



Final grant report form

PROJECT/STUDY TITLE:	Development, testing and roll out of an online lameness recording system for sheep farmers
PRINCIPAL APPLICANT(S)	Professor Laura Green, University of Warwick, now University of Birmingham, College of Life and Environmental Sciences, Edgbaston, Birmingham B15 2TT
GRANT AWARDED (DATE):	01/10/2016

Lay summary of project outcomes, achievements and potential impact on animal welfare.

An app was designed and then refined so that it was simple to use from any smart phone. Farmers could record treatments (both individual and group) of six different causes of lameness, and the treatment given. Additional information and photographs on the causes of lameness were available in pop-up boxes. When farmers used an inappropriate treatment a pop-up box would flag this and remind them of the more appropriate treatment.

The data from the app could be used by farmers to generate reports on the number and percentage of treatments given per month, trends over time, how their flock compared with flocks in a geographical area or nationally, the number and percentage of sheep by cause of lameness, and identification of the sheep which had been repeatedly lame with a recommendation to consider culling them.

The app and proposed reports were shown to farmers in two focus groups. Feedback was collected and used by the software developer to improve both the app and the reports generated.

Since the interim report, the app was sent to fourteen farmers who were in the focus groups and who were very positive about the ease of data recording. However, data security issues have prevented the app and web interface from being set up and rolled out to farmers nationally. The software developer has also left the project; his full-time job became too demanding for him to continue the role.

The PI is currently exploring alternative routes such as the possibility of hosting the app and website themselves or using the background research to improve other software companies' existing data collection on lameness and the reports generated for farmers.

Detailed progress against original objectives: List outcomes against original objectives. Discuss what has been achieved, including any statistical analysis completed.

Using the structure from the original proposal, progress is explained below:

*Phase 1 – Development (months 1 - 3) **Achieved in full***

Objective 1.1 Focus groups to discuss development and content of the app and portal (July 2016).

Objective 1.2 Development of app (July 2016 – September 2016).

Objective 1.3 Development of report forms (July 2016 – September 2016).

Objective 1.4 Development of key messages and links to pdfs (July 2016 – September 2016).

*Phase 2 – Beta Testing (months 4 - 6) **Limited progress***

The app was shared with the farmers who participated in the focus group. Fourteen farmers began using the app and provided feedback. The farmers were positive about the app, however, because access to this data was restricted the app was not rolled out further.

Objective 2.1 Launch of app and online portal system to South West England (October 2016) **Not achieved.**

Objective 2.2 Adjustments based on farmer feedback (October 2016 – December 2016) **Partially achieved.**

None of the fourteen farmers suggested any changes.

*Phase 3 – National release, monitoring and enhancements (months 7 - 12) **Not achieved***

Objective 3.1 Release the app for use in England (January 2017).

Objective 3.2 Set up and running of forum (January 2017 – March 2017).

Objective 3.3 Continued feedback and monitoring (January 2017 – June 2017).

*Phase 4 – Analysis of uptake and reporting results (months 9-12) **Not achieved in full***

Objective 4.1 Analysis of uptake and potential impact (April 2017 – June 2017) **Not achieved.**

Objective 4.2 Report results (June 2017) **final report submitted April 2020.**

Were there any challenges or barriers/modifications to the project? Explain the nature of and reasons for any changes in project focus, scope, delivery, schedule or evaluation.

Throughout the project we faced challenges with hosting data on the University servers, with the level of security the University required being incompatible with farmers accessing data on their flock. This remains unresolved. It has meant that whilst the front-end app is ready for use, the development of the interface for farmers to access their data on a computer has not been finalised. Whilst the layout and content of farmer-friendly reports was completed, the software to generate the reports was not written, because of a limited ability to set up a GDPR compliant system with the University.

In 2018, Laura Green moved to the University of Birmingham but the AWF project remained at Warwick in the hope that data security challenges could be resolved. However, this did not happen. Green initiated discussions with the University of Birmingham about hosting the app data, however, it appeared the restrictions would be similar. Green then started to look for external host providers for the app, and explored whether there was commercial interest in the app. AHDB were contacted and in an initial discussion they suggested it was likely they could host the farmer data but would require funding to host the app for ongoing on an ongoing basis.

In November 2019 Green was awarded a small pilot project through the BBSRC Animal Welfare Network. Green worked with a commercial software company to investigate whether improved data

collection on lameness was feasible for them, and whether farmers would engage with increased recording of treatment of lameness. This project was an alternative route to the app designed within the AWF project, but with a similar idea of improving the recording of lameness and so hopefully reducing lameness in sheep flocks. Farmers can use the company's app, either an EID reader with software to record data or a database accessed through a computer, to record treatment of lameness and view their flock data. The project is on-going.

One future option is to develop the software and offer it at no charge but under license to all companies who support digital production and health recording in sheep flocks. This has yet to be explored.

We are grateful for AWF's tolerance in light of the challenges faced and will continue to seek a route to bring the app, or an alternative approach to electronic recording of treatments of lameness, to the UK sheep farmer population.

Provide details of knowledge transfer activities to date and any future plans/actions.

We did attend sheep shows in 2017, however, since the delays we decided it was not appropriate to engage in further knowledge transfer activities. We could restart these once we solved the issue of hosting the app and website.

The website www.footrotinsheep.org is under-going a major restructure at Birmingham and will be updated with the latest research results. It will include the booklet developed in the first AWF project, which included evidence-based recommendations and the benefits of minimising lameness in sheep.

Provide details of any original peer-reviewed research papers, book chapters and books/monographs that have resulted directly from your work supported by this grant.

To date there are no publications from the project.

Have any other funding bodies been involved in supporting the development of the work supported by this grant?

AHDB supported the project with £5K and sourced farmers for focus groups.

Has any intellectual property activity has resulted directly from the research funded through this grant to date?

The App has been logged as a record of invention with the Warwick.