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FOOD SYSTEMS

The Public Goods Tool

Assessing the sustainability of sheep and goat production in Europe

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iSAGE Innovation for Sustainable Sheep and Goat Production in Europe

ABSTRACT

The identification of sustainable agricultural practices is essential to ensure the sector remains profitable, whilst reducing its environmental footprint. In order to achieve this there is a need for tools to help farmers understand what influences their farm's sustainability and how those aspects influence the public goods they deliver. ORC's Public Goods Tool (PGT), is an assessment designed to do just that. Developed with farmers, the tool identifies strengths and weaknesses in current farming practices. Presenting the results in a holistic manner using a radar diagram, creates a platform for discussion and the easy identification of areas of high performance and those where improvements could be made. The PGT has been used in several research projects since its development in 2011. The most recent to conclude being iSAGE: "Innovation for Sheep And Goat production in Europe". iSAGE adapted the PGT to address sustainability across the diversity of pan European sheep and goat systems and identified trends that could feed into future policy recommendations. Key findings identified were strengths in animal health and welfare awareness, whilst weaknesses were situated within environmental activities, monitored through agricultural systems diversity and agri-environmental management. The tools ability to identify strengths and weakness within just a few hours on farm ensured its successful application within iSAGE.

INTRODUCTION

The Public Goods Tool (PGT) is an on-farm discussion tool that identifies strengths and weaknesses among agricultural practices, holistically addressing 11 themes of sustainability: *1. Soil management*; *2. Biodiversity* – later renamed *Agri-environmental management*; *3. Landscape and heritage*; *4. Water management*; *5. Manure management and nutrients*; *6. Energy and carbon*; *7. Food security*; *8. Agricultural systems diversity*; *9. Social capital*; *10. Farm business resilience*; *11. Animal health and welfare*[1]. Developed by a team of both researchers and advisors at ORC in 2011 through the Organic Conversion Information Services (OCIS) Public Goods Tool project, the original tool helped organic farmers identify which public goods their farming practices delivered. Each theme achieves a score between 1 and 5, that is dependent on the management practices implemented. Scores are determined based on a combination of what practices are conducted on the holding, i.e., the presence of buffer strips along watercourses, primary data, i.e., fuel usage and advisor opinion based on the farmers responses to a set of questions. A score of 5 highlights a strength in the business, whilst a score of 1 indicates a weakness and room for improvements to be made. Over the years the tool has been adapted and applied to a further 10 UK & EU research projects, which have looked at conventional, organic, dairy, arable, agroforestry and pasture-based systems, supporting the development of the indicators for assessing farm sustainability.

WHAT WE DID AND WHAT WE HAVE LEARNED

Sustainable agriculture is a common phrase quoted when discussing ways to reduce the environmental impact of farming systems. With livestock the largest land use sector on Earth[2], there is a need to identify sustainable livestock systems that will support farmers, the economy, and the environment for years to come. The iSAGE project addressed some of these issues with the aim to improve the future sustainability of the European sheep and goat sector. ORC had a lead role within iSAGE, involving researchers from across the Animal Husbandry, Food Systems, and Business & Markets themes at ORC.

Well managed sheep and goat systems provide economic support within rural communities, retain cultural practices, support social wellbeing, and deliver environmental benefits[3]. As efficient grazers sheep and goats can utilise land unprofitable for cattle or arable production, filling a niche within the farmed environment. However, in order to successfully deliver those benefits the system needs to be managed sustainably.

Changes to subsidies, disease outbreaks and extreme weather events have preceded declines of animal numbers and holdings in the industry. To help revitalise the sector iSAGE generated outputs to aid its future sustainability, one of which involved assessing the current sustainability of European sheep and goat farms, using an adapted PGT.

The adapted PGT modified in iSAGE has a greater focus on livestock systems and was aligned with the FAO's Sustainability Assessment of Food and Agriculture (SAFA) guidelines[4] by including a section on governance, the cornerstone to sustainability.

As a livestock project, focused on sheep and goat production, iSAGE was particularly interested in animal health, animal welfare and socio-economic performance. To accommodate these interests the structure of the PGT increased from 11 to 13 sustainability themes with the inclusion of governance and the separation of animal health and animal welfare (**Figure 1**). The indicators present within the PGT at the start of the project were reviewed by members of the iSAGE consortium, new ones were suggested and those not applicable removed to form the final list. This led to the creation of a tool that could account for the diversity of sheep and goat systems in Europe, from intensive milk production to extensive meat production.

Using the tool, we were able to identify the sustainability strengths and weaknesses on 206 sheep and goat farms from Finland, France, Greece, Italy, Spain, Turkey and the UK[5].

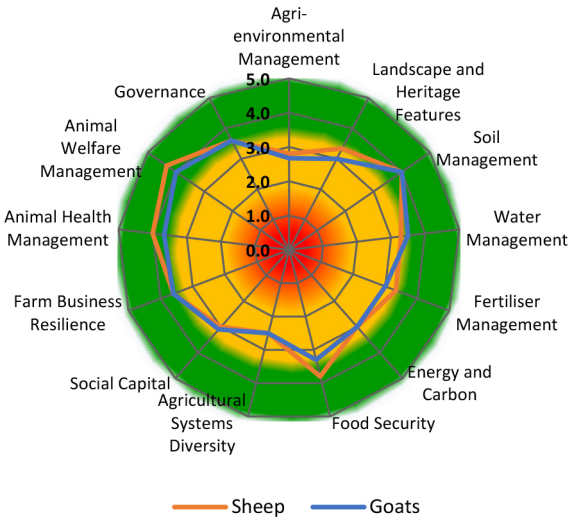

Figure 1 Median farm PGT scores from sheep and goat farms partcipating in iSAGE

Out of those studied, farms appeared to struggle in areas of agricultural systems diversity and agri-environmental management, with a median score lower than 3. A score of 3 can be taken as average performance. Some spurs appeared to be influenced by climate zone, with lower scores for water management achieved on farms in southern climates in comparison to Alpine, Atlantic or Northern regions. Animal health and animal welfare scored high on all farms, with median scores of 4.3 and 4.0, indicating an awareness of good practice within the industry, however actual implementation of these activities was not easily quantified within the PGT.

Conclusion

The PGT is one of many sustainability assessment methodologies (SA) available within the agricultural sector today. With over 100 SA to choose from selection depends on the context and framing of the question investigated, whether that be focusing on environmental or economic performance, or a specific farming system.
The PGT has been applied in several different research projects covering a range of farming systems, with iSAGE being number 5 of 11. This work highlights its cross-sector applicability. The PGT's other strengths lie in its role as a discussion tool, a useful means for assessing on farm sustainability whilst educating farmers and increasing the awareness of the link between public goods and sustainability.

References

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