, but also rented additional grazing. Around 10% of respondents were tenants; this was seen to have a significant bearing on their decision making and ability to diversify.

The majority of farmers were working full time on the farm and a third of respondents were also working off the farm as well, to make up their income levels.

Levels of agri-environment uptake were not factored into sample selection; levels of uptake are discussed in section 5.

Farmer Typologies

This section reflects upon the typologies evident within the interview sample and considers the utility of such categorisations.

Whilst the research methodology used in this study was not designed to facilitate segmentation analysis, which normally draws upon statistical analysis of quantitative data, the detailed picture of each respondent developed through the interview process did enable a broad review of typologies.

Typologies and audience segmentation have become important techniques for policy analysis in recent years, drawing on strategies from market research. Analysis of agri-environment uptake has particularly focused upon the need to divide farmers into different categories to enable more effective targeting of policy messages to increase engagement with schemes.

However, it is argued that previously applied categories which differentiate between levels of engagement with the agri-environment discourse (Potter and Morris 1995) need to be adapted, given the changing context of agri-environment regulation within wider CAP and Rural Development fund restructuring. Specifically, the evidence presented in this study shows a high level of awareness and consideration of agri-environment schemes, which is seen to correspond with increasing levels of business vulnerability and a need to adapt.

Consequently, scheme uptake and the adoption of environmentally sensitive farming is increasingly seen as a business strategy across a range of farm types and sizes, and is certainly not limited to ideological motivations. In particular, it was noted that the majority of more proactive and progressive farmers were concerned to consider environmental issues to improve their businesses, by reducing inputs, improving quality and / or appealing to niche markets. Given these trends, it is argued that segmentation which separates 'environmentalists' does

not accurately reflect the progressive and entrepreneurial nature of these farmers.

A further point of departure from previously applied typologies, is that the geography of Wales is substantially different from England (where a lot of previous studies have been conducted), so farming within Wales is therefore quite distinct from the very large scale intensive agri-businesses that is predominant in England. Consequently farmer types derived from settings external to Wales are likely to clash with the experiences and priorities of respondents here.

Moreover, it was evident that divisive categories such as agricultural producer, agri-business person, diversifier, and lifestyle / hobbyist, did not accurately reflect the inter-relations in respondents' priorities. This complexity has been addressed in previous analyses by Burton and Wilson (2006) who argue that instead of fixed 'typologies' it is more effective to consider multiple identities stacked in different orders at different times. Specifically, they state that farmers can be seen as a blend of: agricultural producer / agri-business person / conservationist / diversifier; and that these identities are maintained simultaneously, with the most suitable identity appropriated when the right situation arises.

This overlaying of identities was similarly observed in this study; a mosaic of the priorities and affiliations evident is shown in figure 2.

The dynamism in farmers' decision making is similarly noted by CCRI (2009), emphasising the importance of understanding identities, and associated behavioural norms, as something which are constantly in flux and being re-made. Expanding on this point, Burton (2004) draws on social psychology literature (eg. Ajzen and Fishbein 1980) to highlight the importance of social influences and contextual variations. This is used as a means to draw out why particular priorities are evidenced in some decisions and not

others. These social influences will be considered in section 7.

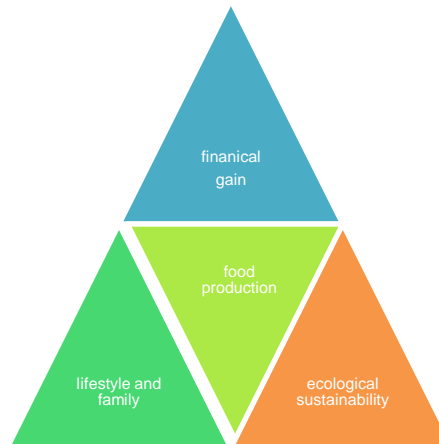


Figure 2: A mosaic of respondents' priorities and affiliations.

Despite the evident difficulties of drawing out clear typologies, it is argued that a useful division can be made between the levels of *adaptability* evident in farm businesses. This type of division is seen to be particularly applicable given the arguments set out above, that the majority of farmers are now engaged, *at least to some extent*, with the need to diversify and adapt their businesses. Consequently, differentiating between their levels of adaptability is now seen to be more appropriate than trying to classify them as an environmentalist / diversifier / agri-business person.

By reflecting upon the respondents' business decisions, agri-environment uptake, levels of diversification, significant investments made, and adjustments to farming practise, four stages of adaptability are evident: reluctant / restricted; adaptable; progressive; very proactive / entrepreneur. This is shown in figure 3 below.



Figure 3: Different stages of adaptability and business engagement.

Here it is important to note that whilst the least adapted group includes many farmers who are constrained by capacity issues, there is otherwise no clear relationship between capacity and willingness to change. Rather, it would seem that the biggest determinant is farmers' mind-set and levels of engagement. For example, there are many hill farmers in the sample who have been very proactive in their business strategies. Similarly, other studies have shown that successful businesses can be developed on very small and marginal holdings given sufficient human capacity and willingness (ELC 2011).

Grouping the sample in this way demonstrates an even spread of respondents in each category. However, it should be noted that as this study purposely focused on two innovative case studies as part of the overall sample, there was a high proportion of 'proactive / entrepreneurial' farmers within these groups, which has affected the overall totals.

Details of each respondent are given in appendix 2.

Restricted / reluctant: these farmers hadn't made any changes to their businesses over the long term, and showed little inclination to try and adapt their businesses. Restricted farms were often constrained by capacity (usually environmental conditions and remote locations, but also human capacity factors). Others who were fixed into a mind-set of maximising production were not keen to engage in agri-environment schemes or other diversification strategies. Some small holders and very

small farms were also included in this group due to the limitations stemming from the size of their holdings and restrictions on their labour capacity.

Despite the broader lack of change evident, members of this group were willing to engage in agri-environment schemes as a support mechanism if it fitted their existing management style. Some were looking to Glastir as a means to replace Tir Mynydd payments, suggesting that they will change when pushed financially, but are otherwise reluctant. A common complaint with this group was that they were unable to spare any more land for conservation, as their holdings were often small / already environmentally constrained. They were often very insular, relying on family members and close neighbours for support and decision making advice.

Adaptable: this group were also disinclined to change their business strategies, but had begun to take small steps. Typically, farmers in this group preferred to adapt their businesses in a way that did not depart too dramatically from traditional farming practise. For example, through improvements to their animal husbandry or breeding, rather than developing new supply chains or diversifying their businesses.

For some, their adaptability simply came down to the fact that they were not so constrained by capacity, and / or were running quite profitable enterprises which meant they had been able to invest more. Their distinction from the former group was that they had made some small changes; had looked into new ideas; or had some options open to them.

Progressive: these farmers were considerably more business orientated and had often made a number of changes to their businesses or farming style. However, despite their increased focus on business, it is important to stress that the majority were not simply driven by profit, rather a desire to be better farmers, with greater financial success a part of this – but *not* their primary aim. They were very committed to the farming lifestyle and often had family commitments to a farming future, with children involved in the business.

Many were involved in agri-environment schemes, and happy to go into Glastir if it supported the overall profitability of the farm, without compromising their production goals too severely. As outlined above, environmental commitments were notable with many respondents clearly committed to a low-intensity system as a more sustainable model of farming (ecologically and economically).

Proactive / Entrepreneurs: this group were very similar to the progressive farmers, but had simply developed more diversification strategies and / or niche marketing. Within this group, farmers stood out for pursuing particularly novel ideas, placing a strong emphasis upon networking, undertaking training, or making lots of investments to improve their businesses. As with the progressive group there was a very clear awareness of environmental issues and how they were integral to the sustainability of the farm business. For those who were not in agri-environment schemes, several suggested they would be happy to do environmental work on their own terms, with fewer restrictions (a point that is expanded in section 5).

A final characteristic to highlight is the presence of only a limited number of farmers (3) who based their decisions primarily on profit potential without any ties to continue a farming way of life / produce food. This type of farmer was happy to

rent their land and saw agri-environment schemes as a means to gain money whilst reducing farming responsibilities.

Overall, these categorisations should not be taken as fixed or even clear-cut groupings, given the dynamic nature of engagement processes and the on-going pressures on farmers to improve the resilience of their businesses. Nevertheless, the idea of differentiating between levels of adaptation and adaptability in the business strategy is put forward as a model to guide future interventions and policy initiatives.

Summary: Despite concerns outlined about the accuracy of applying rigid typologies, and traditional characterisations of farmers' identity, it is acknowledged that segmentation is still a useful exercise to enable the targeting of messages. In particular, differentiating between levels of business adaptation and adaptability are discussed here as a key focus given the need to promote greater resilience in the face of future challenges.

Agri-Environment Uptake

This section details observable trends in agri-environment uptake and outlines the main factors involved in respondents' decisions to be in schemes.

Over half the respondents were in agri-environment schemes, with an even mix of Tir Gofal, Tir Cynnal and Organic Scheme participants. (In this report Tir Mynydd is not counted as an agri-environment scheme). This is similar to the levels of scheme participation in the WRO 2010 survey: where there was 33% Tir Gofal; 35% Tir Cynnal and 10% Organic; although levels of organics participation is higher (at nearly 20%) in this study.

Dairy farmers were the most likely to not be in any schemes, with only 2 of the 8 interviewed currently in schemes (both Tir Gofal, one Organic). This is because, as has been noted in other studies, they are most constrained by the capacity of their land. In other words, they have lower amounts of available habitat to make them viable for schemes. Equally, dairy farms are normally more intensive than other farm types, meaning that the lower stocking rates and reduced inputs required by schemes were not as appealing or viable for them.

Here it is important to note that the majority of farmers will not change their farming practise and management strategies to participate in agri-environment schemes (WAO 2007; Wilson 1997). Consequently, having a system that already fits with agri-environment specifications is seen to be essential to scheme uptake. Hence the reason for low numbers of intensive and dairy participants. These capacity issues are also noted by the CCRI 2009 study of entry into agri-environment schemes in Wales.

The WRO 2010 survey shows no clear patterns between farm type and current agri-environment scheme participation. Elsewhere, large farm size and higher incomes have been associated with agri-environment uptake (Wilson and Hart 2000); whilst Potter and Lobley (1992) have noted some correlation with age. However, the majority of studies argue that there are no clear patterns between farm / farmer variables and agri-environment uptake. Most recently, after conducting a wide-ranging literature review, CCRI have argued:

Farmers' willingness and ability to enter (agri-environment schemes) is not reducible to their farm or personal characteristics, nor to their attitudes or values towards the environment or towards policy makers; and neither is their participation a simple function of economic factors...(CCRI 2009 executive summary point 4).

Consequently, they have developed a framework of capacity, willingness and engagement:

WILLINGNESS

Farmers' goals, values, philosophies, attitudes and motivations – underpinned by farmer identity and culture.

CAPACITY

Farm resources, farm business, farming systems, the family, the farm life cycle (farmers' age) farmer skills and knowledge (education) – and how these factors constrain or enable opportunities

ENGAGEMENT

Nature of farmers' interaction with: other farmers, PO's, policy (makers, deliverers, aims), public.

However, it is also important to note that Wilson and Hart (2000), and Burton and Wilson (2006) have evaluated data from across Europe, to conclude that financial incentives are the most important factor in agri-environment uptake, alongside the perceived fit with existing farm management strategies.

Evaluating the responses given in this study it is clear that the respondents held similar lines of reasoning, with the majority stating that they went into schemes for the money, but also because it enabled them financially to do things they wanted to do on the farm, such as walling, fencing and building renovation. The aims of the Tir Gofal scheme to facilitate this type of renovation and 'tidying' of the farm, was applauded and contrasted with Glastir where no money is being made available for this type of work. Equally, the positive local impact of Tir Gofal, through the transfer of capital to local contractors, was noted on several occasions and has been discussed in other studies (WAO 2007). Overall, the management undertaken in previous schemes was not seen to conflict too greatly with the running of the farm, although some concerns were articulated about stocking levels, which will be discussed further in later sub-sections.

Another particularly beneficial aspect of the schemes was the project officer involvement, where project officers had explained scheme requirements and were open to negotiation to make schemes fit better with local requirements. This was noted as a key difference from Glastir. But the decline in project officer support, towards the end of schemes, was also noted as problematic.

Considering scheme participation in relation to 'farmer types', only a very small proportion could be said to be joining schemes *primarily* because they believed in promoting more environmentally benign methods (2 farmers). But all respondents who were in schemes acknowledged that

the low intensity practises were something they were doing anyway. Consequently, there was an indication that many respondents are conservation orientated, but would not identify themselves as 'environmentalists'. Rather that they saw these methods as sustainable *agricultural* practises. So, it was something they were doing to produce better produce and to manage their land more effectively, rather than because they believed in protecting the environment in and of itself. This is a point which will be developed through the report.

Summary: the results presented here support those from previous reports on agri-environment uptake in Wales, outlining financial incentives and fit with existing management plans as the primary determinants on uptake. It is also evident that there have been some very positive experiences of the various schemes, but there is an important emphasis upon the need for sustainable production methods, rather than setting land aside solely for conservation.

Glastir Uptake

This section details observable trends in Glastir uptake and outlines the main factors involved in respondents' decisions to be in the scheme.

Trends in Uptake

In the WRO 2010 survey 84% of respondents had heard of Glastir, of these 42% stated that they were either likely or very likely to join Glastir. Only 14% stated they were unlikely to join, and 37% stated that they needed more information to make their decision.

From the 2011 interviews it was evident that just under a third of respondents (15 farmers) were in the process of signing up to Glastir, with a further 8 either considering it or in the Tir Gofal extension period.

A key point to note here is the high levels of engagement with the scheme, both in terms of the levels of awareness of the scheme's existence, and the number of respondents stating that there were open to the possibility of joining the scheme. However, the term 'engagement' is used with caution here as it is acknowledged that there were a number of problems in terms of the extent to which respondents understand the scheme. This will be discussed at the end of this section.

Specifically, it was notable that only 6 respondents had not looked into Glastir: one who was retiring, one intensive dairy farmer, and four small holders who felt that schemes were not well suited to their style of enterprise. Nevertheless, they had all heard of Glastir. Moreover, whilst the intensive dairy farmer had not looked into Glastir, they had undertaken conservation work on the farm funded by a small council grant.

Consequently, it is evident that lack of uptake was not due to a lack of awareness of the scheme, or lack engagement with the concept of agri-environment schemes more broadly. A quarter of respondents demonstrated that they had been prepared to go into Glastir if the scheme

had been suitable. This is an important distinction from previous schemes where a lack of engagement has been highlighted as a key factor (Potter and Morris 1995). It is also argued that engagement with schemes is now seen as part of broader suite of diversification strategies, to make farm businesses more adaptable and resilient. Scheme engagement is therefore, not limited to the more environmentally aware farmers. Rather, it would seem that environmentally sensitive farming is now being adapted as a business strategy.

However, despite the greater evidence of engagement, it was clear that there were a number of barriers to scheme uptake. Specifically, by comparing respondents' previous scheme involvement, their responses on the likelihood of Glastir uptake from the 2010 survey, and their 2011 interviews, a picture of how decisions have altered over time was deduced (see appendix 1). From these comparisons it was evident that a number of respondents were prepared to go into Glastir as a continuation of previous schemes. Or were willing to consider it, but had then changed their mind once they found out more about the scheme and decided that it did not meet their requirements.

Seven farmers who said they would not sign up to Glastir were in previous schemes. They outlined that poor payments and the high levels of restriction meant that Glastir did not make business sense to them (see quotes below).

One of these respondents was evidently very environmentally aware, showing clear engagement with and concern for environmental issues (WRO 12). Another very environmentally aware farmer also said they were not sure if they would sign up, but were currently in Tir Gofal extension (WRO 45).

Three farmers who had previously been in Tir Gofal emphasised that the money available through the 'All Wales' level was too low and they were only signing up to

try and get into the Targeted Element, which they suggested was a common strategy amongst their associates.

However, despite these departures, 3 farmers who were signing up to Glastir had not been in previous agri-environment schemes. This was because they were losing their Tir Mynydd payments and facing financial uncertainty with the future of the Single Farm Payment.

...all the money's going, there won't be Tir Mynydd money now, will there. So we thought we'd get something instead of that. (LIFE 2)

It's a bit of a worry at the moment isn't it (CAP Reform)? ...that's what swayed us towards Glastir a little bit. At least you have got something then haven't you, because we don't know what's going to happen, nobody knows. (WRO 179)

A high proportion of respondents who had not been in previous schemes also said they had considered Glastir for these reasons, but had either chosen against it because payments were too low and restrictions too high, or because they had not been able to get enough points. This demonstrates that lack of scheme uptake is not due to a lack of engagement, and that a high proportion of farmers are now willing to consider agri-environment schemes as part of their overall business strategy.

Two of the respondents joining Glastir without previous scheme involvement were low intensity hill farms with existing habitat, which meant that it was easy for them to join Glastir. They had not joined in the past as the financial pressure was not there, but also because they had other land in SSSI schemes and were not convinced of the benefits and sensibilities of agri-environment specifications, a point which will be expanded on below. The other farm aiming to join Glastir, was a dairy where they had tried to join schemes previously, and were very aware of conservation in their farming practise but had struggled to get enough points. They

were hoping to join Glastir with points gained through the slurry injection option. Nevertheless, they were critical of the difficulties that dairy farms had to surmount in joining schemes.

Here it is notable that the WRO 2010 survey shows that sheep farmers were the most likely group to join Glastir (58%). This study concurs that beef and sheep farmers are the largest group within those signing up to Glastir. Only 2 dairy farmers were in the process of joining; although all but one of the dairy farmers interviewed stated that they had looked into joining. This demonstrates that whilst the Welsh Government has attempted to encourage dairy farmers to sign up to Glastir, there are still significant barriers. Specifically, it is argued that dairies are often too intensive to change their management to suit the scheme objectives, and do not have existing habitat.

However, it was evident that there was no clear correlation with farm size (ESU) and agri-environment uptake, suggesting that in addition to the level of intensity at which the farm is run, that the actual geography of the holding is also a critical factor. In other words, it is possible to have a 'large' farm ie. higher intensity of production, but also have some areas of habitat suitable for conservation.

Reflecting further on the types of farmer who would join schemes, the WRO 2010 report suggests that agri-environment scheme adopters were more resilient in their business, showing greater levels of diversification and adaptation to change.

The results of this study support this finding in some ways, by confirming that a number of 'reluctant farmers', who did not show evidence of engagement with new ideas or business strategies, also did not adopt agri-environment schemes. However, it was also evident that even the least adapted farmers had signed up if schemes suited their management styles. It was more often the more high intensity producers who were constrained by the capacity of their land who did not sign up to schemes.

This suggests that whilst levels of business orientation are an important component of scheme engagement, in so much that individuals who are looking for diversification strategies are more likely to find out about schemes and try to sign up, this factor is not as important as farm capacity, ie. the fit of existing management with scheme requirements. Consequently, levels of uptake seem to be determined more by farm intensity levels and management style than by the degree of business orientation.

Looking more broadly, it was clear that respondents' interest in Glastir was largely in keeping with motivations for joining previous schemes. That is for financial gain and support with existing low-intensity management systems. A high proportion of respondents were keen to stress that previous schemes had worked well for them and if Glastir was more in keeping with these schemes they would have been happy to join.

Explaining Lack of Uptake (1)

The most common complaint with Glastir was that the financial incentive is too low.

Expanding on this point, many respondents argued that the lack of capital payments was problematic, and that they could not afford to do the work at the level of payment available. This was not only discussed in relation to fencing work, but also the slurry injection option. Others pointed out that it was not simply a question of low payments, but that they would not get the money up front for doing capital work, and could not afford to get themselves in more debt, even for a short time whilst waiting for payments to come through. This point was clearly articulated by the FUW official:

...some people don't have the five hundred pounds to throw at putting in a bit of fencing when they're not going to see the income back for two or three years. I heard one farmer say that it would take him four years to recoup, in terms of Glastir payments, the money he's going to spend out to go in.

There's no incentive there...okay you know it's got to be give and take, they've got to do work as well, we understand that, but there isn't the incentive... (FUW)

In addition, FUW also argued that pricing levels were currently wrong and needed to be reviewed.

...one of our biggest concerns was the payment rates and costing which we've always pushed to be updated, are not going to be, not for the foreseeable future ...all the costing are based on 2008, 2009 but a lot's changed since then. (FUW)

Another common point was that the price of stock had risen considerably in recent years, so that it made more sense financially for farmers to simply keep more stock. Here it was clear that this decision was both about financial priorities, but also about the fact that farmers would prefer to be selling stock than getting paid for conservation work. Agri-environment schemes were seen as a financial back-up, but if the markets were more prosperous then there was less need for them. However, it is important to note that many respondents did not suggest they would compromise the long term health and sustainability of their land for short term financial gain, so they would maintain a broadly conservation friendly level of farming without schemes.

Explaining Lack of Uptake (2)

The financial gain of Glastir was also measured against the level of restrictions then imposed by being in the scheme.

Consequently, farmers argued that it was not just a question of getting enough money to compensate the income foregone, but also the level of freedom foregone. These points are demonstrated in the following outtakes:

...it's just not financially viable for us to go onto the scheme. Plus with the little amount of financial incentive they give you, obviously

there will be more regulation and bureaucracy and we've got plenty of that already...Tir Gofal actually rewarded you for doing these things and they actually contributed towards the work whereas Glastir won't do that... it's difficult to make money on a farm nowadays anyway, but if they are expecting you to take a part of land out of production, then you are obviously giving up part of your income and they are not offering anything much in its place. They are sort of giving with one hand, saying oh we'll give you, for example if the farm was eligible for £3000 in funding, but they expect us to do a type of work that we wouldn't probably do ourselves, at our own cost, which would take probably about £2600 out of that £3000, leaving us with £400, plus all the additional hassle of doing the work. So no it's, it just doesn't add up. (WRO 162)

They wanted the best field we've got on the farm here, they want to sign it off, and don't cut it until the end of July, well in a normal year we do two crops there, they were going to compensate us for about £600 a year for not cutting it before the end of July, well I'm losing one cut which is worth about £2000 so get a grip.... the compensation rates are way off. And you know, the stock values are flying, so if they want to compete with the stock values they'll have to up their compensation big time. (CMI 1)

There isn't a lot of benefit in it at all for us. We've got another two years to run on Tir Gofal...To get into Glastir we haven't got to do a lot on top of Tir Gofal anyway...But there isn't a lot of benefit in doing it so whether we will bother, I don't know. The reason I'd applied in the first place, from what I could gather with Glastir, unless you're actually in Glastir you don't get any other grants. So unless you've

applied for it you won't get anything else.... But money-wise ... we're far better sort of ... improving the land that we're not supposed to improve under those schemes and we get that extra money from farming the land. (WRO 16)

It is so, so tight on all the, you must this, you can't that, all the things, and you just think, so you're signing up for two thousand two hundred pounds ...Who in their right minds is going to make that severe a business decision ...if you sign it you've agreed, I don't do this to the land, I can't put that there, I mustn't do that ...if I do this they'll fine me, the percentages are big right, and you just think, for two thousand two hundred pounds ...do I want my head testing? I really do think that anyone who signs up to it is either an eternal optimist or a nutcase! (WRO 45)

The environmental restrictions, you feel like it's nationalisation through the back door because you're restricted on what you can do with your own land...when you're supposed to do things, when you're supposed to cut things, when you're able to spray...It is nationalisation because the government's dictating to you, of course you are being paid for this understandably but the money now has been reduced... And the feeling talking to other farmers is that a lot of them won't be going into it, they feel like it's empowering yourself, at last you can do what you want now on the land. (WRO 13)

Considering the trends in respondents' decisions, it was notable that all of the above extracts were from farms which had been in previous schemes, who now felt that the level of restriction was not adequately being compensated for. Critically, they argued that whilst Tir Gofal and Tir Cynnal had also been restrictive,

on balance it made business sense for them to be in the scheme. But the findings of this study show that Glastir has not got this balance right.

Even those farmers who were signing up for the scheme were largely very wary and complained that it was now a lot more difficult for them to maintain a viable business and be in the scheme. Perhaps most worrying was statements from the more conservation orientated farmers indicating that they found Glastir had gone too far towards setting land aside, rather than maintaining sustainable production. As this was such a big theme arising from the interviews it will be addressed in a separate section.

Reflecting further upon this common complaint about the levels of restriction it is important to note that farmers who had not previously been in schemes were very often concerned about the perceived levels of intervention.

...they want to interfere with you too much, which I don't really want... they tell you what to do you see, which is taking your work from you as well because you're a farmer, you're managing that business, why get somebody else to tell you what to do?. (WRO 43)

Compared with the findings of the CCRI (2009) study, it was similarly noted that farmers who have not entered agri-environment schemes are often unduly concerned about the levels of paperwork and bureaucracy, compared to comments from those in schemes. Nevertheless, it was argued that the concern about paperwork was justified in the case of the Glastir scheme, with several respondents noting the overwhelming amount of reading that came to introduce the scheme, which had completely put them off.

I looked at the book and I said I'm going to study this. Yeah here we are. I said I'm going to (looking through papers). I'm not looking at that, just one look at it, I read two or three pages, not the things I like

to read, to be quite honest, and that killed it for me... (WRO 110)

It was also clear that if a farmer had looked at a scheme in the past and not entered because of restrictions and bureaucracy, they are unlikely to look again:

Because I'm a relatively intensive dairy producer, I thought that the rewards were not great enough for the effort that I would have to put in... and maybe the thought of extra inspections, it's a worry if you fail ...and because I've looked at it in the past and thought yeah that's not for me, I confess I've not really looked particularly hard since... I've been flicking through them but I generally haven't sat down and gone through line by line to work out whether it would be appropriate for me or not. (WRO 190)

Notably, the farmers who put complaints forward about the levels of restriction were often very pro-active and forward thinking in their businesses and were very concerned about government regulation, but, were not against doing conservation work.

We do do things, like every winter I lay some hedges and don't get paid, because I do it as a routine thing every winter. And most of them I don't double fence, because we don't need to, really...but it's a bit of a pain then because if we did that in the Glastir scheme you'd have to follow somebody's rules about fencing and so on... somebody in an office telling you how to run your farm... (WRO 39)

I've done some tree planting, hedge planting in the past, but that's been purely off my own back. I had a small cash Council grant for some tree planting ...and there are areas of the farm that more could be done... I think almost one off grants would be healthy... you say look I want to do this, this, this and this ...you know

cheap planting, a bit of fencing, walls that cut off habitat and so on and then go from there really and then perhaps then you wouldn't mind if somebody came back in five years just to check that the trees are still alive or still there or whatever. (WRO 190)

It is, therefore, notable that Glastir has been critiqued so heavily for its restrictions, and raises questions about the most effective way to engage farmers.

The question of engagement and particularly issues around how conservation policy is communicated to farmers is such a big theme that it will be addressed in separate section. However, the following extract gives a flavour of some respondents' views:

...they're trying to get environmental benefits in such a way that they're forcing people to be environmental, and there's nothing worse than trying to force someone to do something to make them really kick back. And farmers by nature want to produce food. But they don't by nature want to abuse land, that's not where it's at. Most sensible minded people would not damage the environment that they're using because your future would be curtailed. So to try and force such a ...strong environmental policy in the way they're trying to do it – they might get takers, I don't doubt that but I suspect they'll get more people baulking and saying well, this is my farm and I want to be allowed to farm it as I decide... (WRO 45).

Explaining Lack of Uptake (3)

Finally, it is important to highlight the potential influence of bad press on scheme uptake.

Specifically, it is noted that a long period of uncertainty during the schemes' development, and strong objections from

the Unions have had an important influence upon the farming community's attitudes towards the scheme. Gossip has been rife about the scheme, and many farmers have been swayed by what others tell them. The importance of these social influences is discussed in more depth in section 7. For the purposes of the discussion here it is important to note that nearly all the respondents interviewed suggested that despite the negative press they had looked at the scheme anyway, to see if it would work for them. Moreover, it was clear from a lot of explanations that decisions came down to the financial balance of the scheme. However, it should be noted that negative press and gossip could affect peoples' mind-set and cloud the way they perceived the scheme, so that they did not look into it in enough detail or with an open mind.

In particular, it is noted that conservation staff working with farmers thought there were very low levels of understanding about the scheme, and how it worked. This is a particularly pertinent observation given that Glastir has marked a significant change from previous schemes, in the levels of responsibility devolved to farmers in the scheme application process. Now that they have to undertake much more of the application process themselves, without support from Union staff or project officers, it is very possible that fewer farmers have engaged to the extent that they may need to fully appreciate the scheme. But, it is very difficult to be clear about this, given the mixed messages from respondents, and the fact that many respondents would not be keen to admit that they had not been able to fully understand the scheme. What was clear was that there was a lot of confusion around the scheme.

Summary: the reasons given for joining Glastir mirror those for previous agri-environment schemes, although it is evident that more farmers are now willing to engage with schemes due to the perceived threat of future financial insecurity, and the subsequent need to diversify and adapt the farm business. However, it is evident that Glastir has

received a higher level of criticism due to low payments levels and the relatively poor balance of restrictions measured against financial gain. Consequently, a high proportion of respondents who have previously been in schemes are now leaving and not signing up to Glastir. It is also noted that the bad press around Glastir could have had a negative impact on scheme uptake as people are not engaging with the scheme in such an open-minded way, and could be steered by what other people have told them.

Glastir Management Options

This section considers the trends observed in the uptake of particular management options, and notes any issues associated with the different options.

Considering the different management options chosen or otherwise discussed in interviews, it was notable that a lot of farms had either considered or were using the slurry injection option, suggesting that this has been a positive introduction for Glastir. In particular, given the comments and criticisms around other options it is suggested that this option works well because it is seen as a sustainable farming technique rather something which will conflict with food production.

Similarly, sowing arable crops and maintaining ground cover were accepted as viable and sensible options, which farmers understood and saw as a compliment to farming

However, there were a lot of complaints about the increased width of the double fencing around hedges, the options for fencing around ditches, creating ponds in the middle of fields, and anything that seemed to be an excessive waste of food producing land. In particular, it was argued that many farms (and indeed the whole of Wales) have only got a limited area of good agricultural land, and to remove this from production was foolhardy.

Well we're prepared to donate parts of the farm for consideration but not productive land, well with this Glastir, any conservation work you do has got to be done on improved ground... In the ESA and the Tir Cynnal there are some bits of the fields we've left as habitat and it's lovely because that's what it is anyway, well if we want to donate any more land for habitat now, we've got to donate prime productive land, so it's stupid in my mind. (CMI 1)

For others it simply didn't even make conservation sense:

...you have to look at what is sensible for your land, your area, your climate, the native species around you ...rather than saying things like, if you fence off a pond... Brilliant, you know, we could have had lots of points for fencing off a pond in the middle of our field. What sort of habitat are you creating if you fence off a pond in the middle of an improved field? So you've got a ten metre gap round the pond. Bang in the middle of a big field. Isolated. So that doesn't make, that doesn't make very good sense to us. (WRO 21)

Small farms were the most likely to complain about these options as respondents argued that they needed to use every bit of good agricultural land that they had, and that there was a large proportion of their farms which they could not work anyway, so to have more taken away from them didn't make sense.

Well I don't like shutting parts of the fields off. We haven't got much waste ground here to be honest with you, we've got about 4 acres of woodlands and that's about 2 or 3 acres rough, we haven't got enough, I don't think we've got enough. (WRO 46)

Very often these complaints came from low intensity hill farms who now felt they had to change more of the farm over to conservation land to join Glastir. But it was also notable that a high proportion of respondents working very small farms simply suggested that they were too small to be in schemes at the outset, so they wouldn't even consider them. This chimes with previous studies where large farms have been highlighted as the main adopters of schemes. But it does bring into question issues around the ethical distribution of government funding, with big farmers often being more profitable,

and being able to afford to leave some land out of food production. Consequently it is an issue of contention amongst the farming community that these larger farms can then gain extra financial support, whilst small farms feel unable to access these schemes.

Another area of concern was respondents' inability to plant trees where they wanted, which relate to the specifications of the Glastir planting map. In particular, farmers noted that they were not able to plant in / near areas of potential and existing curlew and lapwing nesting sites, to reduce the number of raptors preying on these birds. This restriction was not seen to be sensible, and seemed to reinforce the perception that conservation management specifications were poorly thought out, in terms of how they relate to the bigger picture, beyond specific species needs. Here conflicts were not just noted between the RSPB's requirements and those of farmers, but also between the priorities of different conservation groups. Again this reinforces the need to have better working relations and lines of communication with farmers if they are going to engage in schemes, as will be discussed further in later sections.

A final point to note here is that tree planting often seemed to be a popular option (although not on their best agricultural land). This suggests that tree planting is most easily understood as something which is good for the environment, whilst other options need further explanation so that farmers can appreciate the benefits of other habitat types. For example, there was a lot of confusion around the reduction of stocking on heather moorland, with comments made about the poor quality of heather and the lack of impact upon grouse numbers. Contrasting with this, respondents involved in blanket bog restoration through the LIFE project did have a clearer indication of what the project aims were. So, even if they were

sometimes dubious about the success of the work, the fact that it had been explained definitely improved their engagement with this type of management.

Summary: whilst management options which were seen to promote sustainable agriculture were supported, options which required the removal of land from production, or severely reduced productive capacity were strongly criticised.

Glastir Scheme Objectives

This section discusses the difficulties associated with the overall objectives of Glastir, ranging from a lack of engagement with respondents through to their overt rejection of the scheme's perceived strategy. In particular, a key tension is outlined in the perceived imbalance between food provisioning and other environmental services.

Previous studies have suggested that whilst immediate fit with existing management plans and suitable levels of financial incentive are the principle determinants on farmers' participation in agri-environment schemes, it is also important to reflect on how well farmers understand the aims of the scheme, and the extent to which they have been engaged in these objectives. This is because the perceived legitimacy of policy measures is seen to be a key factor in uptake. Over the long term, it is argued that this legitimisation is essential to encourage farmers to convert to more sustainable practises without the need for continuously high levels of government support (Wilson and Hart 2001).

In light of these issues, farmers were asked whether they understood the reasons for the change to Glastir, and what the main environmental objectives were. Across nearly all of the respondents there was a very poor response to this question, demonstrating that a large proportion of farmers are very unclear about why there had been a change in schemes.

As noted earlier, and in previous studies (CCRI 2009), many argued that it would have been better to stick with the previous Tir Gofal scheme. Others offered more cynical responses about the government trying to save money, but with a clear sense of uncertainty in their answers.

When pushed about the change in environmental objectives it was again clear that there was little understanding of

what Glastir was aiming to do differently, beyond statements about how it was going too far towards environmental outcomes to the detriment of food production. When asked directly about the inclusion of carbon mitigation measures, flood abatement, and water quality, as priorities for the new scheme, there were mixed responses. With a high proportion of respondents demonstrating some engagement with these issues, and even recognising that they could be connected to Glastir, but that it was something they had not really thought about.

In particular, when these environmental objectives were recognised, it was suggested that they were largely connected to the targeted element, rather than part of the broader scheme. For respondents in the case study projects, where these issues had been discussed explicitly, and where they had been involved in piloting Glastir, there was a much stronger recognition that these wider environmental issues were part of Glastir's remit.

Overall, this suggests that there is currently very poor understanding of the reason for Glastir's introduction. Coupled with the negative press and strong emphasis upon poor payments / high levels of restriction, this is not seen to bode well for Glastir's wider acceptance.

Clearly, Glastir is not simply designed to deliver new environmental objectives, and it is also about reducing government spending and encouraging farmers to be more efficient and business orientated. However, given the presentation of Glastir to wider public and policy audiences as a scheme which is set to deliver ecosystem goods and services, it is important to develop this line of communication with the farming community as well. Moreover, given the hostility to the new scheme, and the complaints about its perceived objectives, which will be expanded upon below, it would seem pertinent to take more time explaining and justifying the scheme.

Specifically, it was striking that almost all of the respondents complained that Glastir represented a step in the wrong direction, because Glastir was seen to prioritise conservation above farming rather than trying to combine the two. Equally, many went on to argue that food security is becoming an important national priority, and that Glastir would jeopardise this.

I think last year has shown us how short of food we are, and the pound has changed, it is going out of the country, and all of a sudden there is a hoo ha that food has gone up. So they want more production now don't they. Where have they been these last ten years? Screwing everybody down to the floor, this is the price they are paying now. (WRO 18)

Just from what's in the press at the moment about farming and countryside and food production and everything, we seem to be at the end that is getting the, you've got to look after the countryside, be countryside stewards, it's got to be there for people to access and enjoy, you've got to produce food on it, but you've got to do it in high welfare, very caring, very organic, you've got to pander to all these different groups. But all of a sudden we're getting worried about food security, so you've got to produce more food. Yes. How? Look, you've been telling me to take land out of production, which means I haven't got as much land to produce food on. I've got to treat my animals better and not over crowd them, not do this ...what am I supposed to do? I'm caught in the middle. (WRO 21)

Personally the way this Glastir is going is completely ridiculous, I think now is the time Wales should be thinking right, food's going to get more expensive on us, we should now move that 40% imports down, we need to become 80%,

90% self sufficient and the only way you're going to do it is by supporting the farmers. But also by supporting farmers they should be, I personally, I don't believe in single farm payments, personally I would prefer to be paid a proper price, I don't want to be dependent on single farm payments, it's a benefit, that's what it is, it's benefits, farmers are on benefits. Personally I want to get rid of that and have a proper price for a product... we need to be depending on more grass, more organic, but organic with a little bit of leeway not constant strict rules organic... going down the line where we can become less dependent on oil based products. (WRO 13)

Here it is notable that these viewpoints were raised across the range of respondents, and not simply tied to traditionalists who had been brought up with a production focus. Rather, it was a concern that was articulated in relation to very contemporary issues:

INT: I'm interested in you saying the need to produce more food is something that you feel has come across quite strongly in the last few months, the last year, or ...?

RES: I would have said, yes, the last eighteen months. Eighteen months, two years. It was very much, we can get from abroad, we can get from abroad, and all of a sudden there's been droughts in Australia... exports dropped ... famine... Big producers are being affected by climate ...and not putting so much into the export market...Argentina with the beef ... they've slapped a limit on, Tesco's were infamously quoted in the press, they weren't going to give British producers any more in a price rise... (WRO 21)

Overall, all the farmers interviewed suggested that farming did, ultimately, have to be about food production, even if it was environmentally benign in its production methods. Consequently the notion of giving large areas of land over to purely conservation purposes was severely ridiculed, whereas farming in a low-impact way, and leaving less productive areas fallow was more agreeable. This connects to the points above about the acceptance of some management options over others, but also issues around the perceived levels of wildlife and habitat in Wales.

Reiterating the points made above, many farmers felt there was already enough room for wildlife. Moreover, it was argued that current farming practise in Wales was largely environmentally benign, because it is low in intensity. This was contrasted with other areas, such as East Anglia, which were seen as the main sources of environmental concern. Consequently many respondents argued that the government was out of touch with the countryside in Wales.

It's only because people have taken hedges out in the east for this big machinery, and then we get sort of clobbered with it over here. The things are not big round here, there's plenty of hedges, I think nature's got ample room here... (WRO 43)

...they've got to have a balance but you know if they do spend times out in the countryside... sometimes I think they don't actually know Wales because there seems to be lots of wildlife about here and you've only got to go out and you can hear birds singing all the time and there's flowers in hedgerows and I don't know, some people must be doing something right. Perhaps they don't go deep enough into the

countryside to find out, I don't know... (WRO 17).

Given these perceptions, it is suggested that environmental problems associated with farming practise here in Wales, should be made clearer and demonstrated more effectively.

Here a particularly critical point is the need for more joined-up communication strategies from government, given that farmers are simultaneously being pushed to address food security and environmental concerns. When these messages are seen to conflict rather than being presented in an integrated and connected manner the legitimacy of policy is placed in question. Consequently, there is a pressing need for a more considered communications strategy and a more joined up policy approach between departments dealing with agriculture and conservation. But equally, there needs to be a more coherent farming strategy that is clear about how sustainable food production will be achieved.

Given the centrality of the issue of communication here, and the question of how farmers understand conservation, the next two sub-sections will focus on these issues more explicitly.

Summary: there is a worrying low level of understanding evident amongst farmers about the reasons for Glastir's introduction, which is seen to have a negative impact upon the perceived legitimacy of the scheme. It is also clear that there is a severe rebuttal of the perceived increase in conservation priority above the need for sustainable food production. Consequently, a more joined up communication and policy strategy is needed from government departments dealing with agriculture and conservation, along with a more coherent farming strategy that is clear about how sustainable food production will be achieved.

Attitudes Towards Conservation

This section will outline the extent to which respondents were engaged with environmental concerns, and how they understood the need for conservation.

At the outset, it is important to stress that a high proportion of farmers were very supportive of conservation work, and clearly understood and acted upon the need to farm in an environmentally sustainable manner.

This is corroborated by the work done by CCRI (2009) who similarly noted high levels of support and interest in conservation work. Equally, wider survey work conducted demonstrates that at least on an attitudinal level many farmers are now much more orientated towards environmental issues, and should therefore be more likely to engage with agri-environment schemes (Burton and Wilson 2006; Wilson and Hart 2000; WRO 2010).

However, it is acknowledged that survey and attitudinal data is very poor at offering an accurate representation of respondents' environmental concerns and knowledge levels. Consequently, this study aimed to reflect further on the evidence of environmental orientation within respondents' conversations; ie. rather than simply taking a yes / no answer, environmental concern and awareness was measured by their *demonstrated* knowledges.

From this, more in depth form of analyses, it was evident that there was some question over the accuracy of what farmers' thought was environmentally benign, and some rather simplistic understandings about conservation work. However, it was notable that many talked quite eloquently about their understandings and associated farming practise. Of the whole sample, it was clear that a fifth of respondents had a well developed knowledge of ecology, referring to particular species of flora and fauna on their farm, noting how management

practises had affected these, and discussing why and how they had developed this knowledge. For example:

I've always been interested ever since I was a little girl... I wanted to know the names of wild flowers and I wanted to find more. It has always been the same and I did biology in A level and then I went to college and did a botany course as well. And I still, you know I love to know all of the plants we've got around here and birds. It's just that I love it ... we've got sundew and butterwort growing up there you know... we don't fertilise it, we don't plough it or anything. (LIFE 3)

However, it was notable that a lot of these discussions did centre upon ecology in relation to farming, rather than simply demonstrating an interest in wildlife per say. This was particularly so for farmers with organic and primarily grass (rather than concentrated feed) based systems, where they were aiming to improve the diversity of species, or introduce new herb species and more clover into the sward to increase the fertility of the land. This is seen as an important point because it demonstrates how in-depth farmers' knowledges of ecological issues can be when it is orientated towards sustainable production.

In particular, it was notable that a number of farmers were very engaged in improving the quality of land in this way, rather than trying to maximise productivity through high fertiliser applications, again pointing to the importance of sustainable agro-ecology methods as a way of getting farmers on board with environmental issues. In other words, the maintained emphasis upon skilled production practises, and the maintenance of their farming identities is seen as a key benefit of this type of environmental work (see also Burton et.al. 2008). These understandings are exemplified by the following outtake:

I think going organic was the best thing out. Because it's better for the farm, better for the land and better for all the wildlife, there's no question, no doubt...there's much more clover in the swards, the clover's doing the work the nitrogen used to do. We used to put on twenty ten ten or we used to put on nitrogen neat and we don't have to do that now ...The land looks as good as it ever did when it was conventional. The cows look happier and are healthier, I think, less foot problems, the calves are healthier. There's lots and lots of benefits, and the wildlife is more obvious. So I think there's no doubt it works. (WRO 42)

Whilst there were some who showed a clear interest in wider environmental issues, and concerns around sustainable production as their key motivating factor, they were definitely in the minority. However, given a burgeoning interest in localised food production and 'growing your own', it is argued that ideologically motivated new entrants could be on the increase (ELC 2011). Such environmental understandings and motivations were outlined as follows:

It was a bigger horror at what some of the agri-businesses were doing and some of the quality of the food that we were getting. Food quality is most important ... and the list of chemicals in food well it doesn't noticeably damage us but we don't really know do we... Loads of children get asthma now and why do they get these allergic type diseases...we don't actually know whether it is petrol fumes or chemicals on their food or what it is. It might be a combination ... (WRO 69)

Others who were more cautious about declaring themselves to be conservationists or environmentally orientated still showed respect for the environment, suggesting that there is a lot of scope for engaging a broad base of

farmers further in this area. For example:

I'm a farmer, I do want to produce food and I want to produce good stock and yet again I like to see the wildlife ... I wouldn't go round the farm and say if you cut that hedge down you'll make two fields into one and ... that's no good to me I think, I prefer to see more smaller farms than big farms. If a big farmer buys another farm he will try and make 2 fields or 3 fields into one because he's got a big machine and he struggles to turn corners in the small fields but I prefer myself to see more farmers, and smaller farms. (WRO 118)

I won't call myself a conservationist... But I do take it into consideration, I've found curlew nests and lapwings nests and if I'm roaming a field in spring I'll mark it, I don't go over them (with the tractor)... at the end of the day that is conservation, you respect the birds or whatever if you know that they're there. When I do work in the field I try and look for them...(WRO 59)

Despite this evident sympathy, it is clear that more could be done to improve ecological knowledge and communicate conservation aims more effectively. For example, respondents often had a relatively simplistic understanding of conservation equating with tree planting, but not understanding the need for other forms of habitat management. In particular, land which was perceived as 'rough ground' was often seen as undesirable, chiming with common stereotypes about farmers wanting to keep their land tidy and avoid pests. Also, areas which had become overgrown and swamped in brambles and ferns were seen as untidy, with no environmental benefit. Conversely, hedges were applauded and often seen as an object of pride if the farmer had been involved in laying and maintaining the hedge, again resonating with the points above about conservation needing to fit with farmers

desires to be skilled and productive (Burton et.al 2008).

Unproductive land, which could not be used for agriculture, was nearly always referred to as waste ground and this was okay to 'leave' for conservation. A point that was even reiterated by very conservation orientated farmers, even though they appreciating the subtleties of what types of habitat and species were supported in the 'waste land'. The idea of converting best agricultural land to conservation was universally rejected, and even the ideologically motivated environmentalists stressed the need to be 'economic' and 'practical' in their farming:

No...we came down pretty hard on the officer when he said that he wanted to put some of the land into, only one cow on it for certain times of the year. And my son was actually very strong with him and said that that just wasn't economic to have only two cows grazing on this field ...And he actually agreed, it wasn't economic. And he came down and said that was ridiculous, so we didn't do that option. Because you've got to be economic, you've got to make money farming, you can't just have land becoming useless. (WRO 42)

Unsurprisingly, there were still respondents who identified themselves as staying with a mind-set of intensive production, although these were relatively few, with most acknowledging the need for sustainability alongside production goals. However, it is acknowledged that as this study was not conducting any ecological monitoring it is hard to qualify these statements.

It was also apparent that some intensively orientated producers who were getting older, and didn't have a successor, were actually quite amenable to being paid to do conservation work, once they had considered it for a while.

Summary: there were some very good levels of engagement and knowledge about the environment, suggesting that

there is a good basis for further communications and involvement. Although it is acknowledged that some cultural barriers still exist. Nevertheless, there is a pressing need for more effective communication, to encourage and support farmers and create greater perceived legitimacy for schemes' aims.

Engaging with Conservationists

This section outlines some of the problems associated with poor communication of conservation objectives to farmers, and reflects upon tensions between conservationists and farmers which impair the effective delivery of schemes.

In particular, the impetus to increasingly destock upland areas was highlighted as a key area of contention. This builds on the points about management options raised earlier, but is not unique to Glastir, as it is a specification that has been developed over the last ten years. Moreover, the issue here is not simply about finding a balance between conservation and food production, but one of communication. In so much as farmers simply do not understand why they are being asked to destock so much, because they cannot see – *and have not been shown* - the conservation gains.

To clarify, this is not to suggest that farmers would like to stock as intensely as possible. Respondents were universally positive about the impact of removing headage payments, given the health benefits to their stock and the increased quality of the produce they were then selling. Rather, by and large respondents suggested that stocking levels had come down to a sustainable level after the end of headage payments, but they had then been reduced again through Tir Gofal to unsustainable levels and these problems were now being compounded through Glastir. More critically they felt that the reasons for these stocking levels had not been explained to them, and that management specifications did not make sense. The following outtakes demonstrate these tensions:

I can see it starting in some places the heather is going a bit long in certain places there and we've talked to them about it and whether they want to burn it or not and I haven't really pushed it much... But if they wanted to have no

sheep on it at all, how far do they want the heather to go? I know there's one piece up on the top there, 900 acres there, and they wanted the farmer to graze 50 ewes on it, it wasn't worth his while to put 50, to gather 50, so there's nothing on there now. Well I don't know how far they want that heather to grow. (WRO 104)

Another thing is that once you take those sheep away then you've lost that land forever in a way because there are a lot of mountains that they don't put sheep on anymore, farmers just, it's not worth them putting sheep up and places just growing into a jungle....you will not be able to manage it without livestock because it doesn't matter what you're trying to conserve or save in a way - be it grouse or whatever, they need different vegetation like heather to survive, and they've got to manage the land but if you haven't got stock there you cannot manage it. (WRO 59)

Worryingly, discussions with conservationists also suggest that stocking levels are too low and that they would like more stock on the hill. Consequently, it would seem that a more effective dialogue needs to take place about what desirable management is.

This lack of communication was a common theme emerging from the interviews, and shows a real tension between conservationists and farmers that must be resolved if agri-environment measures are to be taken forward.

In particular, it was noted that there was not simply a lack of communication, but that conservationists' could not explain specifications when asked, or simply referred to their Tir Gofal handbooks rather than connecting to particular locations, which does not demonstrate a strong *working* knowledge of conservation specifications. For example the following exchange took place with a farmer who

demonstrated a very clear appreciation of ecology and botany, and who clearly felt that conservationists had not really looked at, or thought about, how the management proposed would affect her site:

INT: How did they explain that [the need to de-stock] to you?

RES: Well, that's what they wanted us to do if we wanted to go into Tir Gofal.

INT: Okay...but did they explain that in terms of the type of habitat that they were trying to create and how reducing the stock would lead to that?

RES: Well I don't think they were interested about the habitat ... well they probably were but they didn't seem to realise that if you cut on the sheep numbers then there's nothing going to be there but things that love growing you know, brambles...bracken...

INT: I was wondering whether you felt that you could have a good discussion with the Project Officer about what they were trying to achieve?

RES: (Sighs) ... They just wanted to cut down the numbers of sheep and cattle that went up there and if we'd have gone into Tir Gofal for five years I think too much damage would have been done... and it would have taken an awful long time to get it back to the way it was before...(LIFE 3).

Elsewhere the same problem is echoed, but criticism levelled more directly at policy makers:

RES: There were a lot of little things that didn't make sense and still don't make sense, well if you opt for the limited grazing...say we opted for the reduced stocking of the hill...we're only allowed to graze 4 ewes there in the winter, and 65 in the summer which is

diabolically stupid and doesn't make any bloody sense, that mountain would go into mass wilderness by grazing it at that level, you know that's just for example...

INT: Did they explain to you what they were trying to achieve and why you had to destock that much?

RES: All they said, it was government based... and all the politicians are like puppets and they just respond to what people tell them and there was big issue of over-grazing 10 years ago and then "okay we'll do something about this and we'll reduce the stocking", but they haven't looked at it sensibly. (CMI 1)

Given the tensions around these particular specifications it has been difficult for conservationists to explain themselves to farmers. However, it is also argued that these types of difficulty are common place across a range of different management options. For example, the quote below shows that even in lowland areas objectives are not being made clear, and again to a farmer who was otherwise very engaged and sympathetic towards conservation:

The fields are meant to go from semi-improved to unimproved, is the category. I've no idea what that means because I have asked them, what are you trying to get more of and I don't seem to get much response on that one. Well, I mean he can read me what it says in the book. But what it, because I said, well, what is the ultimate aim? The ultimate aim is that I don't fertilise them in any form, not even farmyard manure. But what do they want to grow there? That seems to be something they don't seem to actually know... (WRO 45)

In addition to the lack of explanations there was frequent reference to a bad attitude, and ill feeling between conservationists and farmers:

Most conservationists' attitudes in the past have been well we've got a degree in this, we know what we're talking about. You're a farmer, you're not a professional person, you don't know what you're talking about. Whereas I just find that hard to swallow, and farmers have been living somewhere for tens of years and they have got a pretty good idea of what goes on there. At the end of the day, farmers are pretty hard headed and they don't appreciate people telling them what to do with their own land, whereas if people came round and asked their opinion perhaps they would listen to it. If they would just give them the time of day to listen to what they had to say, probably things would be a bit more smooth, in getting these things through... what tends to happen is, for example they'll bring out a scheme and say we'll give you x amount of money, the farmer, because nobody has discussed it with him, he'll say oh he'll do it for the financial sense, but his heart is not in the project. (WRO 162)

In this quote it is clear that farmers would very much appreciate more information, more dialogue, and definitely more respect. Criticism of the suggestion that they should simply do something for money, without any sense of why it is worthwhile, on a deeper level, is also a critical point. Particularly in light of earlier comments about the need to create good policies that are acceptable to farmers, without the need to bribe them into undertaking management that is otherwise antithetical to them. The need for more 'sensible' policy is further reinforced by the following outtakes:

The dates, oh, the dates are still an issue because you're not allowed

to work with nature, and as you know in the last two years we had snow for how long, and frost for how long, and they say, yes, but your date says this. You just think, but the land doesn't say anything of the sort. But they live with the book. And they ignore nature. And it's just bizarre, I mean I do find that – I know you have to have rules because how would you run it otherwise. But when you've had a winter that froze from mid-December through to February ...and they say, yeah, but the book says in March this happens...when you're on the ground, sometimes you just think, this is just insane. (WRO 45)

From our perspective here, we have seen a lot more benefits from the type of farming we carry out here, with the mixed farm, than anything probably that conservation projects have foisted on Anglesey...One example is on the opposite side of the island, the National Trust... they found some rare flowers there...obviously they had survived there for hundreds of years with the farming practices carried out over the hundreds of years. But they decided to fence it out and stop cattle grazing in it and the flower has died out because obviously the cattle grazing there were keeping them there. So it's just that type of exercise that makes you think what the hell are they doing. (WRO 162)

To be quite honest, it's totally impractical, unless they get their act together, I mean they are, this is the trouble with these schemes, they move the goalposts. And when you farm it is not a quick fix, you can't just suddenly say oh I'll do this this year or I'll do that next year or tomorrow or next week or whatever, you end up you need to be able to plan one, two years ahead... I mean you're allowed to have so many stock, livestock units

on this area, and then suddenly they change it, they want a different stocking area on it. And then oh that doesn't work, oh well we'd better change it back again...but it takes three or four years to change it back. It's easy enough if you've got a flying flock or flying herd, you go out and buy. But if you're looking after the herd health status and you're looking after your pedigree lines and trying to keep a wide genetic base for your herd, so that you keep it healthy and going forward rather than going backwards, you can't do that. (WRO 12)

And with being organic you can only feed certain feeds, which don't automatically have top-ups of vitamins, minerals, and because being organic, the best way of doing it for financial survival is that you make your own crop so you're, you're going to get shorter and shorter of various minerals and things because you're only feeding your own forage. So I did have to get a derogation to be allowed to make, have minerals made specifically to the silage requirements instead of actually liming the fields. Which is a bit of a strange way of having to do it...The organic lady was furious, she said, why can't you just lime? And I said, I'm not allowed. But you see it's because I'm in Tir Gofal... (WRO 45)

In these quotes, whilst a number of different examples are given, a broad concern with the rationality and practicality of conservation specifications is evident. In particular, there is a clear tension around the application of generic rules to specific locales, but also around the blinkered and rigid application of rules. Notably, whilst the quotes focus on specific voices, the issues raised were common place, and the distinction of the comments presented is that they come from very environmentally aware and

progressive farmers, reinforcing the tensions outlined.

Critically, it is acknowledged that the issues raised are not new. In particular, problems around the design of broad policy measures, and fit with local contexts, is known as a longstanding concern. However, it is particularly evident that the move away from scheme project officers has exacerbated this issue. Equally, the loss of the Farm Wildlife Advisory Group is noted as a worrying recent development in this area. Considering the experiences of agri-environment schemes outlined, as well as the evidence from the case study groups, it is argued that strong working relations and effective communication is an integral component of successful conservation work, and that further attention needs to be given to improving this aspect of agri-environment delivery.

A final point of concern in this area, which is again seen as a major barrier to successful participation in schemes, is the more personal tension between conservationists and farmers. This is not just a question of poor communication, or a distrust of information, but a genuine sense of dislike or persecution. Whilst this study has focused on farmers' experiences, it is acknowledged that many instances of bullying and mal-practise emanate from farmers towards conservationists, suggesting a widespread tension to be addressed. From the experiences shared in the interviews, it would seem that farmers are also on the receiving end of aggression, stigmatisation and bad feeling. On a broader level, respondents suggested that farmers were too often presumed to be 'the bad guys' and not listened to.

A lot of people are going away from farming. Well I can't blame them. The attitude of the public against farmers. And who's making the public like that, conservationists. Conservationists. They'll blame anything on the farmer... I'm okay with conservation but the people are...

they haven't got the right people. They haven't got knowledgeable-enough people doing the work. You can't talk to them. They will not listen. And it's always the farmer's fault... (WRO 146).

...unfortunately, and more so now that the government have taken over from CCW, all farmers are regarded as dishonest. So whatever a farmer says is always, oh, they're out to get something. (WRO 45)

Worryingly, even within the case study groups farmers felt that they had not been listened to, when their counsel had been sought:

...they wanted feedback [on a pilot of the Glastir scheme] ...and in my mind then, and still is, it was a pretty pathetic scheme which was proved nationally with the response for it and I gave my comment at the end and said plainly what I thought of it you know and a lot of sensible statements and then about 6 months later we had a report on this survey and there was no mention of my points or any other farmers that have said the same. I really felt that was a bad job because you know the feedback hadn't gone back to where it should have done. (CMI 1)

Here it is argued that there is a culture of blaming and aggression between conservationists and farmers, and even between policy makers and farmers. Whilst it is acknowledged that this is a difficult area to work in, and historically there has been evidence of mal-practice from farmers, it is equally clear that continual stigmatisation does not ameliorate this situation. Moreover, whilst it is clear that government needs to be firm in upholding environmental regulation, a more encouraging and supportive attitude may be more effective.

Considering the government's discussion of behavioural approaches in their climate

change strategy for example, it is suggested that many of the points raised there around the need for clear engagement, proper communication, enabling and encouragement, are all equally valid to agricultural policy.

Summary: whilst many respondents are very positive and engaged with the need to protect the environment, there are some major issues around the suitability of particular conservation specifications which suggest a need for greater localised consultations and flexibility. Equally, there are some clear tensions between conservation officers and farmers. This is not universal, and where good relations exist they are seen to be fundamental to conservation projects demonstrating the potential and the importance of better communication.

Payments for Ecosystem Services

This section details the extent to which respondents' understood the concept of ecosystem services; whether they would be prepared to move towards a system in which they are paid more explicitly for the delivery of such services, and whether they would be happy to undertake more conservation work if there was more money available for it. The potential of reframing current compensation style conservation payments is also discussed.

This was discussed with respondents after we had covered agri-environment participation and broader engagement with conservation objectives. As outlined in the discussion of Glastir's objectives, the concept of ecosystem services is not straight forward to communicate, and asking about the potential of receiving payments for ecosystem services was similarly problematic. Consequently, it was not dealt with to the same degree with every respondent, and those who showed a greater understanding were questioned further, whereas those who showed least engagement were simply asked whether they would be prepared to do more conservation work if they were paid more to do so.

Understandings of Ecosystem Services

Overall, it was clear that the concept of ecosystem services was not familiar to any of the respondents except those who had been involved in the case studies. However, once ecosystem services were linked to climate change mitigation, carbon sequestration, catchment scale management, and a broader conception of conservation beyond biodiversity management, a large proportion of respondents seemed more comfortable with the concept.

Given the much better engagement with the concept of ecosystem services from farmers involved in the case study projects, there is an indication that pilot projects with a focused development of ecosystem service delivery could be beneficial in developing a wider spread of

engagement. As later discussions will go on to highlight, pilots are seen to be successful because farmers can come and see how management options work and impact on farming practises.

In particular, the LIFE project has demonstrated how well an otherwise contentious form of conservation management can be accepted by the farming community (ie. blanket bog restoration). Moreover, as a consequence of this work, a high proportion of respondents in the Mid and North Wales area outlined that they had heard about the project and had consequently engaged with the idea of ditch blocking for flood mitigation, water quality improvements and carbon mitigation.

Whilst ecosystem services were not well understood, the need for climate change mitigation and adaptation was something which many farmers did appreciate, and had heard a lot about.

This awareness was connected to popular media, papers, and TV programmes, but also through connections to supermarkets and buyers who had requested information on their farm's carbon footprint. Whilst respondents showed an interest in this information, it was most often discussed in relation to the potential financial benefits brought to the farm through adding value to produce, that could be labelled 'low carbon' or 'carbon neutral'. Problematically, many respondents saw that this was a limited market and that supermarkets were not that interested, hence reducing their own concern for these issues.

In addition, it was suggested that carbon auditing exercises did not necessarily empower farmers to do anything differently. But simply highlighted a problem they were already aware of. Describing a carbon auditing exercise undertaken by the Cambrian Mountain Initiative, these tensions are clear:

I think it was quite interesting ... but for a lot of people whether they

really benefited from it, I'd question it. You know basically we went back to the Co-op and told them that the possibility of a few farms being carbon neutral or negative or whatever, and their opinion was, there's a list of importance and at the moment it is down about 10th place, it is creeping up to about 7th, but can this have a premium, not really... (CMI 2)

From farmers involved in the LIFE project, it was evident that further information is also needed on how management affects the carbon footprint of the land. And whilst it is acknowledged that this is something that scientists are still trying to clarify, it is important that the findings of projects such as LIFE should be communicated to the farmers involved, and to their wider communities, in order to support these endeavours.

Considering the lack of clarity amongst the respondents from the LIFE project, and the defeatist attitudes evident amongst those in Cambrian case study, it is evident that farmers need further support to address the impact of farming upon carbon flows.

Where farmers were more enthusiastic was in relation to the uptake of renewable energy provision. Here it is noted that high levels of publicity around the Feed-in Tariffs and a burgeoning renewables sector pushing the sales of turbines and solar power has had a big impact. And demonstrates how quickly farmers will become engaged in new initiatives when there are clear financial gains and effective channels of communication. Specifically, many argued that their interest was to make their business more self-sufficient in energy, and insulate them from future price hikes, but also because they were such intensive users of energy in the case of dairies or farms which did meat / cheese processing on site.

A final critique which was levelled in relation to climate change was the suggestion that the government would do more to address climate change by promoting local food and reducing the

emphasis on imports/exports. This connects in with wider questions about the trajectory of agricultural and environmental policy, which will be addressed below. Critically, this was seen as a very emotive subject for many, and particularly given their frustrations about how to address high carbon footprints and increasing environmental pressures.

You do think that you'd be better off doing something yourself on the farm rather than having it... well I just find it pointless carting things across the country and then carting them back for little or no financial benefit. If it's possible to do it cheaper here, or for the same cost, then it's better to do it here. But I think the Government have caused so much of the problems themselves by over-regulating everything. A prime example is the abattoirs; they've closed all the small ones down, so now all our cattle go across the country, to Scotland. You know, how much CO2 does that produce, it's ridiculous. (WRO 162)

...you know... there's an impact on bringing foods in from all these countries, you think of the fuel and things and what it does to the environment and the travelling and bringing food. The thing that gets on my nerves more is seeing a bottle of water come from France and you think well we've got plenty of water in this country why bring the stuff over here in lorries and things, I think we should be supporting local stuff as much as we can really. (WRO 17)

Overall, a linking factor between these issues was respondents' need to have the concept of ecosystem services related to their own area, or somewhere close by before they engaged. More abstracted ideas of how management on their farm could affect the planet, or even downstream catchments were not very well accepted. Things they could not see with their own eyes were hard to

comprehend, and be concerned about. This is an issue that is evident across a broad cross section of society, in terms of their engagements with climate change risk, and is clearly not limited to farmers.

A further related point is the way conversations about ecosystem services would then often turn to the wider public appreciation of farmers and their role as stewards of the countryside. Here, more traditional ideas about the aesthetics of an agricultural landscape were particularly evident. In particular, respondents argued that farmers had a key role to keep the countryside tidy and accessible for walkers and other tourists.

PES and Conflicting Priorities

Finally, one of the most interesting points raised by these conversations was the widespread rejection of undertaking conservation work which respondents felt would jeopardise the long term viability of producing food on that land, even if they would receive financial compensation / rewards.

Only farmers who were retiring, didn't have succession plans, or who had otherwise demonstrated that they were more business than farming orientated were prepared to remove land completely from production. Those prepared to undertake environmental work in this way made up just under a quarter of respondents.

But others who saw themselves primarily as farmers, even if they were very business orientated and progressive in their farming, were not prepared to risk the long term viability of their farm. This was particularly so for those who had family, and demonstrates an interesting dimension in their decision making.

Here it should be noted that the interviewer did not place any pre-conditions around the type, or length, of payments for doing conservation, so that any concerns arising were very much as a result of how respondents felt the payments would work. Equally, it was acknowledged that payments for

ecosystem services did not have to entail a complete removal of land from food production, although this scenario was explicitly explored in order to gain a clearer picture of farmers' priorities. Extracts from these discussions are shown below:

...it is quite hard, you have to make business decisions at the end of the day and when you are offered to take the sheep off the hill... and have money to reduce the number it is very difficult to go against that from a business point of view... but for how long you can make those short term business decisions to the detriment of the long term. I mean possibly an ecologist would say it is positive changes but I don't know I suppose most farmers wouldn't see it that way...once you get to a certain stage you cannot build back up and if the grass is too rough for them to graze in the first place it is almost impossible. (CMI 2)

INT: What would you do there if they were just going to pay you to manage it for conservation, for looking after the water quality? Is that something you would do?

RES: No.

INT: Right, why not? If the price was right?

RES: Yeah, no its, I'm a farmer aren't I? Animals, I just love animals and that's it... and especially like the next generation, they won't be interested in it, no...And it just wouldn't work and in ten years' time the place would be in such a mess ...it would be such a mess that you couldn't revert it back, no. (LIFE 1)

INT: Do you think if people were paid for the environmental services they were providing, so it was more like ...getting people away from this mind set of you need to

farm ... to we are going to pay you directly for taking this much carbon out of the atmosphere, do you know what I mean?

RES: No, I don't think that's what we want. No and it's a job to explain what we want really...but no its, we get told through the news and through the newspapers all the while that there is going to be a shortage of food in X amount of years, twenty years or thirty years ... and what worries me is that when that does come ...who's going to be here to farm it and when it comes to the shortage of food, will these carbon emissions and conservation, will it still be a priority or will producing food be a priority? I don't know...

INT: So you don't think people would see the environmental services as a way of diversifying?

RES: You might get one or two but not, I'm talking to you is somebody who's got four sons who want the farm ...I'm not talking about me who wants to cut back on the work because of my age. If I'd got no sons perhaps then I'd, yes I might as well go up for every penny I can get for doing nothing but that isn't what my lads want to do. (LIFE 1).

Some people ... if you give them enough money they probably would go into it but also they want to produce food don't they, I suppose if it was paying out more people might be interested in it, it's difficult to say and as the farmers are getting older perhaps a lot of them will see it as a sort of a way of a bit of a pension for many wouldn't they they'd be able to get the, perhaps the older farmers interested in that. But most farmers I think want to produce food don't they and that's the main thing they want to do is produce food, I think they feel a bit just paying for environmental things is a waste of

money in a way..., I do think you need to balance it all ...but I don't know, I won't feel quite the same about us leaving fields without doing anything with them and things, I don't know, it seems to be a bit of a waste in a way because they're not producing anything. (WRO 17)

Definitely, definitely there are some parts... you know like hopeless land is no good for livestock well ...I think it's fair enough to have some of it but [pause] you know if we all went like that it would be hopeless wouldn't it? The whole country would be a right mess in the end wouldn't it?...if everything grew wild there would be, it's nice to see them green fields...If it all went wild then it would be a mess wouldn't it? (WRO 179)

I have got land anyway which is right down by the river, there's only a little bit but there is some, we don't farm at all ...which is completely wild ...and lovely, but it's not vast and it doesn't come into the scheme at all it's nothing to do with the scheme at all, no. But yeah. But I wouldn't like the stuff that we're talking about now [more productive land] to go back to nature completely. Because that would be uneconomic. (WRO 42)

INT: Would ever consider converting the land further to conservation if you were paid the right price...?

RES: No, to be honest no ... You become aware of, you know certain stipulations and stuff that it is the thing that tree planting, the tree planting of Tir Gofal, yeah even though you get paid for x number of years after that periods up there's laws in place that stop you from reverting it back to grass, so basically once you've signed that agreement that will never change, you can never change that

back to a grassland system...(CMI 2)

Overall it was apparent that engaging farmers was not simply about paying them enough, but devising a system whereby conservation could work alongside production goals. This is clearly articulated by the LIFE project officer, summarising the experiences of their project:

It's not just about throwing money at them...You know we could have, well we gave that option to a few effectively and they still think we're idiots which is fine. So I think the priority is the amount of lamb they can get back off the hill and the condition that it comes back off in. Because at the end of the day if we'd been doing this and our farm manager here suddenly turned round and said "well our lambs are a lot smaller we're losing a lot more and they're all covered in ticks" then that would have been an awful bloody thing and there would have been serious issues for us had that been the case. Luckily it wasn't. So I think that is the lead issue. (LIFE PO)

Relating this back to the discussion of policy legitimacy and effective communication in earlier sections, it would seem that these sentiments are also shared by a wide spread of farmers:

I think it's wrong. 'I'll give you a £50 cheque', oh yeah, 'I don't believe in the idea but I'll take the £50'...they're going down that avenue thinking 'I'll give you £50', yeah right after five years you think 'stuff that, when that's finished I'll tear it all up and put it back up again'. It's like in the '80's, money was pulled in to improve the land, yeah we'll take it, they're going to give us money, then money's given again to block everything up, yeah I'll take your money... They're little schemes, they don't mean anything, and once these schemes are finished and when the payments are finished the farmer

will just go back to what it was before, you're not solving the issue. What you need to do is convince him in the head. (WRO 13).

Overall, it is evident from these discussions, and earlier sections on Glastir, that engaging farmers is more than just a financial issue.

A further point of consideration in relation to ecosystem service provision is that a number of respondents agreed with the idea of managing land in this way, but didn't feel that it was appropriate for their land, because it conflicted with their farming aspirations. Particularly in the uplands, it was argued that it would be a good use of money to manage water and carbon there, although these comments rarely came from people who managed upland areas themselves. Consequently, it is suggested that there is a lot of scope for including non-farmers (such as conservation charities and trusts) in the development of this sort of land management.

Reframing Payments

Finally, the potential of reframing current payments was considered so that they were no longer linked to income foregone but presented instead as incentive payments. The need for such a change has been highlighted by a number of policy makers, but it currently problematic given the restrictions of EU regulations. In this study several conservationists supported the need to change payments arguing that the current system did not work, because they often needed farmers to put more stock on to maintain the quality of the habitat. Equally, the notion of compensating them did not seem sensible given that they could often graze livestock as well as maintaining habitat.

From the farmers there were mixed messages, with the overriding concern being for adequate payment levels. Nevertheless, many did argue that incentive payments would improve the public perception of what they did, and that it was important for the public to

support farmers and appreciate the services they delivered.

Summary: There is currently a very poor understanding of ecosystem services amongst farmers in Wales. But the case study projects offer some important insights about how to improve engagement through demonstration sites and on-farm liaisons. Clear communication of conservation goals are seen as prerequisites for successful uptake of schemes. Nevertheless, it is clear that farmers are generally not prepared to undertake work which will jeopardise the future viability of farming their land, even for short term financial gain. In terms of the framing of payments, there was some acknowledgement that incentive payments would be better, but no clear consensus.

SECTION 6: BUSINESS DECISIONS

Engagement with Business

This section discusses respondents' levels of business engagement, and how their understandings fit with their perceived identity.

In addition to the focus on agri-environment uptake and decisions related to environmental issues, this study was aimed to explore farmers' broader business skills and engagement. This was considered in relation to levels and types of knowledge, but equally in terms of farmers' identities. Here questions were asked about perceived role, and the extent to which farmers considered themselves as business people. In addition, questions about perceived risks and plans for the future were asked, with specific reference to reliance upon the Single Farm Payment. Here, discussion focused on how respondents felt about subsidies.

In terms of business awareness, it was notable that for a large proportion of respondents this was simply framed in terms of whether they had enough to pay the bills. Consequently, it was clear that whilst accounts were monitored it was rare for respondents to engage in business forecasting, or even breaking down their costings to any great extent.

Check the accounts once a year... look at your overdraft limit, that's the only thing you do. (WRO 39)

Some did use accountants, but often this was their wife's role as noted in previous sections, rather than something which an expert was regularly called in to help with. One farm was involved in the farm business survey and they had a very clear understanding of their costings and how their accounts fluctuated, but this was primarily from talking to the survey consultant, although they had learnt some of the analysis techniques involved. Others did their costings within their various discussion groups, and found this

to be a major benefit, but it was not clear whether they would undertake this level of business monitoring on their own without the group support and pressure.

Those who did maintain thorough accounts often outlined that it was something they had learnt from their parents, or very often as a consequence of seeing their parents shackled by debt. Consequently, they had learnt to be more careful and proactive about monitoring their own finances. The only respondents who engaged in business forecasting were those who were about to, or had just made significant investments.

It was also notable that a number of respondents seemed unconcerned, or simply resigned to the high levels of debt they were carrying, as though it were a normal part of being a farmer. It was equally noted amongst conservationists and other officers working with farmers that there was a very worrying attitude towards the management of debt.

From the WRO 2010 survey, it is evident that only 19% of farmers in Wales have a business plan, further supporting the suggestion that considerable improvement of farmers' business management and accounting skills is needed. The 2010 survey does, however, show that 50% operate some form of diversification.

Moreover, when asked about their identity and the extent to which they perceived themselves as business people the majority of respondents outlined that they *did* see themselves primarily as business people, when they might *not* have done several years ago. Therefore, demonstrating the increasing pressure on farmers to improve their business focus, when previously they might have continued on with routine. This is also supported by the increased levels of interest in agri-environment schemes as a

potential source of income, as discussed in section 5.

If you asked me thirty years ago... but no it is definitely a business now because...we have to watch how much we spend...we are more like accountants now than farmers, yeah... It's frightening. (LIFE 1)

Oh we have got to be business people now with all the bills that are coming in and all the forms we've got to fill in, we've got to be business people...I came here in 1975 and it was relatively easy no forms to fill in. But then the VAT came, and the forms ... it's come on gradually hasn't it? (LIFE 3)

Nevertheless, despite the broader levels of increasing interest in business issues, it was clear that different groupings were apparent, with some farmers demonstrating lower levels of business engagement and greater concern for the farming lifestyle, as shown in the following extracts:

I think farming's a way of life, I can't say for others, but it is a way of life to me and ... today I think so and so's coming so okay I'll start...and put tats in ... it isn't a thing of going to work at 8 o'clock and finishing at 5 ... you feel, okay I've hindered a bit today and I'll do a bit more later on and I'll do a walk and do some jobs and then you think I'll go and tidy the fields because the thistles are way up ... (WRO 118)

I suppose you define yourself by more than your job...it's a lifestyle. Being on the land is about more than being a farmer as well. Being part of the community and all that sort of thing is important as well. Just occupying the land is important, and living in a rural area...I was born and brought up here. But I've not always been farming. I went to university and I've been working away as well.

So I came ... I made a conscious decision to come back to the farm... for the lifestyle, the life I wanted and to bring up a family and all that sort of thing. (WRO 39)

Relating back to the levels of adaptability discussed in section 4, it was therefore evident that these farmers, whose main priority was not to develop their business, were less adaptable because they had attachments to a particular way of running their farm, which made them less flexible and less concerned to monitor their costs as the principle determinant of what type of management they should be pursuing. Equally, it could be said that those with strong attachments to farming because of the lifestyle, their perceived role, and / or their love of their animals, would similarly not make business decisions that compromised these priorities, even if it was more profitable financially. This echoes the earlier discussion about payments for ecosystem services, but equally holds true for other forms of diversification. This prioritisation of farming above business is outlined in the extract below:

I was at a caravan show in Shrewsbury... and the owner of the park said to me, 'do you know farmers are not businessmen, they're crap at it'. Because the reason is the majority of caravan parks started in Wales are farmers who own a piece of land and decided 'I'll have a couple of caravans here, I'll have tourists here' and they've developed it but it came to the extent that the caravan park was a hindrance to the farm, shearing time, lambing time, hindrance, get rid of it. That's not a businessman, if you see a caravan park it's a potential to make money, the potential to develop it, farmers don't look at it like that, it interferes with the farming, straightaway that's something to tell you what's their mind-set. They run a farm not as a business, but as a lifestyle or an obligation to the generations that

have been there, they don't look at it as a business and my opinion is that you have to look at it as a business because with the caravan park my parents started it because they could see the potential of it and they were business people. (WRO 13)

However, as the above quote also shows there were those who were prepared to depart from food production and rearing livestock, and pursue more profitable lines of business if the opportunity arose. As outlined in section 4, this type of farmer was definitely in the minority even within the proactive / entrepreneurial group. An essential factor in these farmers' choices seemed to be their exposure to new ideas. In particular, it was notable that the least proactive and adaptable in their businesses were farmers who lived in physically remote locations, where they had clearly not been exposed to alternative ideas.

Discussing ways to improve business skills, conservation staff and other officers involved in extension services suggested that one of the most important factors influencing the development of farm businesses is this exposure to new ideas. In particular, it was noted that the previous ADAS model of offering farm visits and advice was a useful one because it was directly tailored to individuals' farms and also because it was encouraging them to explore new ideas on their own farms rather than attend a farm visit elsewhere. This type of service is seen to be particularly important for the least adaptable farms, because they are often constrained by human capacity factors as well as other restraints. Consequently, they struggle to manage the farm with the labour force available to them, and would not have the time to get off the farm to attend discussion groups, visit demonstration projects, and so forth. Even the most successful farms suggested that finding time to do anything beyond their normal routine of maintaining the farm was very difficult. Working with farmers on their own sites is therefore seen as an important means to address these

capacity issues and encourage them to engage in new ideas.

An important point to note here is that the expertise of farmers was often much more on the production / animal husbandry side rather than in 'pure' business aspects, such as marketing and branding produce. In particular, respondents would often talk about improving their herd health and fertility levels, rather than consider more generic business issues. Whilst this is not surprising, it is important to reflect on what farmers' understand as business skills, and how best to support them in terms of the types of skills development offered by extension services.

It was equally apparent that special branding was not always seen as the best solution, particularly for farmers working through supermarkets, as they outlined that it was increasingly difficult to maintain such premiums in the current economic climate. Even those involved in successful co-operatives and producer groups were becoming jaded about the utility of trying to add value for supermarket buyers. Where special branding did work was in more localised contexts where farmers sold direct through box schemes. This is seemingly a more labour intensive retail model, which clearly did not appeal to those in isolated positions, but it was definitely very lucrative for those who had developed this business model. The main points of success here were cutting out the middle-man, to retain greater power and economic share in the produce sold, and maintaining strong links with the consumer base. It was also notable that these producers were able to keep their prices low, even if they were selling with 'special branding' and this was seen to have the biggest impact on their success.

In terms of developing these retail options it was notable that physical location was highlighted as an important factor determining respondents' ability to experiment with different models. Those with close proximity to residential communities or in prime tourist locations were the best suited to develop such schemes. Nevertheless, it was clear that

open-mindedness and a willingness to adapt were very important factors. It is, however, important to account for the fact that many remote hill farmers are often constrained, or at least perceive that they are:

With the hill farm...we can't diversify, we can't go and grow carrots, we can't grow potatoes, we do the same thing and when you have a bad year you have to take it on the chin ...and then when you have a good year you just think you're doing something right but the next year's a bad one again so and that's how it is. You mustn't change. (LIFE 1)

Well, we're just carrying on the same...We can't change the way we farm here, either way. It's so very steep ...and we can't grow anything really, can we, only grass. We can't send different sheep up to the mountain, it's got to be Welsh ... (LIFE 2)

One area that was receiving particular attention was the development of medium-scale renewable energy provision. This type of development seemed particularly appealing to farmers, not only because of the high financial returns but because it was something which would support the running of the farm, and insulate them from future fuel cost increases. But equally because it did not detract from their desire to farm, by only using up a small area of their holding and not seeming to require additional labour time or on-going costs. The enthusiasm evident was particularly notable given that farmers have been slow to diversify in the past. But when presented with an investment opportunity to improve the running of the farm, and one which is seen to be subsidised and currently 'on offer', there is considerable interest. A similar pattern was observable in relation to the uptake of grants for other capital investments, such as sheds.

What is remarkable about this interest in renewable energy, is that it is a very big

investment (quarter of a million pounds on average), and whilst there is a guaranteed return on this, which makes it very appealing, it does demonstrate that farmers are prepared to make considerable investments if lucrative opportunities present themselves. In particular, the need to 'get in' on an opportunity that others may be profiting from was particularly notable in this instance, suggesting that some aspects of the business were very much influenced by wider social factors. This is not so much social pressure to conform, rather the effect of envy and competitiveness, which is discussed further in section 7.

Summary: Business skills were very poor in terms of financial management and business planning. It was also clear that many respondents did not pursue the most profitable strategies as a consequence of their prioritisation of farming above other options. Nevertheless, respondents were seen to have become more business focused due to the pressure of increasing economic hardship. Equally, it was evident that they were prepared to make significant investments which suited their overall business strategy, although it is not clear how well they would manage these debts. Exposure to new ideas and advice, specifically tailored to their farm businesses, was seen as an important input to improve business skills, demonstrating the importance of extension services such as the previous ADAS model.

Attitudes towards Single Farm Payments

This section outlines how respondents felt about receiving the Single Farm Payment, and the extent to which they were reliant on this money.

Understanding the extent to which farmers are reliant upon the Single Farm Payment (SFP) is essential to enable planning for future changes and adaptations to Rural Development measures in the context of CAP Reform. In conjunction with the measure of dependency levels, in terms of business statistics, it is also important to understand how farmers feel about the receipt of these payments and whether they are prepared to adapt.

Attitudes

A high proportion of farmers stated that they would rather not be receiving subsidies in an ideological sense, because they felt awkward and frustrated by having to rely on the government, and were very conscious of public attitudes towards subsidies. But practically they felt that it would be impossible to sustain their businesses, and reasonably priced food production without continued government support. Their defence of the SFP always came down to food prices, and that the SFP was effectively a way of subsidising food production. For many, this argument was then related to the power that supermarkets had over food prices.

I'd rather do without any payments but we just can't and that's it... I honestly don't know, that's my, I've thought a lot about it and I don't like taking the single farm payments but its survival that's the trouble ... (LIFE 1)

Well it would be nice to manage without the subsidies, if we could live ... You know when you're out somewhere and you're talking, and people will say, 'all the farmers get subsidies, they're all right'. It's not nice hearing that, is it? But they're the people who don't want to pay more for the meat ... (LIFE 2)

They can knock the subsidies off tomorrow as far as I'm concerned, the supermarkets might start paying us. That's all, what we get is a subsidy on food, I don't care which way you look at it. These supermarkets, they know we're getting the single grant payment, oh they're all right, they're well catered for, we'll keep the price down as far as we can push it... General public are taxed, we get a certain amount of that tax back so the price of their food is kept low. And you know, I'm not sure that this is the correct way of doing it. I think we'd need to be aware of how much things cost. (WRO 43)

As the last quote shows, many felt it would be much better to receive fairer market prices for their produce, and do without the SFP, but it was equally clear that there was a sense of hopelessness and impossibility surrounding the idea of such a change, because the supermarkets would never allow this, and it wouldn't be feasible for consumers to pay any more.

INT: Do you think if you could get better prices for the lamb would you rather just be getting paid better for your produce and not have subsidies or, you know, how do you feel about subsidies?

RES: Well you're asking me a question that's not realistic is it? It's not going to happen is it? Now, a leg of lamb in the butchers is so much money, well we need twice as much, it's not going to happen is it? It's not possible for them. (WRO 146)

However, there was an equal number who were very vocal about this grievance and felt that something could and should be done:

We've actually got very out of kilter in our food prices, and how we regard food prices. There is a great

sense of sort of, wanting to do something about people in other countries who are being paid ridiculously low wages to produce what we regard as staples, you know, coffee and things like that. But to do it in your own country for something which is just as staple, say for milk ...oh no, that's not fair...(WRO 21)

The supermarkets can decide what on earth they want to pay for milk, the dairies can take what they regard as a fair cut out of that price, and the farmer who's producing it has written into his contract etc. that he can't do anything about the price...And that isn't right. Now, how you go about it without being heavy handed and reintroducing the Milk Marketing Board, which, I don't know why... they saw it as a monopoly, but it guaranteed a regular price for liquid milk, it did loads of brilliantly good things. It guaranteed a thriving farming industry, because people knew what their incomes were and they could plan on that, they could adjust what they, they could plan for expansion, investment in their farms, everything else. And now, no, you can't do that. And they broke it up because they said it was a monopoly. Well, yeah, but it was a non-profit monopoly. The Milk Marketing Board looked into it, set a fair price for what it cost to produce milk, and that was the standard across, and everybody met it. Nobody was particularly complaining about how much that milk was, and in fact it wasn't much different to what it is now. (WRO 21)

There has to be a transition, a slow transition, because you can't next year say 'right the customer has to pay the full amount', you can't do that. It has to work, it's more of a group thing, the food retailer would have to work with the government

and with agriculture and on a flat playing field. The stranglehold the supermarkets have over the government is threatening the whole industry, there are too many farmers going out of business. So the government has to be a little bit more independent from the supermarkets and be like the referee negotiating between the two groups, because at the end of the day we're all trying to make sure that in future there's enough food... (WRO 13)

Beyond these frustrations with the supermarkets, it was also clear that there was a lot of cynicism around the SFP and the equitability of the payments received. It was notable that many farms either did not receive payments at all, or had very low payments due to historical circumstances. Consequently, it was argued that the SFP was not fair in its distribution. Therefore, coupled with the broader questioning of this payment, it was evident that some farmers thought it would be better not to have such a payment.

What I'm telling him [the farmer's son] all the time is, he says oh the single farm payment will be coming. I said that's got to be an extra, the farm has got to be profitable without the single farm payment and I'm not too sure whether single farm payment has been a good idea... It's the big farms who'll be getting the cream and they have been getting the cream including to some extent ourselves...it's not helping the smaller farmers...they failed to do that. And nobody can deny that. (WRO 110)

A further point that was raised in these discussions was that some farmers felt frustrated that the government effectively controlled their land because of subsidies (agri-environment as well as SFP) and all of the regulations attached. This ties in with wider evidence that farmers are often very independent and prefer to be able to

make their own decisions about how to manage their land.

Levels of Dependence

Beyond their perception of the SFP, respondents were also asked how much of their overall income was derived from these payments, whether they would be able to make a profit without it, and whether they had a plan to enable them to adapt to future CAP reform, which could affect the SFP. In response to these questions, a surprising number of respondents said they would be fine without subsidies and would rather not have to rely on the government. Around half of the respondents suggested that they could adapt to manage without the SFP, although this is questionable given the statistics on SFP in the 2010 Farm Business Survey.

Specifically, the 2010 Farm Business Survey shows that as a proportion of their farm business income the SFP is 62% for dairy farms'; 85% for LFA grazers' 72% for non-LFA grazers.

In 2009 the statistics were even worse, showing that for LFA grazers it was 113%; ie. the income gained from the SFP was greater than the amount the farm ultimately made in their overall farm business profit. However, this is now reduced given the increase in stock prices, whilst the dairy farms are not so profitable at the moment due to increasing costs and a squeeze on milk prices.

Expanding upon exactly how respondents planned to adjust, for some there was a clear sense that they could survive if they cut out the more costly aspects of their businesses, particularly areas that relied more on fuel. For example, it was noted that cattle rearing took more inputs than sheep:

Think if there was less Single Farm Payment it would go back in a lot of ways to a lower intensity system. That's like most of our work here with the sheep can be done that way. It's the cattle which makes a lot of the tractor work and

all that. That's how I would probably see it going. Probably less intensive and probably do without cows. (WRO 11)

It was also evident that some small businesses were actually a lot less dependent on subsidies than larger businesses, as they got less from subsidies and were much more attuned to the market already. Moreover, a number of these businesses ran some form of novel enterprise, such as cheese making on site, delivering produce through local box schemes, or rearing a range of stock, which again made them more resilient.

As noted above, it was also apparent that a number of farms had got a poor SFP due to historical circumstances and they had adapted in order to survive.

The uniting factor amongst all farms where they had a plan to adapt, or had already developed strategies, was that they had been exposed to some form of outside influence beyond the farm. This included those who had run different businesses prior to entering farming, those who had been educated elsewhere, or had family members who had brought back ideas, and those who were simply more outward looking in their disposition and had consequently encountered new ideas. In these terms, it was not the physical aspects of the farm that mattered as much as the question of human capacity and willingness to adapt.

Considering wider data available (ELC 2011), there would seem to be potential for further investigation into small businesses in particular, as an interesting group. This is particularly so, given that they have traditionally been perceived as just 'hobby farmers', whereas in this study it was evident that some of the most adaptable and resilient businesses were (very) small. Equally it is clear that many of these (very) small enterprises were much more environmentally aware and sensitive in their practise.

Moreover, they are an important unit to consider because 'very small' farms make up the largest proportion nationally, in

terms of the number of farm businesses (although not in area). Similarly, the Farm Business Survey does not cover businesses which are less than half time, which is 35% of farms in Wales, or those under a minimum size threshold (in England half of the 120,000 farms are excluded). Clearly, whilst they do not contribute large areas and therefore do not fit the perceived norm of agri-business, there are increasing indications that this type of business needs further consideration.

Beyond these promising signs of resilience to future change, there was still a high number of respondents who felt they would not survive without SFP. Many were keen to ask me what I knew about forthcoming changes, and admitted high levels of concern and insecurity about this. Often these respondents had a clear indication of exactly how much money they were making from subsidies, even if their wider business accounting was not very strong.

Only a small proportion of respondents seemed to be putting their heads in the sand, not having a clear indication of how much they relied on subsidies, or what they would do to make up the losses. These respondents were the least adaptable, and seemed to make decisions on the basis of habit, doing what they have always done.

Some respondents suggested they would simply retire if SFP finished, but it was more common for respondents to either try and adapt or suggest that they would continue on regardless.

From the 2010 WRO survey 30% suggested that they would change their type of farming; 52 % said they would not; 23% would expand, 65% would not; 33% would diversify, 58% would not; 27% would leave farming, 62 % would not.

Overall, this data suggests that farmers are not given to changing or adapting their farming activities. Comparing the interview insights with the 2010 responses there was a lot of consistency in individuals' responses, suggesting that they had not

changed their minds. But, it is apparent from the 2011 sample that there is a higher level of adaptability than in the 2010 survey. This could be because of the case study groups interviewed, and it should be remembered that this study is not intended to provide statistically significant data.

A further point to note here is that many farms are already operating on very low incomes, and reductions to the SFP will increase this vulnerability. As the 2010 survey shows 23% of small farms had Gross Household Income of £10,000 or less, before tax. Adapting to change is also more difficult because it not straight forward to simply sell up and leave farming. Consequently the impact of SFP changes on the most vulnerable group needs further attention.

Summary: whilst the Farm Business Survey shows a dire picture of reliance upon the Single Farm Payment, in this study half of the respondents outlined that they were considering how to adapt. Here small 'niche' businesses marked out as a particularly interesting group to consider further (see also ELC 2011). Equally, whilst many respondents were clearly reliant upon SFP, it was argued that better market prices for their produce would be preferred, as they were uncomfortable with receiving subsidies. The feasibility of such a change was seen as highly unlikely, however, given the powerful role of supermarkets. Although there was a strong call for this to be challenged by the government.

Perception of Risk

This section outlines the extent to which respondents perceived risks in relation to financial security, particularly in connection with predicted changes to the Single Farm Payment, and other risks such as animal health and disease.

Perception of risk was seen as an important area of consideration because it can be formative in decision making, and explains why farmers would plan and adapt their business in some ways, but not in others. Questions about risk were asked in an open ended way, to enable respondents to relate whatever issues were concerning them. It was, therefore, notable that the issues raised were limited to finance and animal health.

In the first instance it was notable that nearly all respondents, except for those who were currently not reliant upon the SFP expressed some concern about the impending changes to payment levels. However, despite the various adaptation plans outlined, there was often a resigned stance to 'wait and see', or simply not to get too 'bogged down' by the uncertainty of the situation. This is not to suggest that respondents simply ignored the need to adapt, but that they tried not to get overly stressed about the future. In explanation, many outlined that there have always been high levels of uncertainty associated with farming and that there was no point getting too concerned, particularly about issues over which they had no direct control.

This resigned attitude is demonstrated in the following outtakes, where respondents often indicate that they do have a plan for the future, but that they will remain flexible and not panic too much.

You would have to sell off as much ... like stock or something wouldn't you?...you could always do something couldn't you? Yes I would carry on and just make it last like...and start again or something when it's better or something. (WRO 179)

Things could change financially, but there's no point worrying about things you can't affect. You just try and make your business as strong as possible. I suppose the good thing if you went into Glastir, at least you've got some income that's guaranteed, then. You're not dependent on the market for that then. That's the good side of an environmental payment; as long as you do the things correctly then you've got payment. (WRO 39)

It was evident that some were not clear what they could do to adapt, but again the sense of not getting too concerned was pervasive:

Well we do think about it [CAP reform] because there's lots of things really, I do read it in the farming papers about CAP and that but that again is something that is out of your control really and you've just got to take whatever they bring you really that's the thing ... (WRO 17)

It does concern me doesn't it but if it comes it comes doesn't it. You get a bit old and you hear all these things in the papers and then when it comes out in the end it is nothing to what you have heard all the years. So when it comes...see what happens yes because I can't do anything about it. (WRO 18)

Where there was a much clearer sense of concern was in relation to current price increases in input costs, suggesting that respondents were much more focused on present day issues and demands, rather than looking to future policy and payment changes.

Another area of concern, where respondents demonstrated much higher levels of engagement, was the risk of animal disease. For example, a number of respondents outlined that they had decided to keep closed herds on the grounds of animal health:

RES: I'm changing to the fact that today with everything that's going on within agriculture I think we need to be more of a close, I am a closed flock as far as the sheep are concerned, well I'm thinking of going down the same route with these cattle whereby before I was buying in replacements ...but you're always, you don't know what you're buying in.

INT: Yes, you're thinking sort of disease wise?

RES: Disease wise, yes, so I'm thinking of going down the route of breeding my own replacements and going down herd health schemes and things like that whereby you are accredited... So it's, I think more and more people in the future are going to have to start looking at that with the problems that we're having within the industry especially with cattle because the government are not going to do anything about it because they haven't got the backbone to do anything about it and we just have to ... (WRO 59)

Often there was a sense that this was not simply a business decision, but one that was very much informed by their role as farmers. Consequently, it is suggested that respondents' primary expertise, and ability to adapt and change, was most often related to their stock and practical aspects of husbandry, rather than in adapting their businesses in other areas; a point that is also outlined in section 5. It is also acknowledged that the high levels of media coverage surrounding TB in recent years has affected the popular levels of concern about this disease, and many farmers felt the need to convey their concerns and dissatisfaction with the government response.

Nevertheless, despite a higher level of engagement with these concerns, it was equally apparent that respondents maintained a relaxed attitude towards these risks:

What I'm saying is there's no way we could foresee that happening, there was no way we could see the BSE happening. And there is no doubt that all these things will continue to happen in the agriculture industry because of its nature. So how do you insure yourself against and that's what's at the back of my mind when I was building these houses and I'm pleased there will be some income there. There should be some sort of income from some other direction. (WRO 110)

Summary: Financial concerns and animal health were evident as the main concerns for respondents. However, despite clear concerns in these areas it was notable that many maintained a resigned attitude and tried to avoid excessive worrying about future issues. Rather, they felt they needed to adapt to issues as they arose. This may be explained as a stance they have developed in response to the continual ups and downs associated with farming.

SECTION 7: DECISION MAKING

Sources of Information

In this section the key sources of information that respondents engaged with to inform their decisions are considered. In particular, the use of discussion groups, written material and demonstration projects are considered.

Given the focus of this study on farmers' behaviour and decision making processes, a key issue to be explored within interviews was the question of where information was sourced from, how this was then understood, and what sources were more accessible and respected. In addition, the question of other influences and pressures was also explored in order to consider how these aspects would affect the receipt and processing of information, although this is addressed further in the next sub-section.

In order to access this information farmers were asked in the first instance how they heard about agri-environment schemes, the process of engagement with schemes was then explored with particular reference to the influence and role of project officers, consultants, union officials, friends and family. In addition, respondents were asked how they had come to their understandings of conservation. In relation to business, they were asked whether they were in any discussion, producer, or buyer groups, and how these forums affected their business strategies. They were also asked whether they had sought any guidance or support with their business, for example, whether they used accountants or other consultants.

Union support and advice were important to most. A high number were enthusiastic about the support and guidance received through Farming Connect and in particular the discussion groups associated with this service. These were seen as important forums to discuss ideas with other

farmers, but also to invite expert speakers on issues ranging from animal health through to CAP reform scenarios. Other producer and buyer groups were similarly applauded for the same reasons. At least a third of respondents were in this type of group.

These positive comments are further supported by figures from the WRO 2010 survey where 54% of farmers had sought advice from Farming Connect, discussion groups, or a variety of consultants. Of these different sources 55% of farmers said that the Unions were 'good' or 'very good', and 40% of farmers said that Farming Connect was 'good' or 'very good'.

As well as the exposure to new ideas, one of the most important exercises conducted at discussion groups was the comparison of costings and annual accounts. Whilst this is a very personal exercise, a high proportion of respondents outlined how they had undertaken this exercise and found it very useful. In particular, the benefits of this type of exercise were evident as an opportunity to properly review accounts in a way some farmers appeared not to have done previously (similarly results were noted by CCRI 2009); but also because they introduced a competitive element (this point will be returned to below).

It should also be noted that the purely social dynamic of these groups was seen as a big part of this service. But as the quote below indicates, this social element is often not simply a nicety but a serious necessity for people working in very remote and challenging locations.

We went for a couple of weeks didn't we to Agrisgop...that came about in this area because of foot and mouth, because farmers, during foot and mouth couldn't get together and a lot of farmers were ...People were very depressed here because and they didn't go to the market and to have a moan, which is what you often get and you have a good old moan and you go home and you feel better, but that wasn't happening was it with foot and mouth and we couldn't go anywhere and we started going to this Agrisgop group and it was good. We enjoyed that. (WRO 118)

This social element was seen as an important priority for many, and for those in more isolated locations, the importance of their neighbours and the physical support they offered was seen as a vital input into the farm. Hence, it is argued that the social dynamic to the various discussion groups should not be dismissed, but seen as an important building block in the establishment of social networks, giving farmers a different opportunity to interact and exchange ideas.

Another important issue to highlight in relation to the social interaction aspects of groups was the way in which they enabled respondents to gain confidence and business contacts. For example, those involved in the Cambrian Mountain Lamb group outlined how the group had created opportunities for them which were not simply about increasing the value of their stock, or making more profit, but also being one step ahead of others and being more aware of changes and challenges ahead.

...it's been a good experience and being chairman it's been interesting going to different meetings and yeah possibly talking to some people that wouldn't really listen to you...if you didn't have that opportunity... (CMI 2)

In particular, respondents highlighted the utility of being involved in the Glastir pilot:

... that probably helped the business ... just to have an idea with the Glastir, the early stages of the Glastir, a few of us were asked to come in and be guinea pigs and how many points and would it be achievable so yes we had an insight into Glastir far sooner than most people did really...Yeah, just being involved and you do get a better understanding for the way the government is looking to take things. (CMI 2)

Beyond these formal groupings it was argued that interactions at the market were the main source of information for respondents, enabling them to reflect upon their own practise and engage with new ideas.

However, despite the evident enthusiasm for these exchanges and opportunities for information, there were mixed messages about the extent to which respondents followed trends, or adhered to advice and social pressures. Notably, a significant proportion of respondents claimed that they were concerned to do their own thing, not to be swayed by anyone else, and do what suited their farm and their business. Some of these respondents seemed keen to be marked out as different, and they were often quite innovative and entrepreneurial with their business, a point which will be expanded upon below.

Either way, an enthusiasm to engage with new ideas and find out what opportunities were available was notable across a large proportion of respondents, even if they hadn't actually changed their business and farming practise as a consequence. On some of the more innovative and progressive farms, respondents outlined that they had read up on different techniques, in order to find out about more sustainable and lower input systems, responding to concerns about the future resilience of their businesses. This research was often done in private, and drawing upon information sourced from

the internet, but the ability to discuss ideas with peers was also seen as essential.

However, having suggested that reading up on new ideas was important to some progressive and environmentally motivated farmers, it is important to qualify that the majority of respondents indicated that paper work and excessive amounts of policy literature was hugely problematic, as noted earlier. Consequently, it is suggested that people will find time to read up and study things that they see as important to their business, and which appeal to their priorities and sense of identity a farmer, but are less keen to keep up to date with regulations and policy. Critically, many argued that they found it difficult to have the time to read literature, a point which cannot be refuted given their working hours (something which often had to be negotiated in order to conduct interviews). But, magazines such as 'Gwlad' and similar sources of quickly transferred information were seen as very useful and important. Notably the WRO (2010) survey found that 66% of farmers thought Gwlad was either 'good' or 'very good'.

A further point on information sources was the suggestion from some respondents that TV programmes could be a good way of communicated ideas about conservation and environmental priorities. Specifically, it was argued that information in such a format would be more engaging, and less pressurising than booklets and meetings.

Reflecting on the effectiveness of other modes of communication, it was notable that the Cambrian Mountain group were not very enthusiastic about the carbon audit exercise that had been conducted with them, and equally public meetings and visualisation tools had not appealed.

INT: What do you think about the eco-system approach then that is being developed now and the maps, the polyscape maps that the Bangor University group have been doing, how do you think farmers can start to be involved in that...

RES: Probably what wouldn't work is the meetings, the meeting we had down in Aberystwyth, a lot of that, a lot of it I didn't understand and I have been involved with it to a certain extent... so a lot of farmers just wouldn't, wouldn't...it is quite hard to know as well what it may be used for in the future as well who would actually use it and to what gain really. (CMI 2)

Here it is important to note that the 'polyscapes' approach (Pagella 2011) has been very well received by some, and the research team involved in the mapping work have argued that it is a very effective way to engage farmers. This report is not intending to dispute that claim, and acknowledges that visual tools are very important for communicating ideas. But what is evident from this study is that farmers are cautious of how information is applicable to them, and whether it is simply being collected and assessed for other audiences (see also CCRI / Macaulay 2007). Equally, they are clear that they are not motivated to engage in public meetings and similar exercises. But discussions which take place on their farm are more effective.

Reflecting on the successes of the LIFE project, it is evident that the interactive as well as visual aspect is crucial to effective communication. This goes back to earlier points about the need for demonstration projects.

...that's kind of the key...actually getting them up there ... it's a similar principle if you show photos and you show even videos of drain blocking taking place that's one thing. You actually show them drain blocking taking place they can walk around, they can see it from different angles. It's a much more positive impact. (LIFE PO)

Describing why attitudes had changed towards the ditch blocking work, farmers involved with the LIFE project stated:

It has changed because we are talking to a lot of farmers. Farmers

are very inquisitive once you start doing something ... (LIFE 1)

And as the project officer describes:

I know that quite a few farmers had a chat to our farm manager down at the market and asked what the hell he thought that he was playing at and when he explained why he'd given his okay for it to go ahead though he was ... he still kept an eye and was cautious and didn't put all his money in one hat. And I think that was the same with the farmers over the Migneint... (LIFE PO)

It definitely did have an impact looking over the fence and seeing what happened...those who came to Vyrnwy and saw it three or four years down the line that had a positive influence. Because they could see that the pools were starting to disappear and vegetating up and it was becoming land effectively and it wasn't wall to wall water and they could still walk across it and it was fine. And I think that had a positive impact as well. (LIFE PO)

Equally, it was important for farmers to be able to come up and ask questions, rather than be pressurised to join the scheme. And because they could talk to the farmer who tenants the land on which the LIFE project is run, rather than a conservationist, this also made all the difference. As the farmer argued:

RES: I think it's better there [at the market] because people, its better if people come up to you to talk...rather than you going to them and trying to...

INT: So those farmers that have got involved, they are people that have come up to you... [Yeah]... rather than going to them and saying, "this is a good area that we'd like to do the ditch blocking work on", if you did that, do you find people are like "go away!" ?

RES: Very wary aren't they? If you turn up on their doorstep and you said that you wanted to block, well if you turned up here and said, I want to block your drain... I'd say, well ...we're on tape so I won't say... But no I found there's about three or four people that have...It's not all just because of talking to me, but perhaps it's been a help to persuade them to change their mind. (LIFE 1)

Elsewhere, the importance of good conservationists and project officers was enforced (reasserting comments made in earlier sections) and demonstrates how much of a difference this can make to schemes and environmental work more broadly:

INT: Was that an important part of the scheme, having somebody come out?

RES: Oh yes I think so, the thing is I don't think we'd have gone into it unless you know we had somebody here just to explain it because you get the literature from the post and you don't read them, you just put them to one side but if you have somebody to interpret it and say all you've got to do is this and that it makes it more simple, I think it's good to have somebody come out. (WRO 17)

...much more useful than just having a piece of paper and that sort of thing. Explain it a bit differently can't they?...they advise you about what fields can do what... they explained to you what ... well the different points of it, what the points meant and which ones you should go for and yes it was quite good that was. (WRO 179)

Summary: Overall, visual and verbal forms of communication were highlighted as the most favoured sources of information. With information best relayed when farmers are seeking it out of their own curiosity

rather than being pushed to engage. Consequently, it is argued that demonstration projects are particularly effective, especially when farmers are able to discuss ideas and new approaches with other farmers. Equally discussion groups were seen as a key source of information and support.

Social Influences

This section outlines how social dynamics affect farmers' decisions and their engagement with the various information sources set out above.

In addition to effective communication, good working relations, and appropriate sources of information, it is also apparent that social dynamics play an important part in the way that information is received and processed. As outlined above, a large proportion of the information that farmers received is delivered in very social circumstances: through discussions with friends, family and peers – either at the market, specialist discussion groups or in the pub.

From previous studies it is suggested that a networked effect could be an important component of agri-environment uptake, and more recently the experience of renewable energy installation shows a similar trend of neighbours copying each other. Given this type of behaviour, it would be easy to conclude that some form of social pressure is prevalent in farmers' decision making, as one respondent put it:

Obviously you talk to other people who've been more aware of what the situation involves, other farmers who've looked into it, and most likely you're behaving exactly like the stock you look after, in other words you're led like sheep. (WRO 13)

However, further investigation shows a complex picture. Specifically, the findings of this study suggest that rather than following trends unquestioningly, or responding to peer pressure to conform, more often it seemed that social interactions simply exposed farmers to new ideas, and gave them the opportunity to learn from others experiences. Many seemed clear that they had to make their own decisions to suit their farm / land/ circumstances and it would be fool hardy to do otherwise.

INT: In terms of making a decision to be involved in the scheme, does it make any difference to you what your neighbours think? What other people are doing?

RES: No.

INT: No, you just do what suits you?

RES: No, nobody thinks... no, surely not. It doesn't affect anybody's decision what his neighbour's doing, I don't think. No. I don't do that. (WRO 146)

If they do join a 'trend' eg. taking up a particular grant or joining a scheme, it is because it is seen to be a good deal, which they want to have access to, rather than needing to conform. In this sense, they are keen to push their identity as independent and 'savvy' or shrewd business people. Many even suggested that they were trying to be different and buck the trend or get ahead, questioning the interviewer as to whether they seemed different from others, or had given them a different story to the norm, and consequently stood out somehow.

Others, who were less keen to mark themselves out as different, would adopt new ideas with caution, learning from what others had done, but only doing what seemed right for their farm and changing practise because they could see a clear need:

...like these cattle, there are three or four of the farmers within the group that were into these things for maybe ten years and I thought oh, what are they keeping them for, you know what I mean, but at the end of the day it's the bottom line that pays the bills and the vets, my vet bill was going through the roof and also my cattle fertility was down and all sorts of problems like that and I'm thinking I need to change something here. I don't know if I'm doing the right thing I won't know that until I'm two or

*three years down the line probably.
(WRO 59)*

Often, it was the more conservation orientated farmers who were clearly conscious of their differences with others. But, they argued that they felt comfortable with the decisions they made because it suited their business:

... my husband and I consciously decided, because of the size of farm, that we would farm it with animals we enjoyed and endeavour to make them pay in some form... we have the non-commercial, hobby farm type cows which I am laughed at about, but not recently because more, 'real farmers' are now getting them for conservation ...And I make a lot more out of the three I sell through a box scheme than all the ones that go through the market... Okay, I don't look like I'm a really busy, proper farmer and I do get comments to the point, but if it pays the bills it farms the land, it keeps the land well ... then I'm happy with that. (WRO 45)

It's amazing - we were in the Royal Welsh for a week, because we were on the Highland cattle stall and how many 'real farmers' came and asked about, what about crossbreeding them...They're now starting to seriously consider these other breeds. That doesn't stop the stigma. You're still going to have that stigma just because they are, because they're so pretty they're known as the hobby farmer's cow, aren't they. (WRO 45)

RES: There were only seven organic farmers, organic dairy farmers in Wales when I went organic. And I knew them all, but they were a very, they were hippies, you know ...they did it not for money but they did it because they believed in it. And I did it, I did it because I believed in it, nothing to do with money at all, but then of

course in two thousand lots of people jumped on the bandwagon and did it really for money then.

INT: Could you say, was there any sort of social ...

RES: Stigma?

INT: Yes... what did your neighbours think about this ...

RES: They thought I was mad, but then they came round to realising it worked when they saw our crops coming in almost as well as theirs. (WRO 42)

Quite a few have gone organic now, a neighbour, a two hundred and fifty acre farm up the road has gone organic, totally, I think, because he saw the conversion here...farmers are terrifically inquisitive, yeah. Especially now they can't see how many milk churns are on the milk stand. Always used to be the dipstick. You used to be able to see if they had ten milk stands, milk churns, but now it's more difficult because the milk tanker comes in so now they might be taking a thousand litres or ten thousand litres, so you can't tell. (WRO 42)

Here it is evident that social stigma and pressure is prevalent and particularly tied to notions of being a 'proper farmer'. Moreover, it is acknowledged that there have been frequent difficulties associated with embracing conservation and organic practise as a result of these identity type-casts. Nevertheless, farmers adopting these practises have shown a degree of stubbornness and appear to be 'thick skinned' about the prevailing attitudes, taking solace in the wisdom of their decisions. Here, similarities with other business-orientated and progressive farmers are evident, suggesting that many farmers are happy to stand out and buck the trend.

It is also important to note how personal farming is, with each holding offering

individual challenges and opportunities, which reinforce the necessity of being an individual and making choices suitable to your piece of land.

Nevertheless, it is clear that social pressure does seem to be effective in relation to the perceived tidiness and general appearance of the farm and stock. This was perhaps more evident in terms of farmers judging other peoples' farms, rather than admitting that they were concerned themselves about what others thought, which again reinforces the sense that they were stubborn individualists. For example the following extracts show how a farmer refutes the suggestion that he is concerned what others think of him, but shows that he does judge others:

INT: What about your neighbours, anybody else around here involved in schemes?

RES: The odd one or two yeah.

INT: Has that affected your decision to be involved or not?

RES: Well a little bit, there's one up the road...now he's fenced all with the rivers and what have you and it looks, to my mind it looks ugly ...

[later in the same interview:]

INT: So how much would other people's opinion of what your farm looks like influence what you chose to do?

RES: Not a lot, I just do what I want to do, I don't mind what anybody else thinks. (WRO 43)

Another form of social 'pressure' that was evident was the way that farmers were often influenced by gossip on policy, particularly in relation to Glastir.

To be honest I've been talking with a few farmers and they're just you know, they just flung it one side like. So, to be honest I didn't look at it much, I just went with their views, they were fairly progressive

farmers, I thought they'd gone through it. I suppose I should have gone through it myself really I know, but that's the attitude to it. You only had about 3,000 take it up anyway didn't you? (WRO 43)

INT: Did that affect your decision [to join Glastir]...?

RES: Well you just have a look for yourself and you see what you think isn't it? But a lot of farmers have said no because they've heard other people say no, so it's just ...You know, I think a lot of farmers have heard about it and they heard people slating it off so [yeah] they might as well slate it off so. (WRO 179)

But again, whilst many were cautious because of the negative press, and were evidently aware of what others had said, there was also a clear argument that they would do what suited their farm best.

Overall, it is evident that whilst a degree of social pressure exists, the importance of being an independent business person seemed a more pressing influence. Reflecting back to earlier discussions of group forums, it was particularly notable that many respondents remarked upon a competitive aspect to their attendance within these groups. So, interventions to improve business skills could try to build on this further.

We're actually going to start doing the costings through the group as well now. I've always done the dairy costings since we started selling milk really, and I always liked the league tables so I'd know where you know, am I performing well or not. I usually like to be up in the top five somewhere. (WRO 43)

Summary: The transfer of information via a social network effect is seen as an important mode of communication for farmers, with neighbours and peers often adopting similar schemes. However, it is argued that farmers are

not simply conforming to 'peer pressure', but trying to ensure they can get the best deals available. Moreover, they are often keen to assert themselves as independent business people, and only doing what suits their farm. It is also clear that many are very competitive and this is an important means to motivate them to improve their business.

Family dynamics

In this section the influence of family dynamics within the business and decision making processes is considered, with particular reference to the role of farmers' wives and the question of succession.

When reflecting upon social dynamics and influences on decision making, the importance of the family is a factor that ranks highly alongside the role of peers. As outlined at the outset, family members were often all involved in the business, with at least 50% of respondents operating as a husband and wife partnership. Respondents were often interviewed as a family group and the dynamics of that were evident in discussions about decision making. Sometimes this seemed to be a good thing, with different family members bringing new ideas to the table and adding innovation to the business.

Interestingly, women were often more aware about the need to diversify and consider environmental issues. They also wanted to find out more information and have a voice for the farm. For example, it was often the women who were keen for an interviewer to visit so that they could share experiences and contribute to this report (it is acknowledged that the interviewer was also female, and hence this would also affect the dynamics of the situation). Nevertheless, the findings of this study suggest that it is important to support women with the development of their business skills, not just as secretaries and administrators, but as partners who are often fully involved in business decisions (see also Gasson 1992). For example, one respondent outlined how she was involved in a farmers' wives group, which was much more effective than sending her husband to similar Farming Connect groups:

...what we have found is, it was all very well sending our husbands ...but they don't take notes... We actually have to do the paperwork. And it's a lot easier if we went and got the information. And we do

take notes. One of our speakers actually said, because we all sat there and he was about to start, and we all got pencil and paper out ...and he went, oh, that's unusual. (WRO 21)

And wives we're not quite as precious with our information. I sometimes think with the men that they think their neighbours might criticise them and might go, oh, that's a silly thing to do. So they don't actually say what they are doing. Whereas we would go, oh, we're doing this – oh, I find this really hard doing this. (WRO 21)

This later statement seemed to hold on a number of occasions when women would be much more forthcoming about concerns or difficulties with the farm business. For example, comparing the wife's statement with the husband's on the benefits of discussion groups:

RES2: Farming is quite isolated isn't it, and it does do good to get together far more because on that sort of thing you really enjoy.

RES: Yeah...nice to see how somebody else is making a mess of it. (WRO 43)

However, there were a significant proportion of businesses that were solely run by men, with wives who did not seem to be involved, beyond trying to support them as a house wife. They had very traditional values and seemed quite nervous of talking on behalf of their husbands. Consequently, it is important to appreciate how farming and associated rural life is still very gendered and elitist. It is therefore important to ensure that women and other minority groups can be included in farming, to ensure that they also have good access to information and are not marginalised.

...and I'm female, that doesn't really help... It's still an issue. A very great issue. It's amazing. I

know several women farmers and we're still regarded a bit as odd. I don't know how long it's going to take to change... (WRO 45)

Equally, incomers often suffer marginalisation within the community and it is therefore important to ensure that they are not penalised, or unable to take their business ideas forward simply because they cannot access the 'right' networks.

Returning to the role of family members in decision making, this was something that came out of the LIFE project experience very clearly. Specifically, Project Officers and farmers both outlined how a focus on school groups and education events at the National Eisteddfod had been an important component of the project. Here it was argued that children would then come home and talk to parents about the events and have a bigger impact than a conservationist trying to force the message.

Equally, in relation to the farm business, the role of children was again noted. Specifically, it is evident that succession is a major issue for farming families and a huge influence upon decision making. This is demonstrated by the following outtake, where the consideration of successors' wishes held the future of the farm in the balance:

With us, our son wants to farm. Otherwise we wouldn't be doing what we do, we'd ... we would have retired when we sold the pub...He's the one that does the bulk of the work...but all he wants to do is milk so that, his interest in farming is dairy production...so ... that's the course we will be going down, is going into dairy while everybody else is coming out of it. (WRO 16).

The question of succession was also a key issue raised in the discussions about conservation work on the farm, and presented as the main reason to ensure the future viability of the land.

A final point to take from the family dynamics was the push and pull of different working demands on the farming household, with only the very largest farms able to sustain family members in full employment. On at least a third of farms the respondents had to work two jobs, with hours adding up to much more than normal full-time working. This is corroborated by the WRO 2010 survey which showed that 41% of farming households have non-farming as well as farming incomes. with 39% of very small farms seeing off-farm income as the most important source of income.

Often this was work that was associated with farming eg. contracting, driving, building sheds, whilst women were engaged in a range of additional activities including education, retailing, catering or admin. A small proportion of farms also ran B&B's or leased land. Whilst it is often argued in the literature that such diversification is a positive thing, it is also important to point out the difficulties endured through working such long hours, particularly given the commitment that animal husbandry takes. For example, many farmers argued that their need to work off the farm was compromising their ability to manage their stock properly, and did not see that it was sensible for them to be encouraged to work in such a way.

...that's not good policy to have it that an income on a farm doesn't pay sufficient...There must be something wrong with a country that feels that it's all right for farms to have to work somewhere else... But farming, it's in, it's in you. That's the only way the government get away with it. If we were true business people, cut and dried like, I don't know... (WRO 45)

They've got to be careful with that kind of thing at the moment especially as we've got lots and lots of smallish farms with people working, it's very, very difficult to keep a full time job going and the farm going...you don't get to do

things... If you're home every day with the stock well I'll do that tomorrow, but it's just you can't do it and I'm in the situation ... this place is too big to run a job with but it's too small to make a living on so you're stuck between the rock and the hard place you have to go to work to get a living but you've got to try and keep decent stock here as well and to get the best out of your stock you have to look after them which is very difficult. (WRO 101)

Summary: From this research is evident that farmers are not usually a lone decision maker, and often consider the impact of their decisions on their family even if family members are not directly involved in decision making. This is important to take account of because to influence decision making, communication should be aimed at a diverse group, including wives and even children. It is also important to consider how the farm works as a family unit and the stresses and strains of running such an enterprise, where there are often multiple sources of employment and associated demands being made.

SECTION 8: CONCLUSIONS

This report has detailed findings of research conducted to investigate the following questions:

1. What are the key factors that influence farmers' decision-making in Wales, in relation to their farm businesses and participation in agri-environment schemes?
2. How can participation in agri-environment initiatives and the delivery of ecosystem services be more effectively incentivised?
3. How can farmers be supported to operate more sustainable businesses, which are resilient to future challenges of CAP reform, market volatility, and increasing input costs?

This work is designed to inform agri-environment and other rural policy mechanisms, which target the delivery of ecosystem goods and services, there-in contributing towards the delivery of Wales' Natural Environment Framework and Rural Development Plan. Equally, this research is intended to contribute to the planning of CAP reform and future agricultural policy measures to improve the resilience and sustainability of farming in Wales.

These findings have been divided in this report into 3 main sections: on agri-environment decisions, business decisions, and wider factors which affect decision making more generally. Each of these has been divided in turn into sub-sections addressing specific areas of interest. Summaries are provided at the end of each sub-section throughout the report. These are brought together in this final section to provide wider conclusions, making connections across the different areas and drawing out key recommendations for policy and other interventions.

Question 1: Factors influencing business and agri-environment decision making:

Segmentation of farmers is more effective when they are differentiated in terms of business engagement and adaptability, rather than dividing them according to fixed identity types, or levels of engagement with agri-environment initiatives. This departure from previous studies on agri-environment uptake is suggested in light of evidence that the majority of farmers are now prepared to consider agri-environment participation as a means to increase the resilience of their businesses. Environmental measures are not simply adopted for ideological reasons, but increasingly as a business strategy.

Differentiating levels of business engagement and adaptability suggests that capacity is not as important as willingness to change. This is a point that is developed further in response to question 3.

Corroborating earlier studies, this study shows that agri-environment uptake continues to depend on a suitable balance of financial incentive and fit with existing management plans. However, it is notable that Glastir has been very poorly received by the farmers interviewed, with many of the Tir Gofal participants choosing not to join, despite indicating in the WRO 2010 survey that they would. As some are still in the Tir Gofal extension phase, final uptake figures are not yet available. Notably, the majority of respondents, including those with no previous scheme involvement, demonstrated that they were prepared to consider the scheme, but had later decided not to join.

The main criticisms of Glastir include low payment levels, a perception of high restriction levels, and a lack of

engagement with the aims of the scheme. It is also suggested that the bad press surrounding the initial announcement of Glastir could have had a negative impact on scheme uptake as people are not engaging with the scheme in such an open-minded way, and could be steered by what other people have told them.

Question 2: Incentivisation of agri-environment schemes and ecosystem services:

Further communication of Glastir's aims and objectives is needed to create wider levels of engagement. This connects with findings of previous work which emphasises the importance of perceived legitimacy in policy acceptance.

In particular, farmers object to what they perceive as an increased focus on conservation priorities to the detriment of food security. Specifically, management options which required the removal of land from production, or severely reduced productive capacity, were strongly criticised. This tension is seen to result from a recent push for greater productivity emerging alongside the need to lower the environmental impact of agriculture. A more coherent farming strategy, with less conflicting messages from government is therefore needed. Here, low input, organic, and agro-ecology systems are seen as important models to meet these combined goals, with many farms adopting elements of these systems to increase the resilience of their businesses. Further support for these methods is needed.

Building on this point, it is evident that most farmers are not prepared to compromise the food producing capacity of their farms, even for short term financial gain, as they are concerned to maintain the farm business for future generations. Only a very small proportion of respondents, who had no tie to their identity as a farmer, were prepared to change the use of their holdings. These findings resonate with a wide body of research on farmers' identity, as well

recent evaluations of 'Payments for Ecosystem Service' schemes. Appreciating these priorities is not only important for current agri-environment policy, but will also be essential for the development of future ecosystem service delivery schemes.

However, it is apparent that many respondents are sympathetic towards conservation priorities. It is, therefore, suggested that opportunities to undertake conservation work, through the support of small grants, could be an effective way to engage farmers who currently feel unable or unwilling to enter schemes.

Nevertheless, it is apparent that communication is a major barrier to successful scheme uptake. Equally, it is evident that there is a very poor understanding of the ecosystem services concept. Clear communication, through effective demonstration projects and project officer support, has been shown to improve levels of engagement, but this work needs to be on-going. The experiences of the LIFE case-study project outlined in section 7, in particular, are seen to be very pertinent here.

This work shows that it is not simply a case of making more information available, but improving the style in which it is delivered. Here a more understanding and respectful attitude between conservationists and farmers is seen to be essential to the development of future agri-environment measures. For example, wider government strategies for behaviour change, focusing on engagement, encouragement, and leading by example, should be equally applicable to the farming sector.

Question 3: Supporting farm businesses:

Farm business statistics demonstrate very high levels of vulnerability to future reductions in the Single Farm Payment. Nevertheless, in this study half of the respondents outlined that they were considering how to adapt. These suggestions were largely based on

increasing efficiency and lowering costs, but no firm business strategies were evident. Rather it was evident that respondents would try to adapt as the changing conditions became clearer.

Nevertheless, it is apparent that accounting and financial management were the weakest areas of business skill amongst respondents. Consequently, support in these areas will be important for future adaptation. Many found peer-learning and support groups helpful to develop these skills.

Notably, most farmers preferred to improve the quality and efficiency of their farming skills, instead of diversifying their businesses. Countering some models of accepted wisdom, diversification may not always be the best solution. Specifically, for farms where human capacity is limited, because farmers are already overstretched in terms of available labour, could do better by improving the core of their businesses. This is not to suggest that a diversity of produce is a poor strategy, but that a diversity of enterprises can be too much for some farms to manage. Evaluating the capacity and strengths of different farming households is, therefore, important to support the development of future business strategies.

Special branding and adding value were also seen to have limits, particularly for those working with supermarket retailers. It may be more effective to improve the resilience of farming systems by improving livestock health, lowering input costs, and reducing the length of supply chains. However, small, niche businesses, with a strong local consumer base, were seen to be particularly resilient, and an important model in the move towards low carbon economies. Further research into this group is suggested to improve understanding of how future resilience can be developed.

Returning to the issue of effective communication, it was evident that willingness to change and human capacity were the main determinants on business adaptability. Here, exposure to new ideas

and outside influences are particularly affective, with the influence of extension services particularly noted.

Considering the way in which communication should be framed, it was evident that a high proportion of farmers see themselves as independent and competitive in their businesses. Appealing to these traits is a useful way to encourage them to improve their businesses.

Equally, it should be noted that the majority of farms are run as family enterprises. Business support mechanisms and the communication of policy messages should be aimed at the whole family, and particularly farmers' wives, rather than a lone decision maker. Here examples from the LIFE case-study project, involving the communication of environmental priorities to farming children were seen to be particularly successful; as well as wives only Farming Connect discussion groups.

A high proportion of farmers would prefer to receive better prices for their produce in place of the Single Farm Payment, and noted a clear sense of discomfort around the receipt of subsidies. However, the power of the supermarkets was seen to be too great for anything to change. Here a plea was made to government to intervene, and consider whether a fairer market price would be more effective in delivering robust farm businesses and food produce in future. Greater public engagement and support was also outlined as a prerequisite to enable change in this area.

Concluding Statement:

Overall, it is apparent that farming is undergoing some radical changes which are set to continue for the next decade at least. Farmers are now much more aware of the need to be business orientated, but require on-going assistance to develop their business strategies. On-farm and peer-to-peer learning are some of the most successful techniques here. But

equally, attention to farmers' skills and interest in their role as food producers should be recognised and developed. Environmentally sustainable farming techniques are seen as an important means to improve the overall resilience of the farm business, but a more dramatic shift towards conservation priorities is not likely to be forthcoming.

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APPENDIX 1: Table to show Glastir uptake compared against previous scheme involvement and indications of Glastir uptake in WRO 2010 survey; discussed in section 5.

Farm	AES	Glastir	Glastir 2010	Reason
96	n	n	likely	Poor payments / restrictions
63	n	n	dk	Poor payments / restrictions
95	n	n	highly unlikely	Poor payments / restrictions
81	n	n	likely	Poor payments / restrictions
82	n	n	dk	Poor payments / restrictions
1	n	n	dk	too much paperwork / too busy
58	n	n	likely	very busy - didn't want to discuss
3	n	n	more information	semi-retired
85	n	n	dk	poor scheme - lack of trust in WG
141	TG	n	more information	Poor payments and scheme design
9	TC	y	likely	For money & fits management
55	TC	n	highly likely	Poor payments & restrictions
64	TG	mb	highly likely	TG extension
99	n	n		Not appropriate – small holding with horses
46	n	n	dk	Not enough points
10	n	n	more information	Poor payments, quite production focused
21	n	y	highly likely	Struggling with points
18	n	n	more information	Interested but doesn't fit management
11	TG	y	highly likely	TG extension
36	n	n	highly unlikely	ill health
13	ESA ; TG	mb	highly likely	TG extension ; unsure
17	TG (5 yrs ago)	n	dk	too complicated
16	Organic ; TG	y	more information	not enthusiastic ; applying to get other grants
59	n	n	more information	not enough points ; restrictions
39	TC	mb	likely	poor payments
42	Organic ; TG	y	highly likely	continue conservation ; but concerned about payments
101	TC	n	not likely	Poor payments / restrictions
4	TC	y	highly likely	not sure about points
43	n	n	likely	Poor payments / restrictions
69	Organic ; TG	y	highly likely	continue conservation - but concerned about payments
104	Organic ; TG	y	more information	For money and fits management
12	Organic	n	more information	poor scheme - doesn't fit management
118	TC then TG	mb	more information	TG extension
45	TG	mb	more information	Unsure - poor scheme & payments
34	n	n	highly likely	unclear - doesn't like to change practise
84	TC	n	not likely	old age - too prescriptive
190	n	n	not likely	too restrictive
139	n	n	more information	couldn't get into TG - poor faith in schemes
110	n	n	dk	too much paperwork - not interested
162	TG	n	likely	poor payments
146	TG	y	likely	wants to get in higher level scheme – for money
179	TG	y	likely	wants to get in higher level scheme – for money
62	TG	mb	more information	wants to get into higher level scheme – for money
14	TG; Organic	mb	more information	Probably - but money dependent
26	TG; Organic	mb	more information	Probably - unsure about commitment
CMI 1	ESA	y	na	For money + fits management - but very critical
CMI 2	ESA; TG	y	na	For money + fits management
LIFE 1	Organic ; TG	y	na	concerned about payments
LIFE 2	n but SSSI	y	na	losing Tir Mynydd
LIFE 3	n but SSSI	y	na	For money + fits management

APPENDIX 2: Summaries of each respondent, with typologies applied as discussed in section 4.

96	ADAPTIVE SMALL HOLDING Vet – full time Schemes not worth it Critical of Glastir from discussions with farmers
63	RESTRICTED SMALL HOLDING Schemes not worth it
95	ADAPTIVE Doesn't want to join Glastir – too much destocking But suggests diversification as a future strategy
81	RESTRICTED SMALL HOLDING Schemes not worth it
82	RESTRICTED SMALL HOLDING Schemes not worth it
1	? Not in schemes – too busy, very high work load, stress.
58	? Not in schemes – too busy, very high work load, stress.
3	RESTRICTED RETIRING
85	PROGRESSIVE Both work fulltime off the farm, and run a campsite in summer. Engaged with environmental issues and conservation, But not sure how to apply it to their farm – very small, coastal position. Feel they need all the land they have to farm. Critical of subsidies Not very happy with government interventions full stop – due to previous experiences.
141	PROGRESSIVE Dairy Has been involved in AES previously But doesn't feel it is profitable enough now. Critical of scheme No information on SFP – maybe pack in (2010 data)
9	PROACTIVE Not currently farming, leasing land and running B&B. Very business aware and not strongly attached to the farming way of life. But also attentive to conservation prescriptions - which he does not regard as conflicting with farming. Difficult to say whether this is simply for the money. But he does suggest that he runs a low-intensity system. Reliant on the SFP. Business not resilient to run without it. He would have to return to farming rather than leasing without SFP.
55	PROGRESSIVE Has been in AES previously and intended to go into Glastir 2010 But not now – very critical of scheme Thinks WG need to support young entrants more Daughter involved in farm – and has own shearing business Suggests diversification as a future strategy.
64	RESTRICTED Very environmentally knowledgeable Small farm, run very traditionally in a low impact way. More because of her environmental commitments than because of capacity constraints. Although it is a hill farm. Did used to run farm more intensively Is adaptable in farming practise, but restricted by land and age Relies on SFP
99	ADAPTABLE SMALL HOLDING Land is a small holding used for an equestrian business. Not main source of income, so decisions are more on lifestyle than business. Not involved in any schemes or in receipt of SFP because they are unaware of how it could apply.

46	<p>RELUCTANT (will join schemes but more fixed with farming) Dairy Not in AES, thought about joining Glastir for money but can't get points. Hasn't changed management – but financially aware. Would prefer better market price than SFP – not reliant. Son involved in business Production orientated Not very conservation orientated – although farm is not too intensive in appearance.</p>
10	<p>RELUCTANT RETIRING Was dairy, now beef sucklers after BSE, and needed to invest in a new parlour. Very isolated hill farm, depends on neighbours for information. Farmer was past retirement and his wife was very ill – struggling with family circumstances. Would go into Glastir for money – but conflicted too much with his idea of farming. Very production orientated. But would do environmental work for sufficient money – reluctant as it conflicts with his role. But as he is getting older he sees that it could be okay. Relies on SFP.</p>
21	<p>PROGRESSIVE Dairy But also very conservation aware and would like to do more for this Frustrated by schemes – as they do not suit farm or appear sensible. Forward thinking and adaptable in business In groups, well connected. But struggle with work load. Cautious / nervous of government regulation. Tenancy arrangement makes it difficult to diversify further.</p>
18	<p>ADAPTIVE Although quite reluctant to change Dairy Haven't changed practise much. Very much guided by finances. Happy to do conservation if it fitted business. But constrained by land – high quality grazing. Family orientated. Quiet profitable – so possibly okay without SFP.</p>
11	<p>PROACTIVE Hill farm but also have hens Used to run B&B when parents were in business, but currently too much work (with 3 children...!) Happy to change business and adapt – Stays connected with groups and specialist buyers Going into Glastir and been in AES previously. Aware of conservation, low intensity system. But still committed to farming. Could adapt to SFP change.</p>
36	<p>RESTRICTED RETIRING Due to ill health Also faced challenging circumstances with business – Unable to acquire planning for essential buildings. SFP was not an essential part of their income because he worked FT elsewhere Quite a traditional attitude to conservation and farming – seeing them in harmony Farmers as custodians of the countryside</p>
13	<p>PROACTIVE Also runs a caravan site Have been involved in previous AES Unsure about Glastir Critical of current strategy – too singularly environmental But sympathetic to conservation Farms in a low-intensity manner Doesn't agree with SFP Thinks there needs to be a better price for food</p>

17	<p>ADAPTIVE</p> <p>But quite restricted</p> <p>Quite intensive dairy</p> <p>Haven't changed business much – but open to ideas on animal husbandry side.</p> <p>Very stretched labour-wise</p> <p>Sympathetic to conservation and were in TG, suggest that there is good habitat on farm.</p> <p>And want to farm in harmony with the environment.</p> <p>Considered Glastir - but decided it was too complicated.</p>
16	<p>PROACTIVE</p> <p>Small mixed farm, with farm shop and on-site processing.</p> <p>Very business orientated and adaptive.</p> <p>Used to run a pub</p> <p>Very environmentally aware, organic low-intensity methods</p> <p>Son taking over business – had an important bearing on business strategy.</p>
59	<p>ADAPTIVE</p> <p>But not keen to diversify</p> <p>Constrained slightly by capacity – hill farm</p> <p>Not so business focused – but very good at farming, focuses on breeding etc.</p> <p>Well connected in a buyers group.</p> <p>Wife is more diversification focused – but some tensions there over future of farm.</p> <p>Not in any AES, perception that he couldn't get in.</p> <p>Looked at Glastir to replace LFA – but not worth it financially.</p> <p>Sympathetic to conservation – but put off by restrictions and rules.</p>
39	<p>ADAPTIVE</p> <p>Small hill farm</p> <p>Came back to farm – so lifestyle choice.</p> <p>Haven't made a lot of changes,</p> <p>But a sense that he could adapt – although not very business focussed.</p> <p>Not too concerned about SFP</p> <p>Was in TC and hoped to go into Glastir but not worth it financially currently.</p> <p>Happy to do conservation for suitable payments.</p>
42	<p>PROGRESSIVE</p> <p>Converted to organic for ideological reasons.</p> <p>Very conservation aware</p> <p>But still tied to identity as a farmer.</p> <p>Critical of Glastir for being untenable in farming terms for some.</p> <p>Although straight forward for their farm because of organic status (has that changed now?)</p> <p>Dependent upon SFP</p> <p>Suggests that his son is more business aware</p>
101	<p>RESTRICTED</p> <p>Quite constrained by size of farm and environment – hill farm, works FT off farm.</p> <p>Is a contractor – so progressive and adaptable in that sense.</p> <p>But hasn't changed farming practise much.</p> <p>Was in TC but not TG or Glastir as they are too constraining.</p> <p>Clearly struggles with balancing work load and unhappy with regulation levels.</p> <p>Dependent on SFP.</p>
4	<p>RELUCTANT</p> <p>Low intensity farm</p> <p>Already maintained some habitat so being in AES wasn't a big change</p> <p>And beneficial financially.</p> <p>Seem sympathetic to conservation – see farmers as stewards.</p> <p>But also sees Glastir as a business decision so will come down to profitability.</p> <p>Family farm – hoping it will go to his son.</p> <p>Hard to tell how engaged he is in business – but in a Farming Connect discussion group.</p>
43	<p>ADAPTIVE</p> <p>Traditional dairy</p> <p>Some sympathy for conservation and not very high intensity.</p> <p>But prefers no government intervention.</p> <p>Not in any schemes, did look at Glastir but decided against – unworkable.</p> <p>Critical of government policy.</p> <p>Daughter taking over farm – important bearing on decision making.</p> <p>Would prefer to operate without subsidies.</p>

69	<p>ADAPTIVE</p> <p>Retired couple on low-intensity small holding</p> <p>Lifestyle important</p> <p>Very environmentally aware</p> <p>In AES and applying to Glastir</p> <p>But critical of government policy for being unbalanced – unsustainable for farming.</p> <p>Appreciate subsidies – although not dependent themselves, suggest others are.</p>
104	<p>PROGRESSIVE</p> <p>Just taken over farm after father died</p> <p>In AES and organic – seem to like system</p> <p>But have changed a lot</p> <p>Previously very production orientated.</p> <p>Seems adaptable and business aware.</p> <p>Have diversification strategies</p> <p>Happy to follow financial incentives (eg. for PES) – but also aware of long term sustainability of land.</p> <p>Not clear how SFP depend they are.</p>
12	<p>PROGRESSIVE</p> <p>Elderly widow living on her own</p> <p>Very affected by family issues / future prospects.</p> <p>Also run a shoot and stud from farm, with numerous business avenues and good connections previously.</p> <p>Very business aware – from a lifetime of businesses on the land.</p> <p>But also very conservation orientated – organic and was in ESA</p> <p>Yet very critical of government policy – for disjointedness, and lack of groundedness.</p> <p>Not clear how she would cope without SFP.</p>
118	<p>RELUCTANT</p> <p>Small farm, using low intensity methods.</p> <p>Also work contracting</p> <p>But otherwise not very proactive with business</p> <p>Quite lifestyle orientated.</p> <p>Hope daughter will take over farm.</p> <p>Sympathetic towards environmental needs.</p> <p>Insulated slightly from SFP because of contracting.</p>
45	<p>PROGRESSIVE</p> <p>Small farm, using low intensity methods and rare breeds.</p> <p>Run local box schemes.</p> <p>Very conservation aware.</p> <p>But also very critical of conservation policy for being untenable from a farming perspective.</p> <p>Very business aware</p> <p>Very connected</p> <p>Dependent upon SFP</p>
34	<p>RELUCTANT</p> <p>Low intensity farm</p> <p>Not keen to change – difficult to engage on decision making choices</p> <p>Not in any schemes</p> <p>Tenancing may also constrain his position</p> <p>Dependant on SFP</p>
84	<p>PROACTIVE</p> <p>RETIRING</p> <p>Made a lot of changes to business over the years – very adaptable.</p> <p>Sympathetic to environment, and low-intensity production.</p> <p>But not joining Glastir as too restrictive & old age.</p> <p>Family not taking over</p> <p>SFP seen as essential to farming community and important to them.</p> <p>Were very involved in groups and unions etc – well connected.</p>
190	<p>PROACTIVE</p> <p>Intensive dairy – but kept on grass rather than concentrated feed.</p> <p>Focus on innovation in land management and grazing system to ensure business sustainability.</p> <p>Involved in dairy discussion groups and producer co-ops to improve farming practise and profitability.</p> <p>Aware and sympathetic to conservation and environmental issues.</p> <p>But nervous of AES due to perception of government intervention / over regulation.</p>

139	<p>RESTRICTED</p> <p>Father and son, small hill farm.</p> <p>Quite constrained</p> <p>Haven't changed much, but are concerned about the quality of their lambs – focus on that.</p> <p>Looked into AES but didn't get in</p> <p>Not keen on Glastir – not worth it and heard lots of bad press.</p> <p>Suggest that they could be adaptive without SFP? No clear – definitely will feel the loss of Tir Mynydd</p>
110	<p>PROGRESSIVE</p> <p>Dairy</p> <p>Very business orientated – also a buyer for retailers.</p> <p>Father not anti-conservation, but a sense that the son would find it a hindrance.</p> <p>Not in any schemes.</p> <p>Try not to be SFP dependent and fairly profitable.</p> <p>Father very well connected with unions etc.</p>
162	<p>PROGRESSIVE</p> <p>Family business, works alongside father.</p> <p>Also a solicitor part-time – important influence on his thinking.</p> <p>Progressive in their mixed and low-intensity approach.</p> <p>And quite adaptive / business aware.</p> <p>But also quite vulnerable business-wise</p> <p>Frustrated at government focus – need for greater small farm support.</p> <p>Happy to do conservation if it pays / makes sense.</p>
146	<p>RESTRICTED</p> <p>Constrained capacity-wise by being a hill farmer.</p> <p>No major changes to business practise.</p> <p>Happy to engage in conservation & AES – and environmentally aware to an extent,</p> <p>But frustrated by experiences with conservationists.</p> <p>Passing business onto sons.</p> <p>Very dependent upon SFP.</p>
179	<p>ADAPTIVE</p> <p>Business orientated, with finances determining decisions.</p> <p>But also quite traditional in approach.</p> <p>Not necessarily forward planning – although this is possible due to capacity issues (hill farm).</p> <p>Have made a number of investments – quite intensive in approach.</p> <p>But happy to do conservation for business reasons.</p> <p>But otherwise would not prioritise conservation.</p> <p>SFP is a concern, but no clear plan for alternatives.</p>
62	<p>PROGRESSIVE</p> <p>Clearly attached to the farming lifestyle and identity as a stockman.</p> <p>But also adaptable and progressive in his business practise.</p> <p>Runs a number of diversification enterprises alongside farm business.</p> <p>Member of different groups and keen to stay in tune with any potential business developments.</p> <p>Conservation is not a high priority.</p> <p>But neither is he trying to intensify as much as possible, happy to engage with AES for business benefits.</p> <p>SFP is important but could perhaps find a way to manage without?</p> <p>Long term sustainability - for the farm and his family is key to his decision making.</p>
14	<p>ADAPTIVE</p> <p>In AES for financial reasons</p> <p>But sympathetic and aware of environmental issues on farm</p> <p>Unsure about Glastir – because of poor payments</p> <p>Does have a B&B but no other changes</p> <p>Would sell farm without SFP</p>
26	<p>PROGRESSIVE</p> <p>In AES and Organics for financial reasons</p> <p>See it as a way of diversifying</p> <p>But also lots of others in Organics in area</p> <p>Like the system now – and suited their preference for low-intensity.</p> <p>Not sure about SFP – would try to continue</p> <p>But attached to farming lifestyle.</p>

CMI 1	<p>PROGRESSIVE</p> <p>Traditional in practise – but constrained by environment – hill farm. Environmentally aware – due to location, and happy to farm in low-intensity manner. AES is a business decision, will not give more land to conservation. As they are already constrained. Involved in groups and aims to stay connected and informed for business innovation. Happy to invest in farm and change practise. Not so dependent upon SFP due to historical circumstances / business has adapted.</p>
CMI 2	<p>PROACTIVE</p> <p>Quite traditional in practise due to constraints on environment – hill farm. But numerous diversification strategies. Involved in groups, well connected and happy to invest / change business strategy. Environmentally aware and committed as long as it does not compromise farm. Family orientated. Open minded. Concerned about SFP changes – but potential strategies.</p>
LIFE 1	<p>PROACTIVE</p> <p>Well connected and happy to invest in farm. But constrained by environment – hill farm. Conservation aware, and adaptable. But not happy to compromise farm. Very family orientated – boys taking over farm. Could not survive without SFP.</p>
LIFE 2	<p>RESTRICTED</p> <p>Constrained by environment – hill farm. Also tenancing arrangement and physical isolation has reduced their capacity to change. Have not been in AES previously – unwilling to change? But looking now as Tir Mynydd is ending. Not too difficult for them to enter due to low intensity system. Not very engaged in conservation, but not intensive either. Could not survive without SFP.</p>
LIFE 3	<p>ADAPTIVE</p> <p>Constrained by environment – hill farm. But do have another farm in lowlands – Anglesey. So some sense of adaptability. Not been in AES previously as unconvinced by them. Very knowledgeable about conservation. Glastir fits with management – and a business strategy, but otherwise very critical. Could not survive without SFP</p>

APPENDIX 3: Example of the cross-tabulation of respondent responses and characteristics.

#	ESU	Type	AES	Glastir	Like to engage in PES?	Attitude to SFP	Response to SFP question 2010
85	vs	sheep	n	n		Critiques subsidies	carry on
141	l	dairy	TG	n	Y	important	maybe pack in
9	vs	sheep	TC	y	Y	Important	look at alternatives
55	s		y	n	critical of AES sustainability	Important - but critical	diversify, be more efficient
64	vs		TG	mb	sympathetic	Important	Enviro' work for more £, hard to change
99	s		n	n	sympathetic	Don't have	comply, cut down
46	l	dairy / beef	n	n	N - very production focused	Prefer better prices on milk	cut costs
10	s	beef	n	n	Y - if enough money	Important	pack in
21	m	dairy / sheep	n	Y	N - not workable	Adaptable	/
18	l	dairy / sheep	n	n	not suitable for his land	maybe okay?	no plan
11	m	beef/s heep/hens	TG	y	N	Adaptable	adjust production
36	vs	beef	n	n		Not reliant	Retiring
13	m	beef / sheep	ESA ; TG	mb	N - critical	Critiques subsidies	comply, unsure
17	l	dairy	TG (5 years ago)	n	N	?	comply, cut costs

APPENDIX 4: Interview Schedules

1. Overview of the farm:

Size
Land type,
Type of farming
Conservation designations
Private ownership / tenant
Common land grazing
Who is involved in the business – family, number of employees

2. Are you in any agri-environment schemes?

- Could you explain your reasons for joining?
- How did you hear about the scheme?
- What did the scheme involve – in terms of management? & P/O support?
- Could you explain how you decided upon the different management options?
- Does the scheme involve the whole of your farm? Are there any differences in the way you understand the different parts of the farm? (zoning of activities?)
- What positive outcomes have you observed from the scheme?
- Were there any observable environmental benefits?
- Do you see any conflicts between your role as a farmer and the objectives of the scheme?
- Overall – how would you rate your experience of this scheme – has this affected your decision to participate in Glastir?

3. Have you joined Glastir?

- Could you outline your experiences of Glastir so far - How you heard about it; the process of applying, any advice you have received and so forth...?
- What has affected your decision to join?
- What management options have you chosen & why? (draw out preferences for different types of conservation)
- What do you think are the main concerns with Glastir for the wider farming community?
- What factors are most likely to affect your decision to participate in Glastir over the longer term?
- Do you see the scheme as distinct from Tir Gofal?
- Do you think there was a need to change to a new scheme? Do you understand why the Welsh Government have introduced the new scheme?

4. Has a focus on 'ecosystem services' come across in your experience of the scheme? (Explain more if necessary – relating to climate change and water regulation)

- What do you think about this approach? (Relate to their local environment if unclear)
- Ask about information sources informing opinions on this.
- Would you prefer to receive direct payments for conservation work (eg. putting a price on carbon) in place of costs based on income foregone?

- Would you be happy to do more conservation work on your farm if you were paid to do this?
- Do you think that clearer connections between the public, as receivers of 'ecosystem services', and the farmer as the producer would help ... (with the ecosystem service model)?

5. To what extent do you see yourself as a business person? (Is being a farmer more than that?)

- Have you received business advice / training?
- Have you made any changes to the way you farm?

6. What are your plans for the future of the farm?

- Are you concerned about CAP reform? How will this affect you? (Explore attitudes to subsidies SFP etc.)
- Other concerns / risks?