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1 Literature review on extensive sheep farming resilience enhancing policies in Spain

Extensive sheep farming system in Spain has to deal with **less favourable market trends** (lowering meat demand) **and worse socio-economic conditions** (increasing production costs, stable meat prices and low attractiveness of the sector). Payments delivered by the CAP (1^o and 2^o pillar) represent a crucial resource for the extensive sheep sector sustainability in Spain. However, the payments appear insufficient, mainly explain but the fact that they do not take into account the rich range of eco-system services and environmental functions provided by the extensive sheep farming system. The eco-scheme proposed within the new CAP 21-27 emerges as a good opportunity to link a new economic resource (eco-scheme aid) to the set of positive socio-environmental functions of the extensive sheep sector (Diseño de la nueva PAC en España, 2019) and support its sustainability.

Additionally, the Farm Territorial Contract (Real Decreto 1336/2011) is an initiative proposed to value the eco-system services provided by the extensive sheep farming. It is an agreement between a farmer and the regional authority. The farmers agrees to implement good practices to manage the territory under the contract. The regional authority compensates the farmer by using European and regional funds (CPNA, 2016). This initiative has already been considered under the rural development program in some regions in Spain (Jacetania y en el Plan del Alto Gállego).

It is also arising the interest around the environmental contracts, which allow local authorities to support extensive systems in exchange for specific conservative practices. Extensive farming is the main agricultural specialization that manage territory and environment in many remote and marginal areas (Vicente & Azqueta, 2019).

The **access to pastures and land** to grow forage is crucial for extensive sheep sector. Nonetheless, this resource is scarce in many contexts due to land prices, competition with intensive crops, abandonment of marginal pastures that do not comply with CAP aids requirements, inaccessibility of public lands. Free access to state-owned pastures is a requested action by actors in the sector (Urivelarrea et al., 2019). Some regional authorities have provided funds to modernize and open the local state-owned pastures to breeders (Europa Press, 2018a). Additional proposal is the management of the abandoned pastures. New rules are required to include 'more-forested' pastures within the eligible lands for CAP payments (Ruiz & Beaufoy, 2015). Currently, land covered by shrubbery over a certain percentage is not eligible for aids, while in Spain herds graze these lands. Finally, a new proposal is to define specific aids for pastures falling within natural parks or area Nature2000. Currently farmers usually not benefit this initiative due to constraining rules (CPNA, 2016).



Policy actions have also been proposed to enhance transhumance activities sustainability, such as to provide economic support to transhumance (Urivelarrea et al., 2019) and to associations of transhumance (Diseño de la nueva PAC en España, 2019). An initiative already implemented is the design mapping tools (GIS) to facilitate the livestock movements (MAPA, 2020).

Extensive livestock is particularly affected by a **lack in generational renewal**. This is mainly due to the low profitability and quality of life. Some initiatives have been undertaken to reverse the trend, with particular regard to the involvement of women. There are aids to facilitate the access to advisory services and insurances for young farmers (Gobierno de Aragón, 2020c), whereas at regional level there is a focus on the formation and education of young and women (Gobierno de Aragón, 2020d). At the same time, across Spain many initiatives have been developed to set up 'schools of livestock and pastures' (PGEF, 2019). Furthermore, it has been created a national digital platform to group young farmers and facilitate new entrances (Agroinformación, 2020). It works as an intermediary between the new farmers and the other stakeholders to facilitate the first approach, and to provide training courses on both administrative and farm management topics (CuadernoAgrario, 2019).

The Spanish Ministry of Agriculture finds that the management of pastures and extensive farming activities on territories is also crucial for the **adaptation to climate change** (Rubio & Roig, 2017). Specific initiatives have been developed at regional level to mitigate the impact of climate change on extensive livestock. For instance, to face the scarcity of water a regional project was carried out to store, conserve and distribute rainwater for extensive systems (Agroinformación, 2017). Others propose to compensate economic loss caused by increasing droughts through temporal fiscal facilitation to farms (InfoAgro, 2012).

An increasingly worrying issue is the **conflict between livestock and wild fauna**, such as wolves and bears. A compensative payment has been set out for the losses in livestock because of wild fauna attacks (Euroganadería, 2018; Europa Press, 2018b). In addition, through the 2^o pillar CAP resource and regional funding, some investments are implemented such as land hedging, electric shepherd, GPS, dogs and video control of livestock (Gobierno de Aragón, 2020a). Furthermore, specific projects have been developed with universities to implement new technological solutions for the monitoring of livestock (Esteban, 2018). These initiatives are usually managed at regional and municipality level.

In Aragón, the regional authority supported the creation of associations for extensive livestock systems specific purposes. In particular, funds (II pillar) have been provided to associations for sanitary purposes and for local breed conservation adapted to the region (Gobierno de Aragón,



2020b). Cooperation is the best solution to deal with complex issues and improve the consumer orientation of extensive livestock systems (AGAPA, 2016).

Some initiatives have targeted traceability of sheep. New technologies represent an opportunity in this sense, thus, the regional authorities grant (with EU and regional funds) projects to modernize traceability systems (Agronews, 2020). The initiatives consist in developing software to manage information contained in electric marks on the sheep. The information follows all the steps of the value chain (farmers, cooperative, processors, distributors).

In order to **strengthen the market position** of extensive livestock systems regional authorities aims at modifying the sanitary regulation to make small slaughters and butcher's shops emerge and provide a local basis to supply products (CPNA, 2016).

2 Participants and setting

The workshop was held in Madrid (Spain) at the CEIGRAM-UPM the 8th November 2019. Nine stakeholders involved in policy making at national level attended the workshop on resilience enabling policies. The profiles of the participants are explained below:

- Agricultural cooperative (2 persons): Cooperativas agroalimentarias de España-CAE (<http://www.agro-alimentarias.coop/inicio>): The president of sheep sectorial unit in CAE and one livestock technical staff.
- Farmers organizations (1 person)- The Spanish coordination of farmers and stock breeders -COAG (<http://www.coag.org/>): Livestock technical staff.
- Ministry of Agriculture (2 persons)- Coordinator of the Analysis and Prospective Area in the Ministry of Agriculture, Food and Environment and Livestock technical staff.
- National Entity of Agricultural Insurances -ENESA- (1 person)- Head of livestock sector insurance service.
- Environmental NGO (1 person)- World Wildlife Fund (WWF)- Technical assistance for WWF Spain in pasture and extensive livestock.
- University (1 person)- Professor at Universidad Autónoma de Madrid (UAM) expert on pasture management.
- Research Center (1 person)- Consejo Superior de Investigaciones Científicas – CSIC. Expert on Common Agricultural Policy.

The workshop was conducted by two UPM team researchers. Three more researches from the UPM team attended the meeting to stimulate discussion and support technical tasks.

The workshop schedule was the following:

Starting: 9:30

- SURE-Farm and Farming System Resilience framework presentation (10 min).
- Previous findings from the multiple approaches in the CS region (10 min).
- Previous findings on policy requests from the actors in the CS region (15 min).
- Activity 1: First round- Policy recommendations: Main recommendations and impact on resilience capacities (60 min).

Coffe break: 11:30-12:00

- Activity 2: Second round- Policy recommendations: How and who will be implementing policy recommendations (60 min).
- Activity 3: Policy recommendations connected with future scenarios (30 min).
- Conclusions (30 min).

Lunch: 14:00

3 Minutes of workshop rounds 1-3

3.1 Round 1: generic policy recommendations

Once the resilience framework and the three resilience capacities were clearly stated, participants were asked to brainstorm policy recommendations to enhance the resilience of the extensive sheep farming in Spain. Many recommendations emerged from this activity:

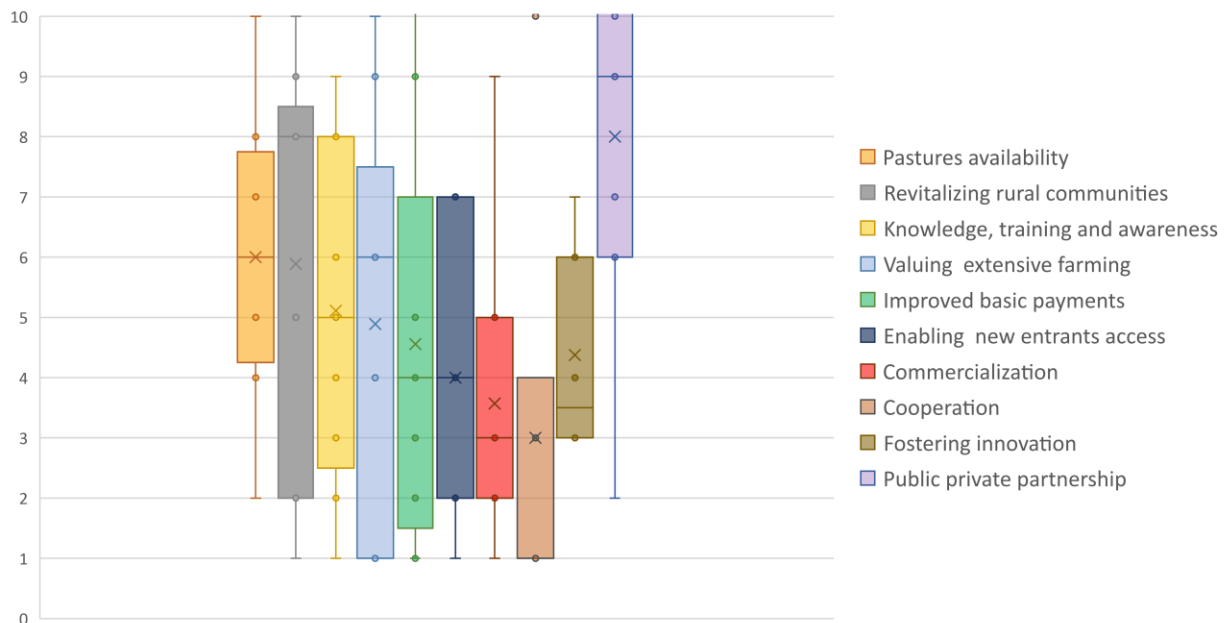
1. Value and public awareness about the contribution of the sheep extensive farming to maintain pastures, landscape and biodiversity, retain population in the rural areas, ensure animal welfare and guarantee food quality.
2. Support the knowledge and training in extensive farming. It is key to reinforce research on extensive farming and its capacity to provide public goods (environmental and health). It is also highlighted the need of fostering the relationship between agricultural and education sector (secondary schools and universities). Stronger links would enable students and potential future farmers to be closer to the agricultural sector since they start studying.
3. Foster products commercialization: support direct sales and short channels, attract the diversity of actors of the value chain to the rural areas, for example by providing economic support to local slaughterhouses to adapt to sanitary legislation, fiscal incentives to butcheries and processing industry in rural areas. Develop a labeling standards and improved quality control for sheep meet (as already exit for beef meat).

4. Revitalize rural areas, by improving rural development funds, focusing on attracting families. Fiscal incentives for companies could be designed to create jobs in rural areas or work from home jobs.
5. Facilitate the new entrants' access: Create new on-line spaces to favor the farm transfers, develop a land bank, entrepreneurship hub.
6. Increase access to pastures by limiting the aids per hectare just to extensive livestock farmers (nor intensive livestock farming) and favoring access to public pastures.
7. Boost innovation tailored to: i) reduce the workload of the extensive farming (electric fencing, GPS, video surveillance); ii) to improve communication among farmers and families: new technologies facilitate the communication between farmers. Farmers have a new channel (instant messaging, on-line groups, notifications, etc.) to share their concerns and interesting news and to keep families calm when they are in the field; iii) to easy and reduce the time required to comply with the bureaucracy and control processes (apps); iv) to boost knowledge exchange. Knowledge is missing and new channels and tools to preserve knowledge on sheep extensive farming practices is needed.
8. Reinforce the cooperation in the farming sector by supporting associations at different scales and sectorial activities.
9. Boost public-private collaboration with financial institutions. Enable guarantee programs to support long-term financing projects, collaborate in new pasture insurance development (satellite data).
10. Adapted basic payments structured by tranches based on criteria such as famer' age, sex, grade of farming activity vulnerability, product quality, etc.

We then ask participants to rank the policy recommendations according to their contribution to the sheep extensive farming resilience, from 1 (the most important) to 10 (the least important). The Figure 1 shows the recommendations ordered according to their relevance.

Figure 1 Ranking of the mentioned policy recommendations





As Figure 1 shows the ranking provided by participants to the policy recommendations differs substantially from one to each other. It seems that most important resilience enabling recommendation (scored between 1 and 4) is that related to strengthening cooperation among farmers together with the policy proposals towards supporting commercialization and enabling the access to new entrants. On contrary, lesser relevance is given to recommendations referred to fostering the public-private collaboration with financial institutions (scored between 6 and 10). Valuing the extensive farming, improved basic payments, supporting knowledge exchange and revitalizing rural communities the greatest variability in the participants' scores.

To get insights on what policy recommendations are needed to enhance each resilience capacities, participants were asked to associate each policy recommendations with the enhanced resilience capacity. To this end, participants had stickers with the name of the policy recommendations and blank stickers for writing new recommendations. They had to post the policy recommendation on the blackboard on the corresponding resilience capacity -robustness, adaptability and transformability -. Participants were informed that policy recommendations could contribute to more than one resilience capacity. The result of this activity is show in the Picture 1.

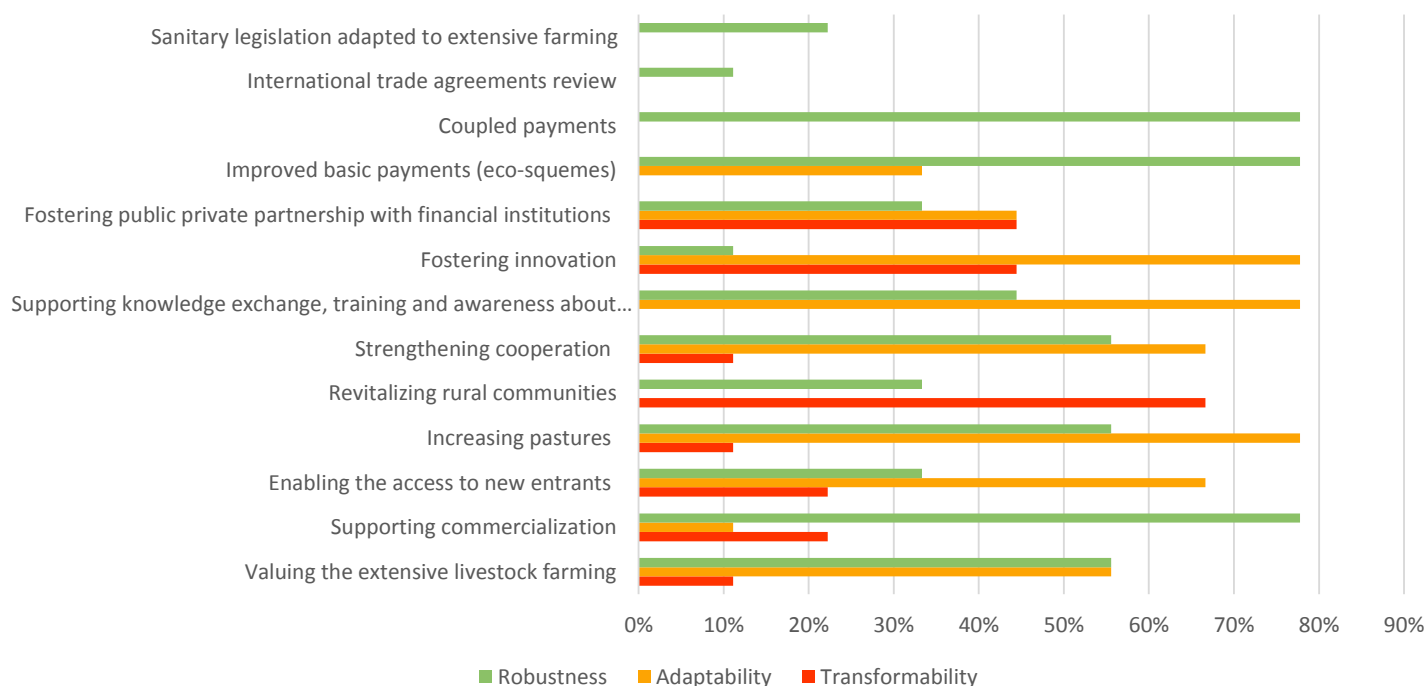
Picture 1- Picture policy recommendations contributing to resilience capacities



As a result, it can be seen that almost every policy recommendation enhances simultaneously the three resilience capacities (Figure 2). The majority of the participants (more than 50%) consider that the policy recommendations to enhance robustness are improved the coupled and basic payments schemes, supporting extensive farming products commercialization and valuing the extensive farming and its positive contribution to environment, health and rural areas. These policy actions also enhance adaptability and to a lower extent transformability. The definition of coupled payments, sanitary legislation adapted to the extensive livestock and reviewed international trade agreements on lamb meat are identified as enhancing robustness policy recommendations (Figure 2).

There is a clear consensus among participants when identifying the policies recommendations that enhance the adaptability capacity: i) fostering innovation; ii) supporting knowledge exchange and training; iii) strengthening cooperation; iv) increasing the pastures areas; v) and enabling the access to new entrants. Finally, the recommendation referred to revitalizing rural communities clearly emerges as one of the main actions to strengthen the transformability capacity of the farming systems. The stakeholders explained that attracting new people, new sectors, new proceedings, new ideas to the rural areas is the best way to boost transformability (Figure 2).

Figure 2 Policy recommendation contributing to resilience capacities.



(*) Percentage of participants considering the contribution of the improvements to resilience capacities.

3.2 Round 2: CAP policy recommendations

Once the first round of policy recommendations were identified, ranked and assessed in the terms of resilience capacities, a new round of discussions was conducted to analyse more in depth the concrete policy actions to conduct and who should take the lead. The following table summarized the main ideas proposed by participants by policy recommendation. No comments on fostering public-private collaboration with financial institutions were discussed in the second round due to the low agreement level about the suitability of this measure for the farming system resilience. According to the main challenges facing the sector and the low level of investments required, participants do not consider this measure as a priority.

1.- Improved payments scheme

Policy actions	Reasons explaining the policy action	Regional level (*)		
		Local	National	EU
Payments should be coupled to production (head)	Payments coupled to production (heads) defined by a minimum quantity plus additional payments according to criteria such as farmer's age, sex, vulnerability, productivity, animal welfare, product quality and /or cooperation. The productivity and quality were highlighted as key criteria to define the coupled payments. There was an intense debate among participants regarding coupled payments. Not every participant agreed with this proposal, explaining that it could be inappropriate under lowering consumption (oversupply) scenarios. Furthermore, other participant stated that payments amount should not consider the condition of being involved in commercial structures. Previous experiences have shown that this kind of payments could have a negative spillover effects by encouraging the creation of associative structures not stable and efficient. Support the extensive sheep farming with coupled payments is the best way to show the institutional commitment with the extensive sheep farming. Coupled payments will be exclusively tailored to grazing livestock. Policy institutions at the three regional levels should lead this initiative.	X	XXXXX	XX
Basic payments (by hectare) in livestock sector should be tailored to extensive livestock farmers	There is no clear consensus about the basic payment's definition. From one side, some participants defended that as a result of the last PAC reform, sheep (and goat) extensive farmers in Spain were forced to rent a great quantity of hectares if they wanted to maintain the aid received before the reform. This situation increased the pressure on land prices and limit the access to land. Therefore, participants claimed that the extensive sheep sector aids should be linked to the livestock unit (LU), nor to the hectares. Alternatively, basic payments will need to be tailored to those livestock farmers with an official registration and adequate maintenance of the hectares. Other participants proposed that the basic payments should remain as fundamental payments for every livestock farmer without considering the agricultural practices. Together with the basic payments, the eco-schemes emerge as a powerful instrument to unknnowledge the provision of the public goods provided by the effective shepherding with territorial base. New technologies are needed to improve control, simplify the payments procedures and develop an improved pasture management. Policy institutions at the three regional levels should lead this initiative.	X	XXXXX	XXX
Define and implement an eco-scheme for extensive sheep farming.	There is a consensus among participants that the eco-schemes will be a powerful instrument to adapt the aids to the extensive sheep sector and its provision of public goods. The eco-schemes acknowledge the provision of public goods mainly tailored to support the shepherding. It would be first needed to clearly define and quantify the public goods provided. Policy institutions at the three regional levels should lead this initiative.	XXX	XXXXXX	XX

Historical payments should be removed	There is a clear consensus about this initiative among participants. Policy institutions at local and national levels should lead this initiative.	X	X	
Relax the current productivity level requirements to be eligible for basic payments.	There are situations in which farmers are not able to meet the productivity requirements to be eligible of the aids due to heard diseases, wild fauna attacks, or lack of experience in the case of new entrants. These exceptions need to be considered to keep the aids of the farmers in these even more difficult situations. Policy institutions at national level should lead this initiative.		X	
Redesign the least favored areas aids.	Redesign the least favored areas aids to effective support the shepherding. Policy institutions at local and national levels should lead this initiative.	X	X	

(*) Participants' votes on who should lead the corresponding policy actions

2.- Valuing extensive sheep farming

Policy actions	Reasons explaining the policy action	Regional level(*)		
		Local	National	EU
Clear definition of what extensive farming means: Identify key differentiating characteristics from intensive farming.	Participants agreed that a clear definition of extensive farming could help to enhance the extensive farming resilience. Indeed, extensive farming is getting more and more relevance now that environment issues are on the spot. Participants are also aware about the difficulties to get this definition, which is open to different interpretations in productive and institutional sectors. The definition of the extensive farming can be developed by identifying the practices implemented in this specialization. Define what it is not extensive farming emerges as an alternative start point. Policy institutions at national and EU level should lead this initiative.		XXXX	X
Valuing sheep extensive farming products with quality seals	Participants agreed that quality seals could improve extensive farming resilience. As cited in coupled payments recommendations, one way to boost quality could be that farmers receive an additional aid installment if the production complies with the quality standards. Certifications should ensure the origin and practices of the meat (extensive farming). This is an interesting alternative to support extensive sheep farming with consumer (private) funds. Positions against also emerge. The source of the support of the extensive farming should be the coupled payments as the extensive farming provides public goods and not market initiatives. Indeed, there are a lot of quality seals and certifications in the market. Consumers receive a lot of information about different quality seals that may confuse them. Furthermore, quality certifications increase the farmers' production costs that are not reflected in the market prices. This initiative should be accompanied by public awareness campaigns to value the sheep meat quality and explain	XXX	XXXXXX	XX

	consumers its higher price. The lack of a clear definition of the extensive farming could hinder the quality seals functioning. Policy institutions at the three regional levels should lead this initiative.			
Valuing the shepherds and the shepherding.	Valuing not only the extensive farming production but also the virtues of shepherds and the shepherding. Implement the territorial farming contracts thorough which farmers receive a compensation for sustainable practices in owned-state lands. Innovation, new technologies and generational renewal will contribute to reach this objective. Policy institutions at the three regional levels should lead this initiative.	X	X	X
Boost short commercialization channels	Find short channels and alternative commercialization channels for differentiated quality products, to improve knowledge about the quality of the lamb products and boost the national consumption. Policy institutions at local and national level should lead this initiative.	X	X	

(*) Participants' votes on who should lead the corresponding policy actions

3.- Fostering cooperation among farmers and other sectors

Policy actions	Reasons explaining the policy action	Regional level ^(*)		
		Local	National	EU
Create new legal business forms /Adapt existing ones enabling cooperation among farmers and keep the right to receive basic payments.	This recommendation arises from the fact that nowadays farmers prefer not to go into new cooperation forms because they lose their right to receive the basic payment. The definition of new legal forms or adapting the existing ones that allow farmers to join in common business with no impact on the aids they are currently receiving will help famer to face problems that now are not able to deal with alone (or with low number of workers). Cooperation allows farmers to share the labor load, improve the profitability , improve their life quality and reinforce their lobby to defend the common interests. Consequently, it will improve the attractiveness of the sector and stimulate the generational renewal and new entrants. Cooperation is key for the sustainability of the extensive farming sector. Policy institutions at local and national level should lead this initiative.	XX	XXXXXX	
Fiscal incentives to enhance cooperation	There is an agreement on the definition of tax benefits towards enhancing the cooperative projects Policy institutions at local and national level should lead this initiative.	XXX	XXXX	
Enhance associationism as a favored rout of entry in the sector.	The consensus about this policy actions is lower. Some participants agreed with this action arguing that facilitating associations since the entry in the sector strength the new business. From the other side, some participants explained that there is no need to discriminate individual entry versus collective entry in the agricultural sector. It is better not to prejudge that collective actions will be more sustainable than individual ones. Furthermore, supporting associationism as entry point could generate new risks such as the creation of fictitious cooperation structures. Reinforcing the	XX	XXX	XX

	collective actions should be conducted once the farmers are in the sector. It is important to first enhance the associationism structures already existing. Policy institutions at the three regional levels should lead this initiative.			
Reinforced cooperation on production activities and the provision of ecosystem services.	There is a clear consensus on the need to focus the extensive livestock farmers cooperation on production activities. It would improve the farmers' life quality and reduce costs. Currently, much more effort was made on cooperation towards commercialization instead of production. Farmers need to be aware about the ecosystems services they are providing and coordinate their actions to improve them. Policy institutions at the three regional levels should lead this initiative.	XXXXX	XXX	XX
Create a network to contact famers with other key sectors.	Create a network involving farmers and University/Research Centers, private sector, farmers' organizations, cooperatives, and public administration. Policy institutions at the three regional levels should lead this initiative.	X	X	X

(*) Participants' votes on who should lead the corresponding policy actions

4.- Favoring pastures availability

Policy actions	Reasons explaining the policy action	Regional level(*)		
		Local	Nacional	EU
Develop and bring to the sector new technologies to improve pastures management.	There is a clear consensus about the relevance of the new technologies to favor the pasture availability. New technologies will contribute to better control which hectares that are really grazed, contributing to better pastures management and better aids distribution. Policy institutions at the three regional levels should lead this initiative.	XXXXXX	XXXX	XX
Adapting basic payments	Several changes in the basic payments were identified to facilitate the pastures availability: 1) Define measures to ensure that just the agricultural sectors with an effective use of pastures can access to pastures and are eligible for basic payments; 2) Define incentives for crop farmers to have a double land use: Crop farmers cultivate and allow extensive sheep farmers to use the land to feed the ewes with the stubble from the previous harvest. This double land use will not lead to lose the aid rights of the farmer; 3) To remove or adapt to the local needs the conditions for the pastures to be eligible for the aids. In Spain as a Mediterranean region, livestock graze in hectares that in other UE areas are not considered as pastures; 4) To guarantee the enforcement of national legislation on the use of pastures and stubble. This legislation allows livestock breeders to benefit from the stubble. Policy institutions at the three regional levels should lead this initiative.	X	XXX	X

Improve the grazing planning and greater control	Together with satellite data the following actions are proposed to control the proper use of the pastures. 1) to improve the grazing planning at national level, 2) to check the territorial farming contracts; 3) to conduct field controls; and 4) to define penalty in case of fraud use of pasture hectares. Policy institutions at local and national level should lead this initiative.	X	X	
Improve forest planning a livestock grazing management	In Aragón, just the 8% of the state-owned mountains are under forest planning and livestock grazing management. The grazing of the local extensive livestock (mainly sheep and goat) should be the prior use of the state-owned lands, Policy institutions at local level should lead this initiative.	X		
Aids tailored to transhumance	The eco-schemes or agro-environmental measures could support the transhumance. Additional, the adaptation of sanitary legislation to the sheep sector could reduce the current and not clearly justified limitations of the sheep movements. Policy institutions at local and national level should lead this initiative.	X	X	

(*) Participants' votes on who should lead the corresponding policy actions

5.- Enabling new entrants

Policy actions	Reasons explaining the policy action	Regional level(*)		
		Local	National	EU
More in-depth research about the drivers of non-entry decisions.	There is a clear consensus about the need to get more insights about the needs and interests of the farmers of the future. Policy institutions at the three regional levels should lead this initiative.	XXXX	XXXX	XX
Broaden the entry support measures to more collectives, not just young people or farmers' successors.	There is a clear consensus about the need to attract more diverse groups of new entrants. Participants highlighted that this measure need to be accompanied by reinforced training on business plans and agricultural practices to ensure the success of the initiative. The opportunity cost of this kind of measures is too high as it implies the loss of a lot of public funds if the business initiatives fail. Policy institutions at local and national levels should lead this initiative.	XXXX	XXXXX	
Weaken the requirements to receive the young farmers' support aid.	There was an intense debate around this policy action. Some participants explained that currently it is required one full time equivalents (FTE) to be eligible for this support. They propose to low this requirement and allow farmer to entry in the sector at part time, i.e. consider pluri-activity to be eligible for new entrants' aid. The FTE could be reduced in a proportion even though it could become to a riskier situation as the new entrant will not be working just on farming. The part time could be difficult to define to ensure the viability of the new initiative. The part time could be defined	XXX	XXXXX	XX

	<p>just for a period while the farm generates enough funds to support 1 FTE. Part-time could better feet when the initiative is pursued by more than one farmer in joint projects, reinforcing cooperation among farmers (entry point). Other participants defended that the minimum of 1 FTE must maintain as it is key to ensure the viability of the farm. This is way to express the commitment of the farmer on the initiative. The farmer needs to develop a good business plan in which at least 1FTE leads the initiative.</p> <p>Policy institutions at the three regional levels should lead this initiative.</p>			
Facilitate access to required training to be eligible for new entrants' support.	<p>There is a great consensus about facilitating the access to on-line training. For example, potential farmers in remote rural areas struggle to participate in the face to face training. On-line training is needed not only by new entrants, but also by farmers during their whole professional life. This measure depends on the internet access in every rural and remote areas, which is still pending.</p> <p>Farmers training is a key issue for the sector. In Spain, more than 80% of the farmers count on just practical experience, the 16% have secondary education and just the 2% have university education. The extension services have to come back to the sector to support farmers by providing training and advice in social, economic, environmental and institutional issues. Additionally, it is proposed to support the figure of "apprentice" to facilitate new entrants gain experience.</p> <p>Policy institutions at the three regional levels should lead this initiative.</p>	XXXXX	XXXXX	XX
Measures to avoid the high rate of abandonment	<p>This policy action emerges from the fact that currently there is a high rate of abandonment after the five years of the business initiative. This period coincides with the minimum period required by the normative to not be asked to reimburse the aid perceived. The participants proposed the following actions: 1) greater support on improving and making more reliable the business plans supported by experts; 2) Create the figure of the mentors to accompany farmers and the school of shepherds; reinforce the cooperation among farmers.</p> <p>Additional action could be allowing new entrants to have pluri-activity during the launching period of the business to facilitate farmers time to stable the activity and get enough funds.</p> <p>Policy institutions at the three regional levels should lead this initiative.</p>	XXX	XXXX	X
Collect and share good practices on extensive farming among farmers.	<p>There is a great consensus about the relevance of collecting and sharing good practices.</p> <p>Policy institutions at the three regional levels should lead this initiative.</p>	XXXXX	XXXXX	XX

<p>Favoring pastures availability</p>	<p>One of the main barriers for new entrants is the limited access to pastures hectares. Currently, there are strict conditions to define the pastures hectares eligible for policy aids. Extensive sheep farmers need to maintain the full aids (by hectare)- not just part of the aids as some of the hectares are not eligible. If they do not receive the full aids the activity is not viable due the low profitability of the sector. One of the main actions to favor the availability of pastures is to remove the current conditions for the hectares to be eligible. Other measures to improve pastures availability are explained in the point 4. Policy institutions at local and national level should lead this initiative.</p>	<p>X</p>	<p>X</p>	
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(*) Participants' votes on who should lead the corresponding policy actions

6.- Revitalize rural areas

Policy actions	Reasons explaining the policy action	Regional level ^(*)		
		Local	National	EU
<p>Ensure internet access at national level.</p>	<p>The recommendation of providing internet access rural areas at national level is supported by all participants. Policy institutions at local and national level should lead this initiative.</p>	<p>XXXXXX</p>	<p>XXXXXX</p>	
<p>Improving associationism</p>	<p>By improving associationism, group of people (nor individuals) will be attracted to rural areas. It will allow farmers to share the intense labor force and enjoy the leisure time. Rural areas services must cover the needs of diverse people profiles (age/sex/leisure preferences, etc.). Actions to reinforce corporativism are exposed in the point 3. Policy institutions at the three regional level should lead this initiative.</p>	<p>XXXX</p>	<p>XXXX</p>	<p>XXX</p>
<p>Fiscal incentives (tax benefits) for business and cooperatives to create jobs in rural areas.</p>	<p>Benefits on taxes on income (personal) and profits (institutions) could enhance:1) The installment of companies in rural to create rural jobs; and 2) companies to create work-home positions for people who want to move to the rural areas. People living in rural areas will trigger the provision of new services and creation of new works. Policy institutions at local and national level should lead this initiative.</p>	<p>XX</p>	<p>XX</p>	
<p>Ensuring public services and infrastructures in rural areas at national level.</p>	<p>There is a consensus about that the availability of social services (education, sanitation, transport, etc.) and infrastructures is the basis to maintain population in the rural areas. Policy institutions at local and national level should lead this initiative.</p>	<p>XX</p>	<p>XX</p>	

Improved rural mobility and cooperation	Measures to improve the connectiveness between villages with different sizes and services that will boost cooperation projects among villages to create new opportunities. Policy institutions at local and national levels should lead this initiative.	X	X	
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(*) Participants' votes on who should lead the corresponding policy actions

7.- Reinforce internacionalization.

Policy actions	Reasons explaining the policy action	Regional level (*)		
		Local	National	EU
Improve international trade agreements	Some of the participants propose to boost trade agreements with third countries, mainly those with high lamb meat consumption (Arab countries) or increasing per capita income (African countries). Some others defend to reinforce the orientation to the national market. Policy institutions at national and EU level should lead this initiative.		XXXXX	XXX
New agreements on sanitary legislations and quality control	There was little consensus in the policy actions towards exploring new agreements on sanitary legislation in trade agreements. Some of the participants argued that restrictive sanitary certificates tend to limit trade agreements. Policy institutions at national and EU level should lead this initiative.		X	X
Support European quality certification.	Reinforce European quality certification to be more competitive in the global market. Policy institutions at national and EU level should lead this initiative.		X	X

(*) Participants' votes on who should lead the corresponding policy actions

3.3 Round 3: recommendations under two scenarios

3a: Scenario SSP3 (protectionist scenario)

Mostly all the recommendations cited previously will be sufficient to maintain its contribution to resilience capacities as the main market of the Spanish production is the EU countries. In both scenarios, recommendations towards improving natural resources management and the provision of public goods need to be reinforced.

Protectionist scenario could positively impact on extensive sheep farming as the intensive farming could reduce its pressure (on prices and costs).

3b: Scenario SSP5 (neoliberal scenario)

Under neoliberal scenarios, together with agricultural policy additional measures would be needed such as “new green fiscality” and “the socially responsible public purchases” and “valuing the short channels with quality seals”. Measures towards a new agri-food system where producers and consumers gain relevance and the industry and distribution share benefits and risk with producers. Additional measures should be the development of the land banks under agroecological criteria (Red Terrae) and territorial contracts to recover disused areas, favor the incorporation of new entrants, to reduce the bureaucratic burden and move towards a public system that will reimburse the provision of public goods. All these measures must be accompanied by a firm commitment against deforestation. All this must be accompanied by an adequate system of evaluation and monitoring.

Liberalization is accompanied by different rules for different countries regarding sanitary legislations concerning the quality of the products (sheep meat). Local producers must meet more strict rules to export meat than that of who export products to the EU. Sanitary certifications are usually issued by private companies in the third countries. New recommendations claim to defend EU production mode among third countries together with the recent proposal to limit the certification of the imported product to EU sanitary certification companies (European Parliament regulation (EU) 2017/625).

4 Discussion and methodological limitations

The workshop was very dynamic and well-conducted. Before the first-round debate, the moderator explained the resilience framework, resilience capacities and the previous results from the CS research and allowed participants to share their comments and questions. This first step allows nearing the attendees to resilience approach, generating a climate of confidence for the further discussions and clearly setting the of the workshop focus.

The profile of the participants shared the common characteristic of deep knowledge and experience on policy issues and sheep extensive farming. Despite, the opinions were very dispersing as they were representing different point of views in agricultural systems: farmers' associations, cooperatives, environmental, NGOs, Ministry of agriculture and research. These diverse participants' perspectives and opinions enrich the discussions and enhance the ideas generation. At the same time, it hinders to reach consensus and clear conclusions about the main policy recommendations to enhance resilience and the regional level they should be conducted.

To facilitate the discussion policy recommendations to enhance resilience capacities a simple and interactive activity with post-its and posters was defined to allow participants directly relate the policy recommendations to the three resilience capacities. This activity provides interesting and clear insights on policy recommendations and resilience.

The main limitation refers to the scenarios' discussion. The selected scenarios do not clearly adapt to the future scenarios affecting the extensive sheep sector. The research team adapted the proposed scenarios to the extensive sheep sector challenges to facilitate the discussion during the workshop. The conditions stressed under the scenarios were trade barriers, meat consumption, local vs international products consumption, meat prices, land availability, work force availability, coordination and bargaining power throughout the value chain. Despite, participants were not able to provide clear ideas on new recommendations under the scenarios.

5 Conclusions by the research team

5.1 CAP recommendations

Participants in the workshop proposed very interesting recommendations of the CAP post 2020. The concrete recommendations are defined around six main course of actions: strengthening cooperation, basic payments tailored to extensive farming needs, fostering innovation, enabling the access to new entrants, supporting knowledge exchange, training and awareness about extensive livestock farming, valuing the extensive livestock farming, increasing pastures availability, revitalizing rural communities and supporting commercialization.

The proposed policy proposals enhance resilience mainly by enhancing robustness and adaptability and to a lower extent transformability. The robustness enhancing policy recommendation are improved the coupled and basic payments schemes, supporting extensive farming products commercialization, valuing the extensive farming and its positive contribution to environment, health and rural areas. The adaptability capacity enhancing recommendations are fostering innovation, supporting knowledge exchange and training, strengthening cooperation, increasing the pastures areas and enabling the access to new entrants. Finally, the



recommendation referred to revitalizing rural communities clearly emerges as one of the main actions to strengthen the transformability capacity of the farming systems.

Regarding the robustness enhancing policy recommendations many ideas emerge to implement at EU and national level. Those with the greatest support by participants are the definition of **eco-schemes** to value the provisions of public goods, the **clear definition of the extensive farming and value the shepherds and the shepherding (territorial farming contracts)**. Negotiate trade agreements and sanitary legislation with third countries at EU level also emerged from the discussions, though the level of consensus among participants was low.

The main adaptability capacity enhancing EU policy actions are improving the new entrants access, cooperation and innovation. Related to the former, more **in depth research in non-entry reasons, weaken the requirements** of new entrants to be eligible for aids, ease the access to **training programs**, define measures to **avoid the high rate of abandonment** (improved business plans, ongoing advise, internships in farms) and **collect good practices** are the actions with greatest consensus among the experts. Regarding cooperation proposals, new measures need to be defined at EU and national level to **boost the cooperation in production processes** to allow farmers to improve their profitability and reduce their workload. Currently, the effort is mainly focus on cooperation towards commercialization instead of production. Furthermore, this measure needs to consider not only **cooperation** among between farmers but also among **different actors in the farming system**. **Foster innovation** applied to improve pastures management and animal handling, to enhance farmers cooperation and boost training and knowledge transfer is also proposed unanimously as an action to be led at EU level.

The main enhancing transformability action is revitalizing the rural areas. Most of the concrete actions are defined at local and national level, except the **reinforcement of cooperation** between farmers and other actors in the sector and its positive impact on the attractiveness of the rural areas. Others policy actions also contribute to transformability such as the proposed proposals on innovation, new entrants' access and trade agreements.

5.2 Reflection on impact of the scenarios

Neo-liberal scenario is considered more challenging scenario for the resilience of the sheep extensive farming than the protectionism one. Comparing the scenarios, under the neo-liberal scenario arouses additional policy recommendations towards improving natural resources management, the provision of public goods, improving the land availability, trade agreements and sanitary legislation. No new relevant recommendation emerged related to the protectionism scenario.

5.3 Lessons learned

The policy debate is very intense with a very different and in occasion opposing well-informed perspectives. This implies a challenging task as it is more difficult to reach consensus and clear conclusions. Even so, many interesting opportunities to improve the resilience of the extensive farming systems emerged from the debate during the workshop. Most of the ideas are tailored to enhance robustness and adaptability capacity. This may be explained by the fact that participants are not used to think of transformability. This result calls to **pursue research actions towards assessing the transformability opportunities and their policy support.**

Policy actions are needed at the three regional levels simultaneously. **The design of resilience enabling policies requires the engagement of multiple actors at multiple region levels.** The results show how one of the main recommendations to enhance the resilience of the extensive farming system is to improve the management of the pastures and to adapt payments to the extensive farming needs. These actions mainly lie at local /national level. Additionally, other suggestions refer to actions at national and EU level such as fostering innovation, cooperation among different actors and cooperation in production activities among farmers, and in-depth research defining and valuing the extensive farming.



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