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in

Napoléone M. (ed.), Ben Salem H. (ed.), Boutonnet J.P. (ed.), López-Francos A. (ed.), Gabiña D. (ed.).

The value chains of Mediterranean sheep and goat products. Organisation of the industry, marketing strategies, feeding and production systems

Zaragoza : CIHEAM

Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 115

2016

pages 181-185

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=00007273>

To cite this article / Pour citer cet article

Lauvie A., Hadjipavlou G., Araba A., Casabianca F., Ligda C. **The interactions between product valorisation and genetic management: Applying a common framework to analyze four cases of sheep and goat local breeds in the Mediterranean area.** In : Napoléone M. (ed.), Ben Salem H. (ed.), Boutonnet J.P. (ed.), López-Francos A. (ed.), Gabiña D. (ed.). *The value chains of Mediterranean sheep and goat products. Organisation of the industry, marketing strategies, feeding and production systems.* Zaragoza : CIHEAM, 2016. p. 181-185 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 115)



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The interactions between product valorisation and genetic management: Applying a common framework to analyze four cases of sheep and goat local breeds in the Mediterranean area

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Abstract. In the Domestic project, funded within the ARIMNet framework, we have conducted an analysis of four case studies of valorisation of products from local sheep and/or goat breeds in Cyprus, France (Corsican region), Greece (Ipeiros region) and Morocco. For each case, data were collected from experts concerning the collective organization of both local breed management and product valorisation. These data were analysed using the same framework, which was built aiming to take into account the animal population dynamics, the breed' products, and the stakeholder dynamics. The crossed analysis of the cases underlines the diversity of stakes for product valorisation that depends on the breed status and the type of product. We also investigated the importance of the degree of formalization of the link between the breed and the product (through a geographical indication for instance), and we concluded with a comparison of the organizational and social aspects of the interactions between local breed management and product valorisation in the four cases.

Keywords. Local breeds – Geographical indications – Sheep and goat.

Les interactions entre la valorisation des produits et la gestion génétique : Application d'un cadre commun pour analyser quatre cas de races locales ovines et caprines dans la région méditerranéenne

Résumé. Au sein du projet Domestic, financé dans le cadre d'ARIMNet, nous avons mené une analyse de quatre cas d'étude de valorisation des produits de races locales ovines et/ou caprines à Chypre, en France (région Corse), en Grèce (région d'Ipeiros) et au Maroc. Pour chaque cas, des données ont été collectées auprès d'experts concernant l'organisation collective de la gestion des races locales et de la valorisation des produits. Ces données ont été analysées en utilisant le même cadre, qui avait été construit afin de prendre en compte de la dynamique de la population animale, des produits des races, et de la dynamique des parties prenantes. L'analyse transversale des cas souligne la diversité des enjeux pour la valorisation des produits qui dépend du statut de la race et du type de produit. Nous avons également étudié l'importance du degré de formalisation du lien entre la race et le produit (à travers une indication géographique par exemple), et nous concluons sur une comparaison des aspects organisationnels et sociaux des interactions entre gestion de races locales et valorisation des produits dans les quatre cas.

Mots-clés. Races locales – Indications géographiques – Ovins et caprins.

I – Introduction

The design of appropriate strategies for adding value to local breeds and thereby ensuring viable future for them has been a major concern for development agencies, breeders' associations and individual breeders. Several examples show that there are different strategies towards breed's val-

orization, which should reflect the real situation of a breed, involving the production system and other relevant factors (Ligda and Casabianca, 2013). The food product valorisation dynamics are often underlined as good means to conserve and develop local breeds. However, the management of local breeds is a complex issue that involves a range of different stakeholders with diverse economic, social, environmental and technical objectives. In addition, the dynamics of the interactions between product valorisation and local breed conservation are complex and can be either synergistic or lead to tensions.

In the Mediterranean area, sheep and goat production is of utmost importance and is based both on local and commercial breeds. Local breeds are often presented as well-adapted breeds even if this adaptation is rarely characterized. In a context of increasing uncertainties due to global changes in the Mediterranean area, local breeds can represent an important lever in farming systems. Consequently, for all local breeds both with high and low population size (rare breeds), the question of their valorisation is important.

II – Materials and methods

The Domestic project, funded within the ARIMNet framework, studied the valorization of local sheep and goat breeds in four countries of the Mediterranean area: Cyprus, Greece (Ipeiros), Morocco and France (Corsica). The objective was to identify practices and rules implemented by farmers and other stakeholders, and also the interactions between product valorization and breed management. For each case, we have collected, through personal interviews of farmers using a specially designed questionnaire, data on farming system characteristics. Those data were supplemented with information collected from the research team or other experts in the area on the collective organization of both local breed management and product valorization, using a suitable framework developed for all cases. This table registered the different stakeholders, their role, the interaction between stakeholders, the main tools used (for instance, a genetic selection scheme for a breed, and /or a label or PDO for a product), and the main steps identified in the collective action.

A map was developed in each case, mapping stakeholders and their roles and interactions, but also the possible tensions between stakeholders or in certain areas absence of collective action (i.e. collective management of local breeds) and their add value process.

Then using a bibliographical study and outcomes from a previous project a shared framework was built to identify the interactions between product valorization and breed management. This framework was built in order to take into account the animal population dynamics, the breed products, and the stakeholder interactions.

III – Results

1. The shared framework

The shared framework is organized in categories that were identified as important aspects and stakes of interactions between breed management and product valorisation, as described in the literature (Verrier, 1998, Audiot *et al.*, 2005, Mathias *et al.*, 2010, Lambert-Derkimba *et al.*, 2011, Lauvie *et al.*, 2011). For each category, a question was formulated generic enough to be relevant for each case study. All the questions were addressed by the project partners in all cases.

The categories and questions are mentioned in Box 1 below.

Box 1: Categories and questions of the shared framework

Animal population dynamics:

- How have the animal population numbers evolved?
- Are there subpopulations involved in different value-adding projects?
- Is the intra-breed diversity managed?
- Has the value-adding project brought new selection criteria? Or has it modified the hierarchy among selection criteria?
- Has the value-adding project induced new geographical dynamics on the animal population?
- How is the access to genetic resources managed? Has the value-adding project changed this access?

Products from the breed:

- Do the products valorised bring new expectancies for the breed (performance, ability, seasonality of production, other)?
- Are the products exclusively produced from the breed? How is the link formalized? What are the other characteristics of the production process that can have a consequence on the breed (geographical location etc.)?

Stakeholders:

- Has the value-adding project attracted new stakeholders?
- Are the stakeholders who manage the breed and the product the same ones? What are the links between them, if they are not the same?
- Are there tensions between stakeholders due to these dynamics?

2. The crossed analysis

The crossed analysis has highlighted three aspects that had major impact on the interaction between breed management and product valorisation: The first one is the formalization of the link between the breed and the product, the second one is the diversity of stakes expressed, itself depending on the breed status and the type of product, and the third one concerns the organizational and social aspects of the interactions between local breed management and product valorisation.

The study in the four cases showed that when a specific project to add value to the food product is established and when this project specifies the breeds in the specifications, it is a geographical indication (PDO or PGI). However, in all the situations studied, the connections between a breed and a product are quite weak. Indeed in the PDO or PDO projects in Ipeiros and Cyprus, several breeds are allowed; as a consequence, the dynamics of the product don't or won't have consequences on a single breed. In Cyprus, in the PDO project for the Halloumi cheese, only the local breeds should be allowed, which limits the use of certain exotic commercial breeds. However, a diversity of breeds are covered in the PDO (from commercial breeds considered as locally-adapted because they were selected in Cyprus for a long time, all the way to rare breeds).

In Corsica or Morocco, the GIs or GI projects are specifically linked to a single breed. However, it is difficult to analyse a consequence of such a link since in Morocco, the GI are not effective yet on the field, whereas in Corsica, only one breed of sheep is, almost exclusively, raised in the whole territory.

The study of the four cases also showed that the stakes are very diverse in the valorisation projects across cases. In two situations, the product is associated through a GI to a single breed (in Morocco and Corsica), however the effectiveness of such a link can't be analysed because of the situations mentioned earlier. In Cyprus and Greece, on the contrary, several breeds are concerned by the GIs or GI project (most of the time PDOs), some of them being local, and a few among those being rare. The stake of a product valorisation is not the same for a local breed with quite an important population number and a rare breed. However the fact that the GI specifications don't distinguish between these types of breeds limits the motivation to raise a rare breed (as it is not mandatory to get the GI).

Few tensions were observed directly linked to the local breed valorisation in our case studies, however the question of the social organization is crucial in every case. When local breed management and product valorisation are extensively institutionalized projects at a national scale, we meet difficulties for the local stakeholders to get involved in those projects. The collective organization that is present in the debate for GI projects can go through a process of legitimating themselves, and sometimes their magnitude in terms of size, degree of unity etc. can have a strong influence on the orientation of the specification. Several stakeholders with different viewpoints on what is the relevant product to develop can confront each other in the GI projects. When, for a large proportion of farmers, the product processing depends on a single big structure, changes in organization, status and/or practices of this structure can have global consequences on the sector.

IV – Discussion and conclusions

It has been shown in the cases studied, that the links between breeds and products are sometimes formalized, but there are few interactions between the dynamics of breed management and the dynamics of product valorization. If these findings are compared, for instance, with the situations studied by Lambert-Derkimba (2007) in the Northern Alps, the PDOs concerning cattle cheese products in this area created strong links between breeds and products. In our case studies, several reasons were identified that could explain the small number of links between breeds and products: the GI initiative may have been taken at an institutional level, multiple breeds were mentioned in the specification, that a single breed was present in the territory etc. However, these findings need further investigation, in order to identify whether links are made in more informal ways between the breeds, the farming systems and the products. Actually, there could be interactions, through dynamics, not linked to the GI, which would be more difficult to identify, since they would be subtle and less formalized. Finally, under the hypothesis that local breeds in the Mediterranean area, will increasingly be affected by the stake of adaptation to the evolving farming systems, it can be expected that, as a consequence, the relevant stakeholders may put more emphasis on that stake.

Acknowledgments

This study was funded as part of the ARIMNET Domestic project.

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