# Removing barriers to the uptake of electronic recording of sheep flocks

## Report on findings
## September 2015

This project was funded by the Rural Development Plan for Wales 2007 - 2013 which was funded by the Welsh Assembly Government and the European Union. It was an enhancement of the Technology Development and Transfer to Practice, Communication and Training project which was delivered by Hybu Cig Cymru – Meat Promotion Wales (HCC).

This enhancement project was conducted between November 2014 and August 2015 and built upon the existing programme of work by conducting a pilot project to investigate the impact of removing some of the barriers to the uptake of electronic technologies by farmers and to encourage the use of technologies that could ultimately lead to increased operational efficiencies and improved performance.

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**1.0 Executive Summary**

This pilot project aimed to work with up to 1500 eligible sheep farming businesses to better understand their concerns about the use of EID technologies and to provide them with access to information, training and support relating to the practical benefits of electronic recording. The project utilised a combination of online training and provided a financial incentive of £500 for participation and to encourage the use of technologies that would ultimately lead to increased operational efficiencies and improved performance. Participating sheep farmers provided a range of information with data obtained online via the online registration process, on completion of the web-based training and via follow-on surveys. The timing of the project (November 2014 – August 2015) meant that the information gathered focussed entirely on collecting on participants previous attitudes and experiences of recording (electronically or manually), on their experiences in using EID equipment and software to date as part of this project and what they would hope to achieve through the continued use EID recording on their flock. Their feedback is provided within this project report. The project did not attempt to gather flock performance data.

The project was announced in September 2014 and ran from November 2014 to August 2015. It attracted considerable interest from sheep farmers and reached the target number of participants within three weeks. The rapid uptake and demand for the project enabled funding that had been allocated for awareness raising and encouraging engagement to be redeployed in order to allow more businesses to participate. A total of 1966 businesses registered to participate and 1716 businesses completed the project.

Project participants represented a wide cross section of sheep producers from across Wales. The average flock size of the participants was 700 breeding ewes and the majority of the participants ran commercial flocks (72%), with 26% running both pedigree and commercial flocks and just 2% of participants running pedigree only flocks. Of the participants, only 103 (6%) had some previous experience in using EID therefore for the majority of participants using EID equipment was a completely new experience.

The reported use of IT generally amongst all participants was high, with 90% of all participants using computers, the internet and email. The use of newer technologies (smart phones and tablets) was also relatively high with almost half using smart phones and tablets. Participants also had relatively high levels of use of online services with more than 70% using sites that are linked directly to their business activity. Farmers are therefore clearly moving towards the use of similar technologies as part of their day to day life. The high number of participants who also ran a cattle enterprise meant that those farms had also been exposed already to online recording through BCMS/CTS online. There is an opportunity therefore to build upon this increasing capability and to encourage the further adoption of computerised EID recording.

In terms of the perceived barriers to the uptake of EID recording in sheep flocks, the cost and complexity of equipment was, not surprisingly, the main barrier reported by sheep farmers with many sceptical that they understood enough about EID recording to justify the investment. The provision of a financial incentive in return for participation as part of this project stimulated considerable interest from the outset and helped to successfully overcome that first barrier to uptake to date. More than 70% of participants said that they were unlikely to have started using EID without the support that the project had provided.

By August 2015, the majority of the participants had used EID for tag reading and recording movements and, whilst was still early days for many with respect to the opportunities they had had to use it as part of routine sheep management, participants had used EID to record a wide range of flock management tasks. Around 35% of participants had used it to record all of the sheep on their holding in order to set up their EID records. Recording all the sheep on their holding forms the basis of more detailed flock recording and so this, together with the information that was gathered on farmer's future plans for the use of EID to record their flock going forwards presents a small but very positive step towards the more widespread use of EID as a tool to support flock management.

The project successfully created a significant cohort of sheep farmers who had taken the first steps towards EID recording. However, there is still work to do to support the continuing development of their use of EID recording so that efficiency gains can be fully realised. Feedback indicated that more information about what the EID readers and software could be used for and how to maximise the benefit from it would be most useful. Continuing and further support from their EID equipment suppliers was also identified as well as training opportunities and practical on-farm events and participation in discussion groups in order to exchange information and ideas. Many of the suppliers provided on farm training and events throughout the duration of the project and these have continued since the project finished, providing the opportunity for farmers to receive specific training related to the particular equipment/software that they are using. There is therefore a clear appetite for further training and knowledge transfer and an opportunity for this to be met via the services available through the programmes such as Farming Connect. Data collected on the person who tends to use/analyse flock data on the computer also provided an interesting insight into the roles within the sheep enterprise and presents an opportunity to extend knowledge transfer and exchange on EID recording to younger family members and to the farmer's partner/spouse.

The duration of the project meant that a formal quantification of the benefits of EID recording was not possible, nor anticipated. Nevertheless, many of the participants reported some early stage benefits from using EID recording in terms of time saving, the ease of data collection and the accuracy of the data. The ability to record animal

IDs without needing to handle the animals would also have yielded intangible benefits in terms of improvements in on farm health and safety.

The ability/need to quantify benefit also presents opportunities going forwards both in terms of the ability to quantify impact of the introduction of EID Recording or any new technology in real terms (time saved / value of data / improved flock performance) when it can take considerable time for those benefits to become apparent and secondly, for the benefit to be quantified financially in terms of their business performance. Consideration of activities or interventions that support much longer term activity to enable ongoing data to be gathered and true assessments to be made of the impact of changes made over time would therefore be valuable.

In summary, this project facilitated the opportunity for more than 1700 sheep farmers in Wales to take the first step towards utilising EID recording as part of their flock management and to enhance their IT capabilities. It successfully removed one of the main [financial] barriers to uptake and helped them to better understand how EID can be used to help them to record flock management information. The experiences and insight gained during the project provide clear opportunities for further, follow on work to be undertaken that can build upon the growing EID / IT capability amongst this particular cohort of farmers and to disseminate their experiences more widely to encourage and support the more widespread uptake of EID recording as part of flock management. This pilot project has therefore provided a platform upon which future initiatives can be built so that the sector can move towards developing skills and capabilities that will support improvements in on farm efficiency.

## 2.0 Background and Introduction

Electronic identification (EID) technologies and computer-based tools for flock management are available to enable Welsh red meat producers to use electronic systems to improve their on-farm efficiency and to maximise their use of flock management information. However, to date, the use of these computer-based tools has met with apprehension and reticence from sheep farmers. This reticence has been borne from a lack of understanding of the technologies concerned, a reluctance to move away from traditional approaches towards data recording and a concern about investing in the hardware and software required.

This project therefore aimed to overcome the existing traditional and conservative approaches towards data recording and to alleviate the real or perceived financial concerns about investment in the hardware and software required by conducting a pilot project to investigate the impact of removing some of the barriers to the uptake of electronic technologies by farmers. The approach utilised a combination of online training and financial incentive to encourage the use of technologies that would ultimately lead to increased operational efficiencies and improved performance. This approach had previously been proven to be successful in encouraging farms to take up new technologies.

The pilot project aimed to work with up to 1500 eligible sheep farming businesses to better understand their concerns about the use of EID technologies and to provide them with access to information, training and support relating to the practical benefits of electronic recording. The project provided a financial incentive of £500 for participation in the project and looked at practical steps to help farmers engage in improved flock management in a commercial setting.

The project was designed to be of most benefit to those farmers who were not already using EID recording and those who wished to further develop their capability to use EID recording. It was open to all registered sheep farming businesses that have a Welsh CRN but, in order to maximise the subsequent impact of the investment on the business, participation was made available to those businesses with a flock size greater than 100 breeding ewes.

| Removing Barriers To Electronic Recording – Project targets | | |
|---|---|---|
| Sheep farmers offered training and assistance on use of electronic recording | | 1,500 |
| Dissemination to the wider industry through: | Events | 10 |
| | Publications | 3 |

## 3.0 Project design and delivery

The project aimed to work with up to 1500 eligible sheep farming businesses to provide them with access to information, training and support relating to the practical benefits of electronic recording.

Project participation and administration was managed via dedicated website www.ewemanage-IT.org.uk that provided a simple online training and information programme as well as a bespoke facility to enable farmers to complete the initial questionnaires and the follow – up surveys online.



Successful completion of the online programme and provision of survey information enabled participants to qualify for a voucher that provided a financial contribution towards the costs of purchase of appropriate EID equipment and software for their sheep business.
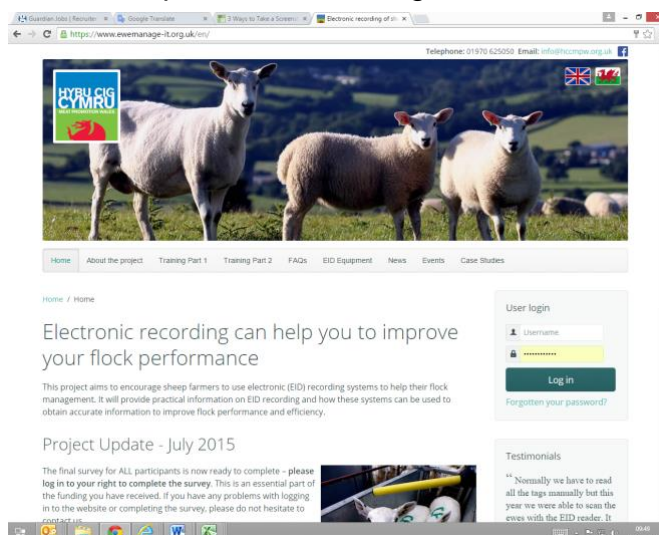
The online training provided information that covered a wide range of topics including:

- What EID is and how it works
- The benefits of EID recording
- The types of EID equipment available
- Advice on selecting the best equipment to suit business needs
- Advise on how to use EID equipment most effectively
- 'Frequently Asked Questions' addressing the most common queries on EID recording and its use
- Details of EID-related events in their area. This included events organised by HCC, relevant Farming Connect events and workshops/information days provided by EID equipment suppliers.

The website was designed so that project updates, case studies and testimonials could be added as the project progressed.

In addition to the online training information provided on the website, participating farmers were encouraged to attend demonstration events and to discuss electronic recording systems with other famers and with equipment suppliers so that informed choices can be made about the type of equipment that would be best for their flock.

On completion of the online training element, farmers were able to download a voucher which provided £500 for participating in the project (supplying information and feedback). Farmers were required to provide evidence that they did actually have EID recording equipment and software as part of the claim process.

Participating sheep farmers provided a range of information to the project. This was obtained online via the registration process, on completion of the training and via follow-on surveys. Communication with project participants was undertaken via email and text alerts to encourage engagement and to help to instil confidence in the use of online facilities by regular / frequent use.

In addition to the online survey work, the project interacted directly with project participants. A sample (2%) of those participants who had completed the March survey was selected for independent follow up based on the answers that they had provided. Ten of the respondents were subsequently selected to provide case studies which could be used to share their experiences. In engaging with participants during the completion of the final survey, 300 were followed up by telephone. Nearly all of those that were contacted volunteered additional information and experiences that authenticated the feedback that had been provided online.


**4.0 Project participation**

Funding for the project was announced in mid September 2014 and attracted considerable interest from sheep producers with more than 700 businesses expressing interest in participating ahead of the project launch.

The project website was launched and went live on 3$^{rd}$ November 2014. Demand was such that the 1,500 target for participants was reached within 3 weeks. Since funding for the project was limited and in order manage farmer expectations, participation was restricted to the 1500 for which funding had originally been secured. Farmers engaging with the project after the quota was reached were then encouraged to visit the website and register their interest in case further /additional funding could be made available but they were not able to proceed with participation. In total 1,966 farmers formally registered their interest in participating.

Given the rapid uptake and clear demand, coupled with the very positive feedback was being gathered from the claim forms of the early participants on the usefulness of the website information and the levels of training that were being provided by the equipment suppliers, it was agreed that the funding which had originally been allocated to the delivery of dedicated training and awareness events would be reallocated to vouchers to allow more farmers to participate. This meant that funding was made available for an additional 175 participants and continued emphasis was placed on the suppliers of equipment and software to provide training in the use of

their particular equipment and farmers were encouraged to seek after sales support from their supplier.

Around 250 farmers who had completed the training and downloaded vouchers during the early period of the project subsequently did not go on to participate in the project. During 2015 their funding was also reallocated to farm businesses who had registered via the project website and were on the waiting list for participation.

This meant that all farmers who had registered with the project website were therefore given the opportunity to participate and a total of 1716 farmers participated.

Whilst nearly all participants completed the project using the online facility, there were 16 project participants who had no access to internet facilities. These farmers completed the forms and surveys in hard copy.

The participants in the project represented a wide cross section of sheep producers from across Wales. The average flock size of the participants was 700 breeding ewes and the majority of the participants ran commercial flocks (72%), with 26% running both pedigree and commercial flocks and just 2% of participants running pedigree only flocks.

This profile fitted with the type of sheep enterprise on participants' farms, with the majority producing finished lambs for auction or straight to abattoir. A third of farmers also produced store lambs whilst 20% of participants marketed breeding sheep.

Most of the participants also ran other enterprises on their farms with the majority, 76%, also farming beef. In addition to their sheep enterprise 4% also ran a dairy enterprise, 23% kept poultry, 3% kept pigs and 11% had some arable land.

Of the participants, only 103 (6%) had some previous experience in using EID therefore for the majority of participants using EID equipment was a completely new experience.

| Removing Barriers To Electronic Recording  - Project participants | | |
|---|---|---|
| Total number registered | | 1966 |
| Total number of project participants | | 1716 |
| Average flock size | | 700 |
| Flock type | Pedigree | 2% |
| | Commercial | 72% |
| | Both | 26% |
| Number that had not used EID recording before | | 1663 (94%) |
| Number that had used EID recording before | | 103   (6%) |

**5.0 Project findings – attitudes and experiences of recording flock data**

<u>5.1 Prior experience of using computers, online facilities and EID</u>

The first questionnaire sought to understand the participants' general levels of use of technologies including mobile phones, computers and online facilities such as social media, online purchasing and online information sources as well as their current experiences in using EID.

The reported use of technology generally amongst all participants was high, with 90% of all participants using computers, the internet and email. The use of newer technologies (smart phones and tablets) by both groups was also relatively high, with 49% of EID users using smart phones and 46% using tablets whilst non-EID users also used smart phones (46%) and slightly fewer used tablets (37%).

Project participants also had relatively high levels of use of online services with more than 70% using sites that are linked directly to their business activity e.g. livestock movement databases (BCMS etc) and government websites. More than 60% use other information sources such as HCC website, farming weather forecasts and to make purchases online. Almost half of participants were engaged in social media activity.

Whilst levels of use of all online services was higher in EID users, levels amongst non-EID users were still relatively high which indicates a good baseline level of computer use that could be built upon.

|                            | Non EID users | EID users |
|----------------------------|---------------|-----------|
| Social Media               | 44%           | 51%       |
| Online Shopping            | 59%           | 65%       |
| Online Livestock Database  | 71%           | 75%       |
| Online Magazines           | 25%           | 32%       |
| Farming Weather forecasts  | 62%           | 67%       |
| HCC website                | 60%           | 68%       |
| HCC text alerts            | 33%           | 41%       |
| Government sites           | 74%           | 77%       |
| None                       | 3%            |           |

5.2 Initial perceptions of those who had not previously used EID to record their flocks

In total, 1663 participants had no previous experience of using EID recording.

All respondents were manually recording some information about their flock. When asked about the type of information they currently record, 90% of the participants who were not using EID were recording group health treatments such as vaccinations, drenching, footbathing with 63% recording individual treatments and

**What type of information do you currently record?**

| Category | |
|---|---|
| Group Treatments | 90% |
| Individual Treatments | 63% |
| Pregnancy Scanning info | 56% |
| Date of Weaning | 26% |
| Weights | 24% |
| Date of Birth | 19% |
| Date of Finishing | 19% |
| Other breeding information | 15% |
| Other performance information | 4% |
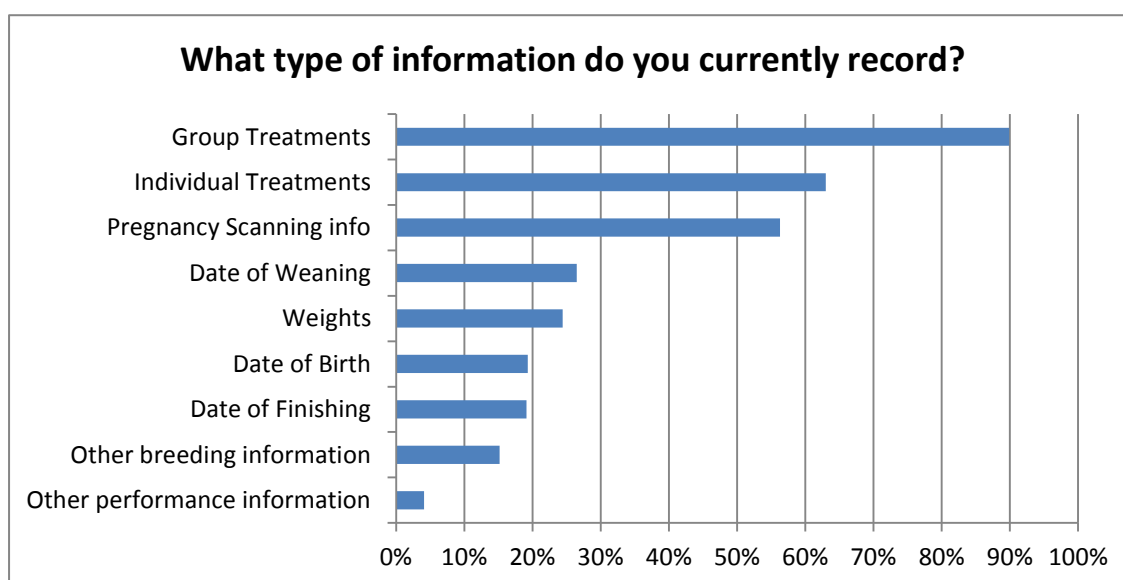
56% pregnancy scanning information. A much smaller proportion of participants were recording performance information such as lamb weights (24%) or time to finishing (19%). Most of the participants gather their animals into the farm yard for management and recording, with 20% of them using handling systems located on the hill or portable handling systems.

When asked about how they record this information, 64% of participants record the data into a pocket book and then transcribe it into their paper flock records with only 14% inputting their data into a computer. A small number of participants type their data into their mobile phone and then transcribe it into a computer.

| How do you currently record your flock information? | Number | Percentage |
|---|---|---|
| Pocket book - then transcribe to paper flock record | 1062 | 64 |
| Pocket book - then transcribe onto computer | 235 | 14 |
| I don't record the performance of my flock | 193 | 12 |
| I transcribe it to paper/computer from memory | 75 | 5 |
| I type it into my mobile phone then transcribe it to computer | 61 | 4 |
| Other | 15 | 1 |

Having determined the levels of manual recording being undertaken, the reasons why they hadn't used EID to help record their flock were explored. The cost of the equipment and software was the main barrier which has prevented 85% of participants from using EID recording to date. Around a third of participants (37%) also indicated that they did not understand enough about EID recording to decide if it would be worth the investment in time or money. Farmers also had a perception that the equipment/software was too complicated to use.

| What has prevented you from using EID to help record your flock to date? | Number | Percentage |
|---|---|---|
| I don't understand enough about EID recording | 615 | 37% |
| Electronic recording equipment is too expensive | 1415 | 85% |
| The equipment seems too complicated to use | 245 | 15% |
| Farm software seems too complicated to use | 256 | 15% |
| I don't see the benefit of EID recording on my farm | 86 | 5% |

Having learnt about EID recording through the training elements of the project, participants felt that EID could enable them to collect more information, make the process easier, quicker and more accurate and be able to have better access to their information. As a result, 71% of participants hoped that EID recording might have financial benefits for their flock by reducing costs p/kg on average.

Having completed the training and been encouraged to speak to other farmers, suppliers or attend information events about EID recording, participants were then asked what type of equipment they thought they would use to record information about their flock. The majority thought they would start with a basic stick reader, along with farm software, whilst a third were considering simple or more advanced hand held readers.

| What type of equipment do you think you would like to use? | Number | Percentage |
|---|---|---|
| Stick Reader | 1100 | 66% |
| Farm software package | 932 | 56% |
| Advanced hand held reader | 606 | 36% |
| Simple hand held reader | 578 | 35% |
| Panel reader on electronic weigh crate | 249 | 15% |
| Panel (race) reader | 106 | 6% |
| An automated drafting system | 83 | 5% |

Participants were asked about what had influenced their choice. In most cases, 77%, it was because the chosen equipment would enable them to increase the amount of

information which they are currently recording. Nearly half, 43%, said that they had heard good reports about the equipment and 31% were influenced by actually having seen the equipment in use.

| What has made you choose this particular equipment? | Number | Percentage |
|---|---|---|
| It enables me to extend the amount/type of recording I can do | 1274 | 77% |
| I've heard good reports from farmers that use it | 720 | 43% |
| I've seen it working for myself | 516 | 31% |
| The company selling the equipment are offering a good deal | 227 | 14% |
| The company selling the equipment are offering me training and support | 251 | 15% |

These results were supported by data collected from the subsequent claim forms with 76% of participants purchasing stick readers and 17% selecting more comprehensive handheld readers.

Packages which included stick readers coupled to ipads or tablets were popular, as were mobile printers for use with readers. Half of the participants purchased software or basic analysis programmes to use mainly with the stick readers, whilst 10% purchased livestock apps to be able to use the data with smartphones.

With respect to training in how to use the equipment, 92% said that they had received training or instructions from their EID equipment suppliers to help them to get them started.

## 5.3 Participants who had previously used EID to record their flocks

Only 103 of the project participants had previous experience of using EID to record their flocks. Data was gathered on their EID capability, their motivation for starting to use EID recording and their early experiences of using it so that it could be compared to new users.

When exploring what EID capability they currently had, 41% had a stick reader whilst 47% use a handheld reader (simple or advanced). Almost half of these participants also used farm software.
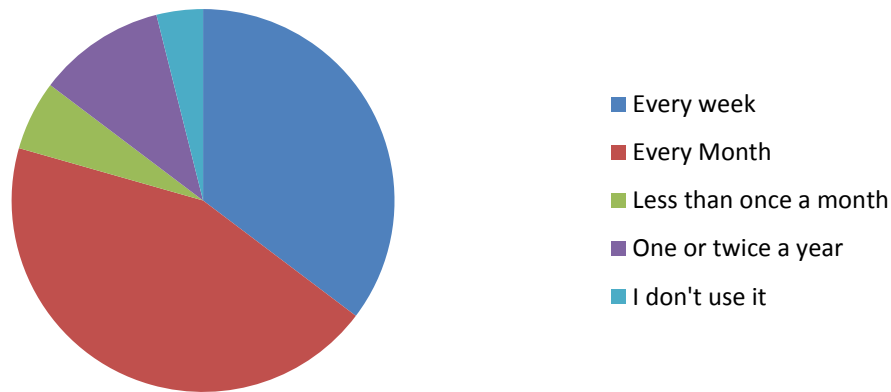
| What type of EID recording equipment do you currently own or have access to? | Number | Percentage |
|---|---|---|
| Stick Reader | 42 | 41% |
| Simple hand held reader | 20 | 19% |
| Advanced handheld reader | 29 | 28% |
| A race reader | 5 | 5% |
| An automated drafting system | 3 | 3% |
| Farm Software | 50 | 49% |

When exploring what had influenced their choice of EID equipment, the ability to speed up recording or to record more animals was the main motivation, with 44% selecting a basic system to get them started. Recommendations by fellow farmers and ease of use were contributing factors along with cost considerations.

| What made you choose your current equipment? | Number | Percentage |
|---|---|---|
| I wanted to speed up my recording | 42 | 41% |
| I wanted to record more animals | 40 | 39% |
| It was a basic system to get me started | 45 | 44% |
| It was recommended by a fellow farmer | 21 | 20% |
| It was easy to use | 20 | 19% |
| It was much as I was prepared to pay | 10 | 10% |
| It was on special offer at the time | 8 | 8% |
| Other | 14 | 14% |

The majority of these participants were using EID fairly frequently with 35% using it every week and 44% claiming to use it once per month.

## How often do you use your EID equipment?



**Legend:**
- Every week
- Every Month
- Less than once a month
- One or twice a year
- I don't use it

The most common use of EID amongst these participants was for the purpose of recording movements (80%) but a third of them were using it to record flock management tasks as well as veterinary records / medicines, and 33% were using EID recording to collect data on individual animal performance.

| What do you use EID to help to record? | Number | Percentage |
|---|---|---|
| Animal movements only | 82 | 80% |
| Veterinary records/medicine management | 32 | 31% |
| To record routine flock management tasks | 34 | 33% |
| To record individual animal performance | 34 | 33% |
| Performance recording data | 25 | 24% |
| Other | 4 | 4% |

The initial survey of these participants also sought to gather feedback on their early experiences of the support that they had previously received from the suppliers of their EID equipment. For 40% of these participants the equipment supplier had provided them with practical help to get started with using the equipment, and in 27% of cases they had provided instructions together with phone or email support.

| What did your equipment provider provide to help you to get started using the equipment? | Percentage |
|---|---|
| They offered practical help and showed me how to use the equipment | 40% |
| They provided an instruction manual and remote (phone/email) support | 27% |
| They provided an instruction manual | 20% |
| They didn't give me any help to get started | 12% |

In terms of their early experiences, learning how to download the data onto a computer and learning how to use the farm software to enable them to use the data had been the most difficult elements. Using the reader had also been difficult for 37% of these participants whilst 20% had found using the reader and software very straightforward.

| What did you find most difficult to begin with? | |
| --- | --- |
| Learning to use the reader | 37% |
| Getting the reader to read tags reliably | 12% |
| Learning how to download the data onto a computer | 36% |
| Learning how to use the software to enable me to use the data | 43% |
| Nothing really, it was all very straightforward | 20% |
| Other | 5% |

Their overall assessment of the benefits of EID recording on their flock prior to the start of the project was then explored. A fifth of these participants, 21%, said they had not used it enough to be able to assess any benefit, whilst 20% said that it had speeded up some task for them. Between 13% and 15% indicated that they were able to record more information or use information more readily. A small number, 3% of respondents said that to date, they had been unable to see any benefit from using EID.

| What is your overall assessment of how beneficial EID recording has been for your flock so far? | |
| --- | --- |
| I haven't used it enough to see any benefit | 21% |
| It has speeded up some tasks | 20% |
| It has helped me to record more animals | 15% |
| It has helped me to use information much more easily | 15% |
| I feel I know more about my flock | 13% |
| My flock performance has improve | 6% |
| No benefit at all | 3% |

To explore this further, these participants were asked if they were able to quantify any benefit in relation to reduced costs or increased sale prices. More than 65% of these participants weren't able to quantify the benefit to their flock prior to starting the project.

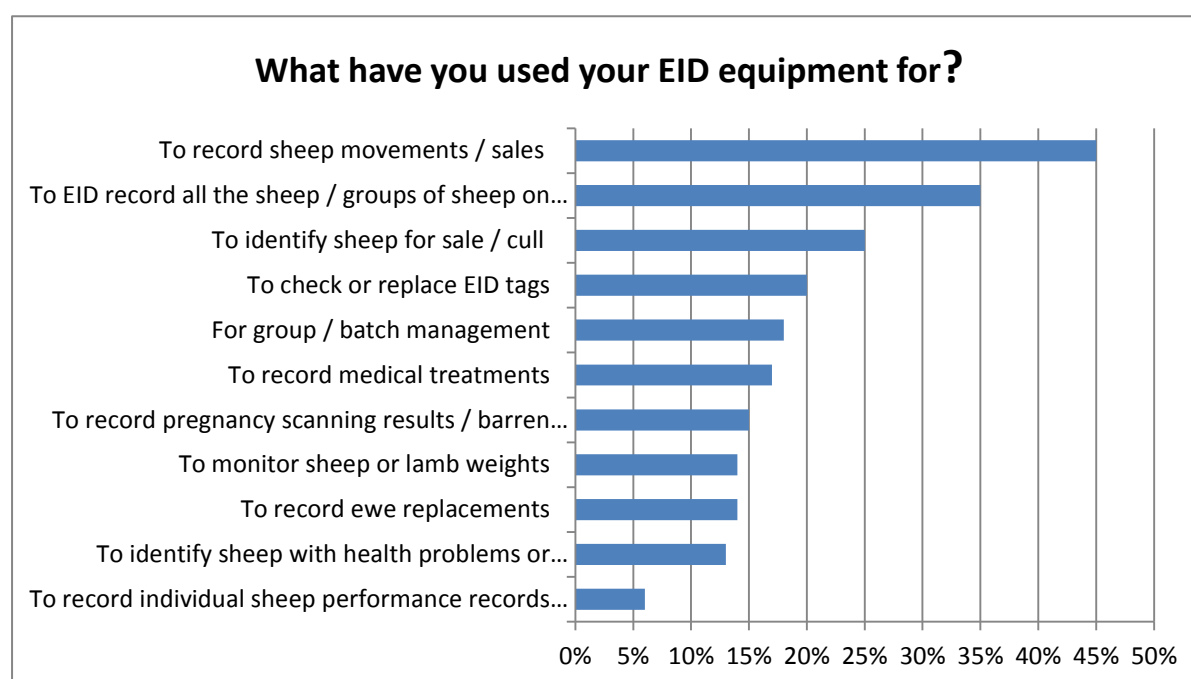| Can you quantify the benefit to your flock in terms of the following? | Yes | No |
| --- | --- | --- |
| Reduced costs p/kg on average | 35% | 65% |
| Increased sale prices p/kg on average | 31% | 69% |

5.4 Participant feedback and experiences in using EID to record flock data

The project revisited all participants during the spring and early summer of 2015 to follow up on their use of electronic recording and gather their feedback and experience. Two online surveys were used to gather this feedback. An early, interim survey was conducted in March 2015 for participants who had submitted a claim by the end of January 2015 and a second one for all participants which ran from July through to September.

Data collected from those who had completed the March survey provided valuable information that helped to develop and formulate questions in the subsequent surveys. A sample of these early respondents was also followed up as part of the development of case studies (see below). The follow up surveys asked participants about their use of the EID equipment to date and their experiences to date.

At the end of the project 92.5% of the participants had used their EID equipment to some extent for managing their flock. Those who had not yet been able to use their equipment included those who had joined the project at a later date, many of whom had not had a suitable task to use it for and some were awaiting further training in how to use it.

When exploring the type of tasks they had used EID to help record, 45% had used EID to record sheep movements, whilst 35% had used it to record all of the sheep on their holding in order to set up their EID records. Recording all the sheep on their holding was the first step towards more detailed flock recording. Thereafter, participants had used EID to record a wide range of flock management tasks.



**What have you used your EID equipment for?**

- To record sheep movements / sales
- To EID record all the sheep / groups of sheep on…
- To identify sheep for sale / cull
- To check or replace EID tags
- For group / batch management
- To record medical treatments
- To record pregnancy scanning results / barren…
- To monitor sheep or lamb weights
- To record ewe replacements
- To identify sheep with health problems or…
- To record individual sheep performance records…

Those farmers who started recording earlier in the project and had undertaken the March survey had also used EID during lambing to record pregnancy scanning information and ewe lambing performance or problems.

Participants were then asked about how easy or difficult they had found using EID equipment. In the March survey, 79% of the respondents said that they had found it relatively easy to use their EID equipment but had more difficulty in transferring data to and using the accompanying software and apps.
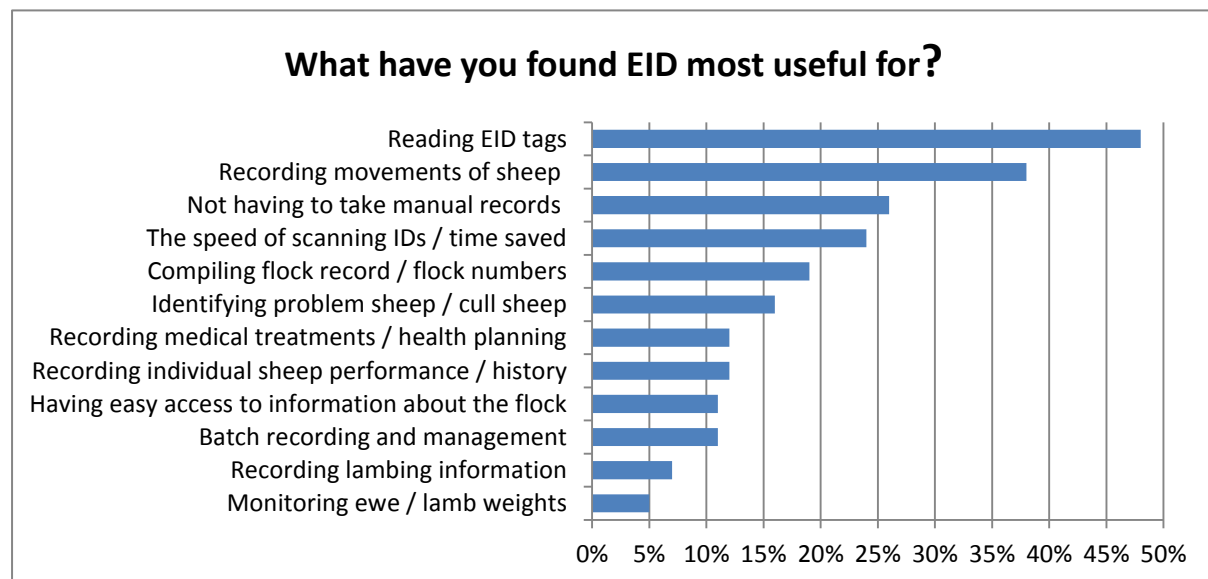
In the later surveys these two aspects were separated out to explore what elements of use they had found particularly easy or difficult. The responses reiterated the preliminary findings, with more than 89% of participants finding it easy to use the reader and to read tags. However, using EID to record information was more difficult.

## How easy or difficult have you found the following?
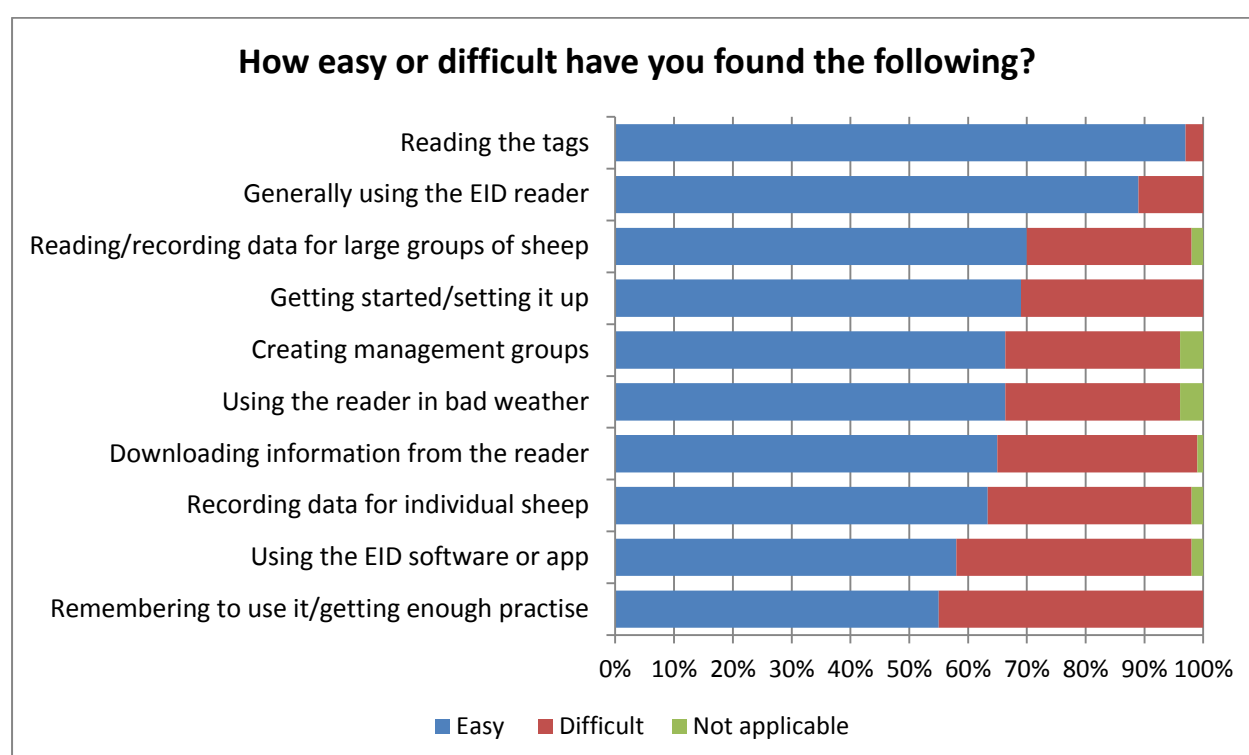


Bearing in mind that participants were providing feedback fairly soon after starting to use EID and that new technology does take time to get used to and needs some practice, 53% of participants reported that EID had made tasks easier or quicker, whilst 26% said they were not sure and 21% said it had not made tasks easier as yet.

The experiences of those participants who had started using EID earlier on in the project and who were surveyed in March were explored further in the later survey. When asked if it was now becoming easier for them to do the more routine tasks using EID, 66% said that it was becoming easier and only 7% said it was not, suggesting that using EID does become easier over time with practice and regular use.

When asked what they had found EID most useful for so far, most participants (48%) said it was the ease of reading EID tags which made it most useful, making this task much quicker and easier compared with having to manually read tags and record information. Over a third (38%) had found this useful in relation to recording sheep movements.   Between 10% and 20% of participants said they had found EID useful for flock management tasks such as compiling their flock record, identifying problem sheep and individual sheep performance, and also recording medical treatments.

## What have you found EID most useful for?

| Category | |
|---|---|
| Reading EID tags | |
| Recording movements of sheep | |
| Not having to take manual records | |
| The speed of scanning IDs / time saved | |
| Compiling flock record / flock numbers | |
| Identifying problem sheep / cull sheep | |
| Recording medical treatments / health planning | |
| Recording individual sheep performance / history | |
| Having easy access to information about the flock | |
| Batch recording and management | |
| Recording lambing information | |
| Monitoring ewe / lamb weights | |

0%   5%  10% 15% 20% 25% 30% 35% 40% 45% 50%

## 6.0 Benefits and future use of EID technology

The timing of the project meant that the information was gathered from participating sheep farmers from November 2014 – August 2015 and therefore focussed entirely on their previous attitudes and experiences of recording (electronically or manually), on their experiences of using EID equipment and software (to date) as part of this project and what they would hope to achieve through the continued use EID recording on their flock.

In the relatively short space of time, the majority of participants had used EID for tag reading and movements and for recording relatively simple flock information.

When asked about their plans for the use of EID to record their flock going forward, participants were planning to use EID for a wider range of tasks, with 29% planning to use it to identify their best performing sheep and 41% planning to use it to help them to identify problem/cull sheep. Thirty percent (30%) said they were also planning to make use of it during the next lambing season to record lamb performance with a similar proportion of participants planning to use EID to collate health information and recording deaths/lamb losses.

| What are you planning to use EID to record in the future? | Percentage |
|---|---|
| Sheep movements | 56% |
| Problem / cull sheep | 41% |
| Medical treatments | 33% |
| Lamb performance / weights | 30% |
| Identifying best or worst performing sheep | 29% |
| Compiling an electronic flock record | 28% |
| Deaths / lamb losses | 19% |
| Information for different management groups | 13% |
| To record my pedigree flock | 5% |
| Not sure | 4% |

In order to determine what impact the project had made in relation to the key objective of removing barriers to the use of this technology, 71% of participants said that they were unlikely to have started using EID without the support that the project had provided.

Participants provided extremely positive feedback on the value of the information provided through the project as part of the claim process.

- 93% of participants said that it was good or very good in helping them understand more about the benefits of EID recording
- 90% said that it was good or very good in helping them understand more about EID equipment and its uses

- 88% said that it was good or very good in relation to helping them to understand how to get the most from EID equipment

In order to identify information and resources that participants would find helpful to support the continuing development of their use of EID to record their flocks, most participants (33%) indicated that more information about what the EID readers and software could be used for and how to maximise the benefit from it would be most useful. A quarter said that training opportunities and events and continuing further support from their EID suppliers would be helpful to further assist them in using their equipment and software. A similar proportion suggested that they would also find practical on-farm events / discussion groups useful in order to exchange information and ideas as would be tutorials or guides on using on-farm software.

| What additional information or support would be most useful to you going forward? | |
|---|---|
| What EID readers and software can be used for / maximising benefits | 33% |
| Training / events / support from EID suppliers in using their equipment | 25% |
| Financial support to enhance usage of EID | 23% |
| Practical on-farm events / discussion groups to exchange information and ideas | 22% |
| Tutorials or guides on using EID software | 19% |
| Updates on further EID developments/policy | 18% |
| Case study information on how to use and apply EID | 12% |

The final survey also sought to understand who within the enterprise tends to analyse and use the flock data that has been gathered. Whilst the farmers themselves represented the main user, there were at least 42% of businesses where data was handled by their children or partner/spouse. This presents an opportunity for future targeted activity.

| Who tends to use/analyse your flock data on the computer? | Percentage |
|---|---|
| You | 67% |
| Your children | 24% |
| Your spouse/partner | 18% |
| Your business partner | 7% |
| Other | 4% |

In terms of deliverables from this project support for the ongoing dissemination of information, the website used for the project delivery will be maintained as an online information resource on EID recording and the following publications have been produced;

- Electronic recording can help you to improve your flock performance (Farmer case Studies)
- Introducing EID Recording – A practical guide to getting started with EID recording for your flock
- Making the Most of EID Recording – Practical ways to maximise the benefits of EID recording in your flock

**7.0 Conclusions and recommendations**

This pilot project aimed to overcome the existing traditional and conservative approaches harboured by sheep farmers towards the use of EID technology for data recording and to alleviate the real or perceived financial concerns about investment in the hardware and software required. The approach utilised a combination of online training and financial incentive to encourage the use of technologies

The project aimed to work with up to 1500 eligible sheep farming businesses to better understand their concerns about the use of EID technologies and to provide them with access to information, training and support relating to the practical benefits of electronic recording and a financial incentive of £500 was provided for participation in the project. This training and incentive approach had previously been proven to be successful in encouraging farms to take up other new technologies.

From its launch in November 2014, the project attracted considerable interest from sheep farmers and reached the target number of participants within three weeks. The rapid uptake and demand for the project enabled funding that had been allocated for awareness raising and encouraging engagement to be redeployed in order to allow more businesses to participate. A total of 1716 businesses completed the project which provided a very powerful dataset.

The surveys first explored sheep farmers' use of technology generally to establish a baseline of general day to day use of technology. The reported use of technology generally amongst all participants was high, with 90% of all participants using computers, the internet and email. The use of newer technologies (smart phones and tablets) by both groups was also relatively high, with almost half of the participants currently using smart phones. Whilst farmers in the past have been generally sceptical about the use of new technologies, they are clearly moving towards the use of similar technologies as part of their day to day life and the high number of participants who also ran a cattle enterprise meant that those farms had also been exposed already to online recording through BCMS/CTS online. There is, therefore, an opportunity to build upon this increasing capability to take away some of the "fear factor" and to encourage the further adoption of computerised EID recording.

Participating sheep farmers provided a range of information to the project. To support the development of computer / internet use amongst participants, data was obtained online via the online registration process, on completion of the web-based training and via follow-on surveys. Communication with project participants was undertaken via email and text alerts to encourage engagement and to help to instil confidence in the use of online facilities by regular / frequent use. The timing of the project (November 2014 – August 2015) meant that the information gathered focussed entirely on collecting on participants previous attitudes and experiences of recording (electronically or manually), on their experiences in using EID equipment

and software to date as part of this project and what they would hope to achieve through the continued use EID recording on their flock. The project did not attempt to gather flock performance data.

In terms of barriers to the uptake of EID recording in sheep flocks, the cost and complexity of equipment was, perhaps not surprisingly,  the main barrier reported by sheep farmers with many sceptical that they understood enough about EID recording to justify the investment. The provision of a financial incentive in return for participation as part of this project, clearly stimulated considerable interest from the outset and engagement with those participants at the end of the project clearly demonstrated that the financial incentive had successfully overcome that first element that had prohibited uptake to date.

More than 70% of participants said that they were unlikely to have started using EID without the support that the project had provided.

Although the majority of the participants had only used EID for tag reading and recording movements at the time of the final survey, it was still early days for most of them in relation to the time frame of the project and with respect to the opportunities they had had to use it as part of routine sheep management tasks. Nevertheless, 45% had used EID to record sheep movements and thereafter, participants had used EID to record a wide range of flock management tasks. Around 35% of participants had used it to record all of the sheep on their holding in order to set up their EID records. Recording all the sheep on their holding forms the basis of more detailed flock recording and so this, together with the information that was gathered on farmer's future plans for the use of EID to record their flock going forwards presents a very positive step towards the more widespread use of EID as a tool to support flock management.

The project successfully created a significant cohort of sheep farmers who had taken the first steps towards EID recording. However, there is still a considerable amount of work to do to support the continuing development of their use of EID recording so that efficiency gains can be fully realised. Participant feedback indicated that more information about what the EID readers and software could be used for and how to maximise the benefit from it would be most useful. Continuing and further support from their EID equipment suppliers was also identified by participants as well as training opportunities and practical on-farm events and participation in discussion groups in order to exchange information and ideas.

As part of the project, specific feedback was provided to each of the manufacturers/suppliers of EID recording equipment and farmers were encouraged to seek help and support from their suppliers. It is fair to say that many of the suppliers provided on farm training and events that were open to project farmers and to others throughout the duration of the project and these have continued since the project finished. These have provided the opportunity for farmers to receive specific

training related to the particular equipment/software that they are using. There is however, a clear appetite for further training and knowledge transfer and a real opportunity for this to be met via the services available through the future Farming Connect programme and for good practice in terms of flock recording to be demonstrated to varying levels during on-farm events. Since more than 75% of the participants also kept cattle, there is also the opportunity for those farms to extend the benefits of EID recording to their cattle enterprise.

A further insight into the use of flock management data by participants was identified as part of the final survey. Whilst the farmers themselves represented the main user of the data on the computer, there were at least 42% of businesses where data was handled by their children or partner/spouse. This provides an interesting opportunity to consider the sheep farming enterprise in terms of the delegation of duties and responsibilities as happens in other businesses. Whilst efforts currently focus on the farmer themselves, the opportunity to extend knowledge transfer and exchange on EID recording to younger family members and to the farmer's partner/spouse should not be overlooked.

The short duration of the project meant that a formal quantification of the benefits of EID recording was not possible as part of the current programme. Nevertheless, many of the participants reported some early stage benefits from using EID recording in terms of time saving, the ease of data collection and the accuracy of the data. The ability to record animal IDs without needing to handle the animals would also have yielded intangible benefits in terms of improvements in on farm health and safety.

The ability to quantify benefit was also explored with the 103 participants who had already had some exposure to EID recording prior to the project and more than 65% of these participants weren't able to quantify the benefit to their flock in terms of reduced costs or increased sale prices prior to starting the project. This finding presents two challenges / opportunities going forwards both in terms of the ability to quantify impact of the introduction of EID Recording or any new technology in real terms (time saved / value of data / improved flock performance) when it can take considerable time for those benefits to become apparent and secondly, for the benefit to be quantified financially in terms of their business performance.

Future programmes should therefore consider activities or interventions that support much longer term activity to enable ongoing data to be gathered and true assessments to be made of the impact of changes made over time. The ability to combine financial support was integral to enabling more than 1600 sheep farmers to take the very first step towards using new technologies. As experience and capability grows, so too will the need for more sophisticated tools. There is therefore also a real opportunity for those sheep farmers' capacity to invest further in this technology to be supported through future grant schemes that are linked to measures of performance and efficiency. Programmes that can remove some of the financial

impediments will also encourage other farmers to follow their lead and to take that first step.

<u>Summary of recommendations</u>

The experiences and insight gained during this project provide clear opportunities for further, follow on work to be undertaken that can build upon the growing EID / IT capability amongst this particular cohort of farmers and to disseminate their experiences more widely to encourage and support the widespread uptake of EID recording as part of flock management.

- There is a clear need / appetite for follow on training and knowledge transfer activity that can support the further development of confidence and capability amongst project participants and motivate and encourage uptake by the wider sheep industry. In addition to generic support and training that can be provided through programmes such as Farming Connect, there is a clear role for the private sector (equipment and software suppliers themselves) to play in this process.

- The opportunities for farmers to learn from other farmers has been encouraged throughout this project and future activities should ensure that EID recording is demonstrated at all relevant on farm events as an exemplar of good practice and to help to recognise EID recording as an accepted tool for efficient flock management. In doing so there is also an opportunity to encourage the future use of EID to support the uptake of online reporting of sheep movements through EIDCymru.

- The provision of a financial incentive for participation has proven to be a key part of other programmes that have sought to encourage farmers to take the first steps in the use of new and often complex technologies. This mechanism has been successfully demonstrated here and forms the first step in encouraging farmers to take that first step. Further programmes should seek to expand on these mechanisms to encourage more widespread adoption of new technologies and to provide ongoing mechanisms that will support the continued use of technologies going forward.

- The project design and delivery enabled engagement with more than 1900 sheep farmers of whom more than 1700 completed the project. This online mechanism coupled with telephone support form technical staff who were able to talk participants through online screens etc. allowed for large-scale data collection and this mechanism is one which can be built upon to provide a cost effective approach to collation of large-scale project data.

- The timescale of the project and timing of the project in terms of the sheep breeding cycle provided certain constraints in terms of activity and in the type of data that could be collected and in the ability to monitor impact. Future programmes/projects would benefit from much longer timescales that would enable ongoing engagement to help farmers to develop their confidence and capability and to provide opportunity to monitor the impact of changes on business performance.

In conclusion, this project facilitated the opportunity for more than 1700 sheep farmers in Wales to take the first step towards utilising EID recording as part of their flock management and to enhance their IT capabilities. It successfully removed one of the main [financial] barriers to uptake and helped them to better understand how EID can be used to help them to record flock management information.

This pilot project has therefore provided a platform upon which future initiatives can be built so that the sector can move towards developing skills and capabilities that will support improvements in on farm efficiency. In doing so it has started to make some progress in helping to start to address the recommendations from the Review into the Resilience of Welsh Farming', to start to move towards meeting the strategic objectives set out by Welsh Government and industry in the Strategic Action Plan for the Red Meat Industry in Wales and in supporting Welsh Government's Working Smarter directive.