A collaborative multi-stakeholder analysis of the sheep and goats sector challenges in Europe

Belanche A., Martín-García A.I., Rose I., Martín-Collado D., Yáñez Ruiz D.R.

in

López-Francos A. (ed.), Jouven M. (ed.), Porqueddu C. (ed.), Ben Salem H. (ed.), Keli A. (ed.), Araba A. (ed.), Chentouf M. (ed.).
Efficiency and resilience of forage resources and small ruminant production to cope with global challenges in Mediterranean areas

Zaragoza : CIHEAM
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 125

2021
pages 27-32

A collaborative multi-stakeholder analysis of the sheep and goats sector challenges in Europe

A. Belanche[1], A.I. Martín-García[1], I. Rose[2], D. Martín-Collado[3] and D.R. Yañez-Ruiz[1]

[1]Estación Experimental del Zaidín (CSIC), Granada (Spain)
[2]Aristotle University of Thessaloniki (AUTH) (Greece)
[3]Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), (Spain)

Abstract. This study aimed to identify the challenges of the sheep and goat sector in Europe as part of the iSAGE project. A total of 90 stakeholders were surveyed in 2018 following a participatory approach and each challenge was analysed in terms of i) relevance; ii) easiness to address and iii) stakeholders needed to take action. Differences in the relevance and easiness to address the challenges were compared between products (dairy vs meat), species (sheep vs goats), production system (intensive vs semi-intensive vs extensive), geographical region (Southern vs Central-Europe) and type of stakeholder (private vs public sector). A priority for action index was calculated to identify the key challenges, which combined high relevance and easiness to address. The high heterogeneity in the small ruminant sector across Europe was reflected in the variability observed in the perception of the challenges that this sector is facing. The main differences were found between regions (Southern vs Central Europe). The type of product and farming system explained moderate differences between challenges whereas species explained little differences. Overall, the top 10 challenges for prioritization included 5 internal weaknesses (Low promotion of local breeds; Poor business management training; Low professionalization; Slow adoption of innovations; Low adaptability of high producing breeds) and 5 external threats (Low consumer education; Low consumer knowledge on farming; Researchers not addressing real problems; Unfair trade/lack of traceability; Poor recognition of farming public services). Internal weaknesses need more action from the sector itself (farmers and associations), while external threats require action from governments in collaboration with the sector.

Keywords. Challenges – Multi-stakeholder – Small ruminants.

Une analyse multipartite collaborative des défis du secteur ovin et caprin en Europe

***Résumé**. Cette étude visait à identifier les défis du secteur ovin et caprin en Europe dans le cadre du projet iSAGE. Au total, 90 parties prenantes ont été interrogées selon une approche participative et chaque défi a été analysé en termes de i) pertinence; ii) la facilité à traiter et iii) les parties prenantes doivent prendre des mesures. Les différences de pertinence et de facilité à relever les défis ont été comparées entre les produits (produits laitiers et viandes), les espèces (ovins et caprins), le système de production (intensif ou semi-intensif ou extensif), la région géographique (Europe méridionale et centrale) et le type partie prenante (secteur privé vs public). Un indice de priorité d'action a été conçu pour identifier les principaux défis, qui allient haute pertinence et facilité de résolution. La grande hétérogénéité du secteur des petits ruminants en Europe s'est reflétée dans la variabilité observée dans la perception des défis auxquels ce secteur est confronté. Les principales différences ont été observées entre les régions (Europe du Sud et Europe centrale). Le type de produit et le système d'exploitation expliquent des différences modérées entre les défis, tandis que les espèces expliquent peu de différences. Globalement, les 10 principaux défis en matière de hiérarchisation comprenaient 5 faiblesses internes (faible promotion des races locales; faible formation en gestion des affaires; faible professionnalisation; adoption lente des innovations; faible adaptabilité des races à haute production) et 5 menaces externes (faible éducation des consommateurs; faible consommation des consommateurs). connaissances sur l'agriculture; chercheurs ne s'attaquant pas à de vrais problèmes; commerce injuste / manque de traçabilité; mauvaise reconnaissance des services publics). Les faiblesses internes nécessitent davantage d'action de la part du secteur lui-même (agriculteurs et associations), tandis que les menaces extérieures nécessitent une action des gouvernements en collaboration avec le secteur.*

***Mots-clés.** Défis – Multi-acteur – Petits ruminants.*

I – Introduction

The EU sheep and goat sector has been experiencing economic and structural difficulties in recent decades. These difficulties have caused a consistent decrease in livestock numbers following outbreaks of contagious diseases and policy changes in public funding schemes. Many farmers are currently becoming discouraged and leaving the sector because of a combination of socio-economic reasons. Moreover, as sheep and goat farming is among the less remunerative agricultural activities, it does not encourage investments or new entrants from younger generations of farmers.

The project H2020 iSAGE (Innovation for Sustainable Sheep and Goats in Europe) envisages contributing to make the European Sheep and Goat sectors more sustainable, competitive and resilient. Part of the project activities is to identify and quantify the importance of the current and future challenges that may compromise the sustainability of sheep and goat industry in Europe. To identify and quantify these challenges, iSAGE uses a participative multi-stakeholder approach with industry and research institutions working together.

This multi-stakeholder approach is required when dealing with complex and multi-side systems as the European sheep and goat sector to understand how to create change, implement research, and facilitate new ways of thinking (O'Brien *et al*., 2013). Integration and perceptions of knowledge affect how problems are identified and framed, the capacity for generation of innovative and practical solutions, the relevance of outcomes to policy and the extent of participation in learning (Bracken and Oughton, 2013). Traditional assumptions of researchers as the sole producers of knowledge are increasingly being replaced by activities that include multi-way interaction and co-production of knowledge between researchers, decision-makers and other beneficiaries of science (Francis and Goodman, 2010).

The objective of the study was to identify and quantify the main challenges that the sheep and goat sector faces in Europe, the perception of the relevance of such challenges throughout the different sector stakeholders; the difficulties to address such challenges and the different stakeholders that need to take action to address these challenges.

II – Materials and methods

iSAGE multi-stakeholder network included farmers, farmer associations, researchers and industry organisations that work directly with farmers or farmer groups (www.isage.eu). The researchers and industry organisations in iSAGE have diverse roles and represent the sheep and goat industries in a variety of ways. All these stakeholders took part in the participatory process described in detail below. The multi-stakeholder approach aims to provide the analysis with a comprehensive and wide view of the sector challenges that goes beyond unidirectional views of individual stakeholders. This multi-stakeholder approach has been recently described in detail by Belanche *et al*., (2020) but in summary the identification and quantification of the challenges to the EU sheep and goat sectors followed several stages:

i) Stage 1 involved collation of information from work packages 1 and 2 within iSAGE, literature review of existing EU reports, specific description of the sheep and goat production sector in each participating country (Greece, France, Spain, UK, Italy, Finland and Turkey) and semi-structured interviews with farmers. The main challenges identified in this exercise were categorised as 'technical / social', 'environmental', 'market' and 'policy / financial'. Moreovoer, all challenges were classified into two categories depending on if they were considered farm internal weaknesses or external threats.

ii) Workshop 1: A first workshop was held in Bilbao, Spain, (24th May 2018) to discuss the first list of challenges and to collect suggestions for other challenges to be included. The workshop was done with 3 small groups of around 15 people each and produced additional issues to be considered in following stages.

iii) Developing and conducting the Survey: a survey was developed using the challenges identified from the outcomes of the reports from each country, the semi-structured interviews with farmers and the first workshop. Thirty challenges in total were selected based on previous analysis and the outcome of the discussions distributed in the same four areas described above (Table 1). From the 30 identified challenges, we developed questions to ensure consistency in interpretations of questions and data collection. The types of knowledge exchange and evaluations were diverse so questions were kept mostly simple to help understand and score.

Table 1. List of challenges included in the assessment survey

Farm internal weaknesses	Farm external threats
Sector level	**Society level**
– Sector fragmentation/Lack of integration	– Low consumer education in local products
– Low cooperation between farmers	– Farmer role unrecognised by society
– No attractive to young farmers	– Low social knowledge about farming
– Low female involvement	– Poor recognition of farming public services
Farm level	– Low consumer demand
– Slow adoption of innovations	**Market level**
– Poor business management training	– Market monopolised
– Lack of professionalization	– Unfair trade / Lack of traceability
Farming systems level	– Uncertainty of meat and milk prices
– Low promotion of local breeds	– Volatility of commodity prices
– Low adaptability of high productive breeds	**Production factor level**
– Low integration livestock and agriculture	– Limited access to land
Overarching level	– Difficult access to capital
– Animal health issues	**Environmental level**
– High subsidy dependency	– Wildlife conflicts
– Low competitiveness	– Climate change threats
	Policy level
	– Uncertainty in future changes in subsidies
	– EU policy without scientific evidence
	– Environmental policy against intensification
	Science level
	– Researchers not address real problems

Three questions were then developed for each challenge:

1) Assess the perception of the relevance using the following scale: 1=Very low, 2=Low, 3=Medium, 4=High and 5=Very high
2) Evaluate the easiness of addressing each challenge using the following scale: 1=Very difficult, 2=Difficult, 3=Medium, 4=Easy and 5=Very Easy; and
3) Identify the main stakeholders (from a provided list including i) Government, ii) Farmers, iii) Associations of producers, iv) Academia, v) Processing industry, vi) Consumers and vii) Retailers) that should take action to address the each challenge.

III – Results and discussion

Six out of 30 challenges were relevant or very relevant (average scores ≥ 4) (in order of relevance): 1) Uncertain meat & milk prices, 2) Volatile commodity prices, 3) Low farm income / difficulty to access to capital, 4) low youth involvement, 5) high subsidy dependency and 6) uncertainty in future

changes in subsidies. All (but low youth involvement) refer to external threats, which are out of the control, or are extremely difficult to be managed by farmers (and or farmer institutions), reflecting a perception of the sector of having a weak position to deal with the most important challenges that it faces. This highlights the need to involve different stakeholders (especially governmental institutions) in the strategic solutions to propose.

The perception of the relevance of internal weaknesses differed between dairy vs meat production systems and south vs central European countries, while external threats were mainly perceived differently among systems (Table 2). Participants from dairy systems perceived internal weaknesses associated to the sector and farm level more relevant than those from meat production systems. Likewise, internal weaknesses were considered more relevant in south vs central European countries as well in extensive as compared to more intensive production systems. The goat sector, in comparison to the sheep sector, was perceived as having higher internal weaknesses derived from the farm structure, whereas the sheep sector was perceived as having higher external threats associated to the society. The farm intensification level had not effect on the relevance of internal weaknesses but it showed a decreasing relevance of the external threats as the level of intensification increased. Both sectors (public and private) had a similar view about the relevance of internal weaknesses and external threats as no differences were noted across sectors.

Table 2. Effect of the type of product, species, production system, geographical location and farming sector on the relevance of internal and external challenges in challenges

	Product			Species			System[1]				Region			Sector		
Relevance	**Dairy**	**Meat**	***P*[2]**	**Sheep**	**Goat**	***P*[2]**	**Int.**	**Semi.**	**Ext.**	***P*[2]**	**South**	**Central**	***P*[2]**	**Public**	**Private**	***P*[2]**
Internal																
Overall	3.62	3.20	**	3.41	3.63	ns	3.40	3.63	3.42	ns	3.63	3.00	***	3.48	3.49	ns
Sector level	3.70	3.32	*	3.57	3.58	ns	3.45	3.77	3.49	ns	3.66	3.30	*	3.57	3.59	ns
Farm level	3.57	3.26	ns	3.37	3.69	*	3.48	3.59	3.36	ns	3.66	2.87	***	3.53	3.37	ns
Farming system	3.55	3.00	**	3.24	3.65	†	3.25	3.47	3.38	ns	3.58	2.71	***	3.32	3.46	ns
Overarching	3.51	3.53	ns	3.59	3.37	ns	3.20	3.61	3.66	ns	3.45	3.71	ns	3.67	3.25	ns
External																
Overall	3.70	3.58	ns	3.66	3.65	ns	3.47	3.65	3.81	*	3.63	3.76	ns	3.62	3.72	ns
Society	3.72	3.59	ns	3.73	3.56	*	3.46	3.74	3.77	†	3.61	3.88	†	3.63	3.75	ns
Market	3.96	3.87	ns	3.95	3.89	ns	4.00	3.81	3.99	ns	3.90	4.04	ns	3.86	4.07	†
Prod. factors	3.78	3.84	ns	3.70	4.00	†	3.46	3.65	4.19	**	3.80	3.81	ns	3.82	3.77	ns
Environmental	3.43	3.40	ns	3.43	3.38	ns	2.80	3.37	3.91	***	3.33	3.71	*	3.47	3.32	ns
Policy	3.64	3.25	*	3.53	3.51	ns	3.43	3.58	3.53	ns	3.54	3.45	ns	3.49	3.57	ns
Sciences	3.20	3.07	ns	3.03	3.40	ns	2.84	3.32	3.24	ns	3.25	2.86	ns	3.05	3.33	ns

[1]System: Int. (intensive); Semi. (Semiextensive); Ext. (extensive).

[2]Pvalue: ****P*<0.001; ***P*<0.01; **P*<0.05; † P<0.1.

The sheep and goat sector is very fragmented and the main characteristics vary for each Member State, or even for each production area: species (sheep, goat, combined), type of farming (milk, meat), systems (suckler or suckler-fattener / intensive or extensive), types of products (heavy lambs, light lambs), structures (small or large), importance of the activity within the area (from very important to marginal) (Ares, 2011). Our survey indicated that this fragmentation may be more of a threat for the dairy sector, probably in relation to the complexity of the market as compared to meat. Also, the highly fragmented production models in Mediterranean countries, in comparison to those in central Europe, may explain the difference in perception across geographical locations countries.

For the four categories of challenges considered in the survey (technical / social, market, environmental and policy), the perception between the different expert groups varied substantially. The overall relevance of the internal challenges and some external challenges (e.g. low social knowledge about farming, low consumer educaton in local products, lack of treaceability or climate chache threats) was higher for the dairy systems whereas the threat ´low consumer demand´ was higher for meat systems (Belanche *et al*., 2020). The consumption of lamb in Europe, particularly in northern Europe, is beset by a poor image and high prices. Sheep is perceived to be traditional

meat that is difficult to cook and has a taste that's not to everyone likes (Ares, 2011). In particular the consumption of lamb by young consumers is decreasing. Products such as leg of lamb or stewing lamb have no appeal to single people or young couples, as they are often family-sized portions and cuts that are complicated to prepare or need to be cooked for a long time. It is interesting to note that when new products are introduced to the market that are specially aimed at young consumers, such as ground lamb in the United Kingdom or mince lamb in Ireland, sales increase rapidly, which suggests low consumer demand can be addressed by offering new products.

The assessment of perception on how easy the different challenges are to be addressed showed that on average none were scored as 'easy' or 'very easy'. Out of the 30 challenges considered, 7 were perceived as 'difficult' or 'very difficult' (≤ 2) and these were (in order of difficulty): Volatile commodity prices, Uncertain meat & milk prices, Climate change, Low income / Limited access to capital, Market monopolised, Subsidy dependency and Fragmented sector. The degree of difficulty to address a challenge or threat seems to be more inherent to the challenge than the type of production system. As a result, the perception of the easiness to address the challenges was not substantially affected by the type of product and species whereas the production system, geographical region and sector seem to play a role in determining the difficulty to address those challenges.

The priority index (Table 3) was calculated to identify those challenges that had been scored as relevant and not very difficult to address, so strategies can be developed to prioritize efforts towards them. The index calculation ranged from 6.31 and 10.9. The 10 challenges that had the highest scores (above 8.70) were (in ranking order): Low consumer education about products, Low promotion of local breeds, Low social knowledge about farming, Poor business management training, Researchers not addressing real problems, Unfair trade, lack of traceability, Low professionalization, Slow adoption of innovations, Low adaptability of high producing breeds and Poor recognition of farming public services. Half of the top 10 challenges were internal weaknesses and the other half corresponded to external threats indicating that both farmers and external stakeholders (mainly government, associations of producers) should take further actions to address the current challenges of the small ruminal sector.

Table 3. Heatmap describing the priority indexes and the relevant actors required to address the main challenges and threats in the small ruminant sector for the sustainability

	Rank	Priority index	Nº actors	Government	Farmers	Producers associations	Academia	Processing industry	Consumers	Retailers
INTERNAL CHALLENGES										
Low promotion of local breeds	2	10.04^{mn}	2.5	27	27	23	22	0	1	0
Poor business management training	4	9.52^{klm}	3.0	29	25	25	12	5	2	2
Lack of professionalization	7	9.08^{jkl}	3.5	28	21	28	17	6	0	0
Slow adoption of innovations	8	8.86^{ijkl}	3.4	21	27	26	19	6	1	1
Low adaptability of high productive breeds	9	8.74^{hijk}	1.9	15	24	24	34	2	0	0
Low competitiveness	13	8.37^{fghij}	3.9	16	24	16	7	16	7	14
Low integration of livestock and agriculture	14	8.36^{fghij}	2.7	32	26	21	15	2	3	1
High subsidy dependency	15	8.24^{efghij}	2.8	43	20	20	4	3	8	1
Low cooperation between farmers	18	7.85^{cdefgh}	2.0	7	49	40	1	1	0	1
No attractive to young farmers	20	7.75^{cdef}	3.4	28	23	30	6	5	6	2
Low female involvement	24	7.44^{bcde}	1.9	31	29	28	7	1	3	0
Parasites and infectious diseases	25	7.18^{abcd}	2.2	15	33	22	29	0	1	0
Sector fragmentation / Lack of integration	26	7.01^{abc}	3.3	10	26	30	4	20	2	7
EXTERNAL CHALLENGES										
Low consumer education in local products	1	10.91^{n}	3.4	29	7	22	10	14	10	8
Low social knowledge about farming	3	9.74^{lm}	4.1	21	12	23	17	6	15	7
Researchers not address real problems	5	9.37^{klm}	2.8	20	19	20	33	5	2	2
Unfair trade / Lack of traceability	6	9.32^{klm}	3.6	23	12	17	4	19	10	15
Poor recognition of public services of farming	10	8.72^{hijk}	3.2	36	20	13	11	3	15	2
Uncertainty in future changes in subsidies	11	8.70^{ghijk}	2.6	48	18	14	10	3	6	1
Farmer role unrecognised by society	12	8.66^{ghijk}	4.7	19	19	18	11	9	16	8
EU policy without scientific evidence	16	$8.16^{defghij}$	1.6	50	2	16	31	0	1	0
Environmental policy against intensification	17	8.10^{defghi}	2.3	44	13	18	17	6	1	1
Uncertainty of meat and milk prices	19	7.78^{cdefg}	4.0	19	13	12	3	25	8	21
Low consumer demand	21	7.53^{bcdef}	3.9	7	9	11	8	21	22	22
Low farm income / Difficult access to capital	22	7.51^{bcdef}	3.3	33	16	15	7	13	6	10
Limited access to land	23	7.50^{bcdef}	2.2	55	21	19	5	0	0	0
Volatility of commodity prices	27	6.83^{ab}	3.5	28	13	9	1	27	8	14
Wildlife conflicts	28	6.80^{ab}	2.3	39	29	13	12	0	6	0
Market monopolised	29	6.76^{ab}	3.1	26	12	13	2	20	6	21
Climate change threats	30	6.28^{a}	3.2	28	20	15	25	9	2	2

IV – Conclusions

The high heterogeneity in the small ruminant production systems across Europe is reflected in the variability observed in the perception of relevance of the challenges and threats that face this sector. Based on the expert group's surveys it was observed that the geographical region (Southern vs Cental Europe) is one of the main drivers that determine the relevance and difficulties to address the main challenges of the small ruminant sector. The type of product (meat vs dairy) and level of intensification can also modulate the relevance of these challenges whereas the type of livestock species (sheep vs goats) is much less relevant.

The use of the priority index as an indicator of the relevance and easiness to address the small ruminant challenges identified the most immediate challenges to address.

It was clear that internal weaknesses need more action from the sector itself (farmers and associations), while external threats require a strong involvement of Governments. Moreover, it was noted that a combined action of government, farmers and associations of producers should take place to address these challenges.

Acknowledgements

The authors would like to thank funding from the European Commission H2020 Programme that supported iSAGE Project under Grant agreement number 679302.

References

Ares, 2011. 1350301 – 13/12/2011valuation of the CAP measures for the sheep and goat sector – Executive summary.

Belanche A, Martín-Collado D, Rose G. and Yáñez-Ruiz D.R., 2020. A multi-stakeholder participatory study identifies the priorities for the sustainability of the small ruminant farming sector in Europe. *Animal,* 1-12 DOI: 10.1016/j.animal.2020.100131.

Bracken LJ, Oughton EA, 2013. Making sense of policy implementation: the construction and uses of expertise and evidence in managing freshwater environments. *Environ Sci Policy,* 30:10-18.

Francis, R and Goodman, MK, 2010. Post-normal science and the art of nature conservation. *Journal for Nature Conservation*, 18 (2), pp. 89-105. ISSN 1617-1381 doi: https://doi.org/10.1016/j.jnc.2009.04.002.