



Sustainable sheep and goat production – a holistic approach



Photo: Lisa Arguile

As the iSAGE project comes to a close Lisa Arguile and Dr Marion Johnson summarise the work conducted over the past four years.

Holistic sustainability assessment – on farm

The farming of sheep and goats across Europe equates to a third of global trade. With uncertainties in the permanence of subsidies and increased pressure to incorporate sustainable agricultural practices, particularly those that are also environmentally friendly, there was a desire to assess the sustainability of sheep and goat farming in Europe. iSAGE addressed these issues through the development of a focused holistic sustainability assessment, the iSAGE PG Tool, which introduced a broader range of indicators with a particular focus on governance, animal health and welfare, and socio-economic performance. Having classified European sheep and goat farms into ten typologies the assessment was conducted by seven partners across Europe and Turkey, providing 206 assessments to be analysed per sector and per typology, the process of which was coordinated by ORC. A further six farms that had recently introduced an innovation were evaluated and the effect on the enterprises' carbon footprint quantified. Beyond the sustainability assessments, ORC was tasked with the development of a toolbox that could aid farmers when making decisions around sustainable practices, which is available at sageguard.net

Holistic sustainability assessment - Socio-economic, demographic and consumer trends

The research conducted in this area focused on developing an in-depth understanding of the interaction between various environmental, market and policy issues affecting the sheep and goat sector in Europe. A critical component of this research was to understand the socio-economic aspects affecting the multi-dimensional sustainability of the sector, at the farm level as well as at supply chain level, including consumers' attitudes towards sheep and goat products. Reasons for the perceived and real declines in consumption of sheep and goat meat were identified, as well as factors that influence the acceptability of dairy products by consumers.

ORC led a survey with retailers and with supply chain market players to identify best practices to boost the market penetration of sheep and goat products – e.g. through labelling, shelf-space, and collaborative planning at the supply chain level. ORC also participated in qualitative and quantitative surveys with farmers and consumers.

Climate change assessment

It is no longer questionable that our climate is changing, whether that be anthropogenic or as part of Earth's natural cycles, the droughts during the summer of 2018 and 2019 and the flooding over the winter of 2019 are unusual events that have caused significant disruption to agricultural activities. Over the last four years, iSAGE has gathered the most up to date scientific information on the impact of climate change

Innovation for sustainable sheep and goat production in Europe (iSAGE)



One of ORC's largest ever research projects, iSAGE was funded by the EU's Research and Innovation programme, Horizon 2020. The project had a total budget exceeding £6 million split between 33 industry and research partners who have collaboratively worked together to answer 20 research objectives over the duration of the project. Based around sustainability and innovation, the project adapted ORC's Public Goods (PG) Tool sustainability assessment framework which then fed into several of the research objectives. After 48 months of research, knowledge exchange and dissemination the iSAGE project came to a close in February 2020 with a policy meeting in Brussels, during which all work completed was summarised and policy recommendations presented to support the future of the industry.

ORC led the work on adapting the PG Tool, completing holistic farm sustainability assessments across Europe, and developed the iSAGE Sustainability Toolbox. We also contributed to holistic sustainability assessments with respect to markets and consumers, leading several tasks, climate change, holistic production systems, innovative systems, managing sheep and goat resources and communication being involved in summer schools, training sessions and dissemination workshops.



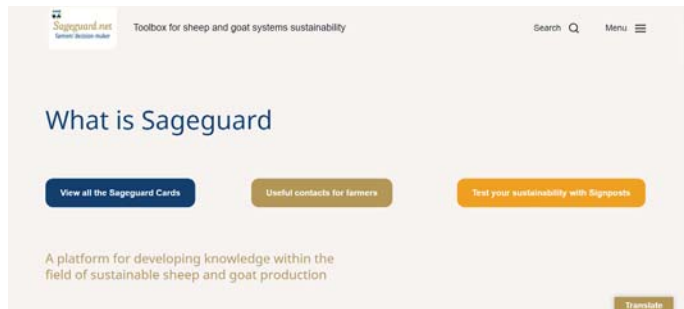
iSAGE has received funding from the European Union's Horizon 2020 research and innovation programme (grant agreement 679302).

www.isage.eu



iSAGE Case Study: Sageguard farmers' decision maker

The final output of the on farm holistic sustainability assessments was the development of 'a toolbox of recommendations regarding indicators (especially for social, economic and animal welfare) and tools suitable for practical decision-making'. The goal was to develop a platform to help farmers assess both their knowledge of sustainability and their practice. However, knowing where you are does not facilitate change; the other online section of the toolbox provides links to information on each aspect of sustainability covered by the assessment.



Sageguard homepage

The toolbox, known as Sageguard, builds upon previous outputs from across iSAGE but most specifically the iSAGE PG Tool. It comprises three sections:

1. Signposts to Sustainability – the sustainability knowledge and practice assessment
2. Sageguard itself – the toolbox of sustainability information,
3. Sageguard cards – an offline resource.

The toolbox aims to cater for a diversity of users, from students to practicing individuals and hobby farmers to large-scale producers, opening up the conversation of sustainability to a wider audience in the context of sheep and goat production.

Developing the toolbox – the concept

The Toolbox needed to be user friendly and accessible. *Signposts to Sustainability* simplifies the iSAGE PG Tool into a series of 'yes' or 'no' or 'not applicable' answers. Whilst the iSAGE PG Tool consists of 158 indicator questions covering a range of farming activities, within the toolbox the number of indicator questions had to be reduced to promote usability but still provide essential information. These were reviewed by consortium members and then by researchers, creating a narrowed down list of 145 indicators arranged into themes, situated under five over-arching sustainability dimensions of Livestock, Environmental Integrity, Economic Resilience, Social Well-being and Good Governance. The user progresses through the questions ticking the relevant boxes. The answers are then displayed as a series of red or green (or occasionally red and green or grey, question dependent) boxes, with red indicating that the farmer could improve this aspect of sustainability. The boxes then link through to the Sageguard section of the toolbox. In Sageguard the user finds links to articles and information on sustainability.

Livestock				
Flock	Breed	Body condition score	Replacements	
Health Plan	Health plan	Antibiotics	Parasites	
Disease Incidence	Flock / herd health	Quarantine	Proactive management	
Feeding Systems	Suitable diets	Concentrates	Forage	
Housing Characteristics	Condition of housing	Space	Water availability	
Expression of Natural Behaviours	Behaviour	Stress	Stocking densities	
Flock Productivity	Lambing success	Weaning success	Culling practices	
Genetic Selection	Genetic evaluation	Mating	Inbreeding	
Grazing	Permanent pasture	Diversity	Hay and silage	

Signposts to Sustainability results output

Each indicator question in Signposts has a corresponding section in Sageguard so a farmer with red in their assessment can always find information to help. Sageguard can of course be used independently and simply browsed for information.

Design

To ensure the final product was user friendly and accessible, the design aspect was vital, particularly as the uptake of decision support tools is known to vary depending on the platform. To cater for a greater audience an offline resource 'Sageguard Cards' was created. Although the content is linked, the Sageguard Cards provide a series of 'hints and nudges' towards improving sustainability performance that farmers can use in the field (they are water resistant) or back in the office as they please. By altering the indicator questions developed in Signposts, Sageguard Cards moves away from yes or no responses to more thought provoking, discussion-facilitating questions that encourage users to visit the website to find out more.



Sageguard Cards, designed by Chiara Tuoni

The Toolbox

Signposts is available in four languages, Sageguard in seven, although the links and Sageguard Cards are in English. All three outputs have been road tested on students, farmers, industry stakeholders and project partners during three iSAGE workshops in December 2019 (UK and Spain) and January 2020 (Greece). The Toolbox and Sageguard both received very positive feedback and requests for translation into further languages. The Sageguard Cards were also described as 'a thought of the day.'

<https://sageguard.net/>

Sageguard was created by an interdisciplinary team at ORC, incorporating expertise from Research (Dr Marion Johnson & Lisa Arguile), Design & Communication (Chiara Tuoni) and IT (Alan Carter, Validity).

Photo: Chiara Tuoni