Sheep sustainability research findings beginning to emerge

*We are now into the third year of the iSAGE (Innovation for Sustainable Sheep and Goat Production in Europe) project. ORC livestock researcher **Nicola Noble** (née Smith), who has worked on the project for ORC and also the National Sheep Association (NSA), updates us on progress so far.*

ORC is experienced at working collaboratively on funded research, with previous livestock projects such as SOLID (Sustainable Low Input and Organic Dairying – see Bulletin 120) and ICOPP (Improved contribution of local feed to support 100% organic feed supply to pigs and poultry – see Bulletin 118) being notable examples. Within this project, ORC are a significant research partner, taking the lead on a number of different tasks, making iSAGE one of the larger livestock focused projects within the organisation. We have strengthened our relationship with the NSA by working closely with them (I work with both organisations) to identify suitable farmers for all aspects of the project. Many NSA members have participated directly in the holistic sustainability assessment

The Public Goods Tool

A sustainability assessment identifies which parts of a farm business are sustainable and which areas can be improved. Farmers are asked to provide information from their farms for 13 specific sustainability criteria (see below) to be assessed using the 'Public Goods Tool' developed by ORC. This tool includes many of the indicators recognised by the United Nations Food and Agriculture Organization sustainability assessment.

We used the tool to interview farmers and collect data for each criterion. The interview covers many aspects across the farm and, as some of our members learnt, takes up to three hours to complete. To date, 215 sheep and goat farms

What is iSAGE?

The Innovation for Sustainable Sheep and Goat Production in Europe (iSAGE) project aims to make the sheep and goat sectors more sustainable, resilient and efficient. It includes many aspects of production, the supply chain and a strong focus on knowledge exchange. The five main objectives are:

1. What makes farms sustainable and how innovation can be utilised.
2. What farmers believe are the priorities for the industry and how to make their life easier.
3. How sheep and goats can be bred to make farms more sustainable.
4. Identify potential ways retailers and processors can contribute to more consumption
5. Understand better how consumers perceive sheep and goat products.

The project includes 34 research bodies and industry partners from around Europe. From the UK, the Organic Research Centre (ORC) and Scottish Rural College (SRUC) are leading research, with NSA and AHDB as their industry partners respectively.

iSAGE has received funding from the European Union's Horizon 2020 research and innovation programme (grant agreement 679302). More at www.isage.eu.

Sustainability themes

Social

- **Landscape and heritage:** Contribution of a farm to preservation of the countryside and its heritage.
- **Social capital:** Community engagement and associated benefits to the local community (e.g. public access, training).
- **Animal health:** Management of livestock to ensure good health (e.g. staff resources, health plan, biosecurity).
- **Animal welfare:** Management of livestock to ensure welfare (ability to perform natural behaviours, housing, feeding).

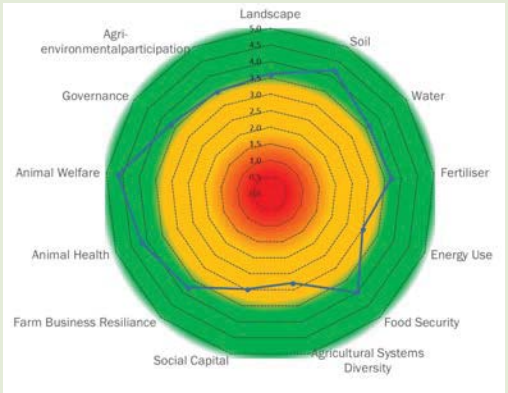

Figure 1: Average sustainability assessment scores for UK extensive sheep farms

Environment

- **Soil management:** Soil organic matter / nutrient levels and soil damage through chosen management practices.
- **Agri-environment management:** Stewardship involvement and encouragement of native wildlife.
- **Water management:** Efforts to reduce pollution, sources of water being used and (if used) efficiency of irrigation.
- **Fertiliser management and nutrients:** 'Farm gate' NPK balance and on-farm nutrient, manure, fertiliser and waste management.
- **Energy and carbon:** Fuel, electricity and energy use, and attitude of usage on farm.
- **Agricultural system diversity:** Range of crop varieties and animal species on-farm, plus marketing/processing availability.

Economic

- **Food security:** Contribution of farm towards food quality and availability of food in the local area.
- **Farm business resilience:** Financial resilience of the business and its long-term prospects.

Governance

- Effect of farming practices off the farm (e.g. ethical decisions, legal compliance, accountability and holistic management).

Comments from UK farmers on completion of the on-farm assessment

"An assessment can really help you focus on what you need to look at next or where there's potential for doing something new."

"It has been a really useful exercise and I would encourage others to take advantage of it."

"Useful to see that we are doing things well."

"The most interesting part was looking through the whole farm data. It's good to go through it all, as it gets you thinking."

in the UK, Spain, Italy, France, Finland, Greece and Turkey have been assessed, made up of 20 intensive sheep meat farms, 50 extensive sheep meat farms, 16 intensive dairy sheep farms, 29 extensive dairy sheep farms and 31 dual purpose farms. Extensive systems are defined as those where sheep are mainly pasture fed.

Once all the information has been entered, the results are immediate and the farmer can visualise what they are doing sustainably on the farm and what they may wish to improve. In addition, the performance of farms can be compared with other farms of the same type across Europe. We have also found that farmers value the actual process of completing the assessment, as well as the outcome.

My colleagues within NSA have also found the assessments of value, as they provide a visual way to communicate to non-farmers (such as Government officials and people further up the supply chain) the range of outputs from sheep farms other than meat. If we take the average scores for UK extensive sheep farms as an example (Fig 1) animal welfare and animal health perform very well. Environmental factors such as soil, landscape and water are also in the 'green', suggesting positive environmental benefits for extensive systems. Areas which could be improved upon are energy efficiency, diversity on farm and social capital. However, in some of these farms, farm ownership played a huge role in the ability to invest in expensive systems such as energy efficiency and farm diversity. For example, graziers or tenant farmers would be less likely to invest in some of the areas highlighted as potentially vulnerable.

From the UK sheep farmers interviewed, 65% said that their workload was hard, very hard or extremely hard work and 76% said their business was just about surviving. Despite this, it was encouraging to see they all intend to be in business next year, 76% intend to be in business in the next 10 years and 77% had a succession plan for the future. Surprisingly, 71% were generally happy with the amount of holiday they could take, despite the workload being so tough.

Another part of the project, separate to the sustainability assessments, is to see if farmers are successfully using innovation or management to improve the sustainability of their farms. Innovation in this context is defined as something that can be used by farmers to make their farm more sustainable by being more profitable, more environmentally friendly, or by making the farmer's or animals' life easier.

In addition to looking at individual examples of innovation (see Table 1), the project also aims to highlight any barriers towards uptake, including farmer opinion on the innovations investigated. At the end of the project, advice about which innovations are most suitable for specific farming systems and relevance to each country will be provided. Helpful tips to encourage adoption and overcome some of the hurdles experienced by farmers working together with the iSAGE project team will also be identified.

There is a still a lot of work to be done to complete these projects. Within the sustainability assessments, further in-depth analysis is needed to identify areas in which to focus future work. Ideally, we aim to analyse trends within the data produced, as well as identify areas of specific interest to UK sheep farmers.

Case studies of novel practices are well under way, with more results expected at the end of this year and into early 2019. Officially, the project ends in February 2020, when a final report should be available. However, due to the size of the data set, it should continue to be useful for future NSA policy work, research projects and initiatives.

Learn more about the ORC Public Goods Tool at: https://tinyurl.com/PG-Tool-ORC

Table 1: Assessment of novel practices

Innovation	Description	Results
NSA Next Generation Ambassador Programme (UK)	A programme supporting and encouraging young people in the sheep sector.	Ongoing
Natural resistance to gastrointestinal parasites of sheep breeds in low input systems (UK)	Evaluating the health of UK native and newly introduced sheep breeds developed for good health status under extensive systems (e.g. New Zealand Romney, Easy Care and Lleyn).	Ongoing
Mobile flock management for intensive goat farms (Spain)	Timely management and breeding decisions based on individual, electronically-collected and automatically processed data.	Farmers that collect and use individual records have more production, less unproductive periods and consistent annual production.
New sheep and goat AI speculum (Spain and France)	Newly designed speculum better suited to specific breeds.	Easier AI with less help required and, in some cases, improved success rates.
Controlled weaning in organic goat rearing (Italy and Greece)	Allowing kids to spend night-times with their mothers rather than being 100% artificially reared.	1.5 months less labour required during milking.
Better utilisation of farm forage (France)	Comparing utilisation of farm forage.	Reduced reliance on imported concentrates and forages.
Sharing technical information via social media (Turkey)	New ways for reproduction researchers and consultants to reach farmer clients.	Successful use of YouTube (>270,000 views) and interactive messaging between farmers and consultants.

Adapted from an article originally printed in NSA's Sheep Farmer magazine. To receive Sheep Farmer on a regular basis, become a member of NSA at www.nationalsheep.org.uk/membership.