

The value chain of Siroua Moroccan woolly sheep

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Abstract. With a total of 263,000 heads, the Siroua woolly sheep is a breed that encompasses two variants, the “Blanche de Montagne” and “Noire de Siroua”, and has an important economic and social role for a large number of families in the High and the Anti-Atlas Mountains in Morocco. Due to its small size, this breed has received very little attention as one of Moroccan standard breeds. Recently, the Siroua woolly sheep is attracting increasing attention of the Ministry of agriculture, NGOs, and researchers. In the present study, the value chain of this breed is explored through the description of the breed, its production (meat and wool), the carpet production and the marketing. Analyses on meat and wool productions were based on surveys targeting stakeholders, technicians, herders, shepherds and carpet cooperatives. The results showed that for a long time the breed was appreciated mainly for its high-quality wool production characterized by long fibre, which makes it unique in Morocco. For example, the pricy and the famous “carpets of Taznakhte” are made of Siroua’s wool. This typical carpet was facing problems, related to market competition, that have recently been partially resolved thanks to the efforts of some cooperatives. Regarding meat production, it is worth noting that the small size of the Siroua sheep limits its competitiveness with other Moroccan breeds. Based on the local knowledge, the breed has a typical meat produced on a large list of aromatic plant pastures. Currently, new concepts such as, but not limited to, label, diversity, and conservation revive the breed and boost studies towards meat quality. Globally, through giving particular attention to herders and shepherds the two variants of Siroua breed offer significant opportunities for the production of both meat and wool.

Keywords. Blanche de montagne – Noire de Siroua – Wool – Taznakhte’s carpet – Meat.

La chaîne de valeur de la race ovine marocaine lainière de Siroua

Résumé. Avec un total de 263 000 têtes, la race lainière Siroua, avec ses deux variantes “Blanche de montagne” et “Noire de Siroua”, joue un rôle économique et social important pour un grand nombre de familles du Haut et de l’Anti-Atlas du Maroc. En raison de sa petite taille, cette race a été pour longtemps ignorée des listes des races standards marocaines. Récemment, elle attire de plus en plus l’attention du ministère, des ONGs et des chercheurs. Dans la présente étude, la chaîne de valeur de cette race est explorée à travers la description de la race, sa production (viande et laine), la production de tapis et la commercialisation. L’analyse des productions de laine et de viande a été basée sur une enquête ciblant les décideurs, les techniciens, les éleveurs, les bergers et les coopératives de tapis. Les résultats ont montré que la race a longtemps été considérée principalement pour sa production de laine. Il est connu pour produire une laine de meilleure qualité présentant surtout une longue mèche l’identifiant comme unique au Maroc. Le prix de la laine Siroua est élevé et elle est à la base du fameux “tapis de Taznakhte”. Ce dernier a confronté des problèmes, de marché et de concurrence, qui ont été partiellement surmontés grâce aux efforts de certaines coopératives. Concernant la production de viande, la petite taille de la race Siroua l’empêche d’être compétitive par rapports autres races marocaines. Sur la base des connaissances locales, la race produit une viande typique basée sur une grande liste de plantes pâturées. Aujourd’hui, de nouveaux concepts (label, diversité, conservation) font revivre la race et poussent les études vers la qualité de la viande, entre autres. Pour conclure, la race Siroua avec ses deux variantes doit être considérée pour la production de viande et de laine avec une attention particulière aux éleveurs et aux bergers.

Mots-clés. Blanche de montagne – Noire de Siroua – Laine – Tapis de Taznakhte – Viande.

I – Introduction

The Siroua has been described as a Moroccan sheep breed that includes two variants the white (*Blanche de Montagne*) and the black (*Noire de Siroua* about 50,000 heads) variants (Ezzahiri, 1981a). Due to its small size (weight < 40 kg) it has long been ignored in Moroccan sheep programs. This is because, as compared to other mountains in Morocco, the Siroua Mountain attracted less attention for such studies which severely affected investigations on the sheep (Birouk, 2009). To increase productivity, the Siroua breed was crossed with Timahdit rams (Ezzahiri, 1981b). At that time, enhancing productivity was dominating the livestock strategies. From 2006, the Siroua breed regained its place among other Moroccan sheep thanks to many national and international initiatives. Recently in 2010 and 2015, the white and black variants were registered in the official book of ANOC (National Association of sheep and goat) respectively. Breed production and growth performances have been characterized mainly for its exceptional wool quality, the Siroua breed is one of the pillars of artisanal products (carpets of Taznakhte or Ait Ouaouzquit). Additionally, both black and white variants are known for their meat with special good taste due primarily to natural grazing. Nonetheless, data on the Siroua breed remains limited and confined to some technical reference documents. In the present study, the value chain of this breed is explored.

II – Materials and methods

The study was carried out in different sites from Ouarzazate-Province in the Southeastern Morocco (Iznaguen; Askaoun; Taznaght, Ouarzazate and Sidi Hsain). Analyses of wool and meat productions were based on surveys targeting stakeholders in regional departments of the ministry of agriculture (ORMVAO, ONSSA), technicians of the ANOC, herders, shepherds and carpet cooperatives. Two workshops were organized and individual surveys were achieved to collect the data used in the analyses. The analysis of literature review, the survey tools, were using a checklist on production of meat and wool, marketing and consumption of Siroua breed. More precisely, a structured questionnaire focused on the main aspects of small ruminant's production, husbandry practices, processing, marketing, consumption and products perception was prepared. A total of 40 households owning flocks were randomly selected among ANOC and non ANOC farmers for survey.

III – From Siroua sheep to Taznakhte carpets

1. Siroua sheep characteristics

Siroua sheep constitutes with Saghro sheep the two main sheep populations bred in a rangeland-based system in the studied area, with a total census of 600,000 heads (Ezzahiri, 1983). The Siroua sheep is highly adapted to its harsh environment. It is a small sized animal with a body length varying from 60 to 70 cm and a rump height varying from 55 to 65 cm. The body weight is 25-40 kg for rams and 20-30 kg for ewes (Ezzahiri, 1981a). Despite improvement and selection programs carried out by ANOC, the body measurements recorded recently by Jannoune and Fagouri (2011) and Kandoussi (2017) did not seem to be different from those previously reported by Ezzahiri (1981a). Interviews with different stakeholders confirmed the social and economic of Siroua sheep roles. In fact, the breed contributes largely to farm's income through the sale of various animal parts and byproducts (manure, wool, carpets, etc.).

2. Siroua sheep wool

The Siroua wool is either uniformly white or uniformly black or a mixture, with dense fleece covering the head and the whole body allowing good protection outdoors in both winter and summer. Key wool characteristics include: fibre diameter, fibre diameter coefficient of variation, comfort factor, fibre cur-

vature, spinning fineness, staple length, staple strength, and clean fleece yield. All these characteristics are not yet established for Siroua sheep wool until now. The totally black or white wool represents about 25% each from the total production while the mixture represents the remaining 50%. The greasy fleece weight varies from 1.5 to 4 kg (Ezzahiri, 1981a; Jannoune et Fagouri, 2011). The length of its fibre varies with body parts. It reaches 15 cm at the back level, 22 cm at the thighs and pelvis and 28 cm around the neck (Jannoune and Fagouri, 2012). According to the same authors, it can also be sex dependent. The length of white wool is about 19.69 ± 1.93 cm in males and 11.93 ± 2.21 cm in females. Ezzahiri (1981a) highlighted that Siroua wool price overcome all Moroccan sheep wool about 30%. Black wool is especially more expensive as it is preferred to white wool because it offers more possibilities for greater colour combinations. Presently, Black greasy fleece costs 25 to 35 DH/kg, while the white wools only 10 to 15 DH/kg, and becomes as cheaper as 5-7.5 DH when it is a mixture. Wool could be classified as “alive” or “death”. The former, is collected after shaving live animals or from the body parts that are exposed to the sun. The latter is collected from slaughtered animals or from the down body that is not exposed to the sun. “Death wool” and down body wool do not retain well the dye and are not appreciated by weavers. Based on our surveys, the farmers declared that wool colour changes according to latitude. In highlands wool is brighter. The wool of Siroua is used to produce many artisanal items, especially the well-known Taznakhte carpet.

3. The Taznakhte carpet

Taznakhte or Ouazquite carpet is very famous in Morocco and well-known among tourists who have visited and subsequently promoted significantly the image of the region at the international level. The Taznakhte carpet has been known historically since late 1800s and early 1900s. During this period, attempts were made to modernize its patterns, colour, etc. Currently, Taznakhte carpet has a very high density of nodes showing about 500,000 per square meter achieved in 9 months. For generations, women have been making carpets with characteristics and patterns that are specific to the region. In bright colours and different sizes, the Taznakhte carpets are the models of paintings made by skilful hands. It is full of signs and geometric shapes. There are, for example, squares, triangles, circles and symbols of *Tifinagh* that express the Amazigh identity. Animal figures, birds, camels and lamps can also be a part of Taznakhte carpet. The variety of signs is linked to everyday women's life. When talking about their carpets, all of the surveyed persons used expressions as if they were talking about humans. They used expressions like “*Tapis heureux*” or “*Tapis triste*” implying that this is a real artwork. Choice of colors is of great interest and mainly based on warm ones such as orange, yellow and red. Chemical dyes give opportunities to multiply colours. However, women still use local methods to dye wool. Flowers, leaves, fruits, sun-dried insects are used. Besides, madder roots cochineals, purple, poppy, henna, walnut, pomegranate and apple bark, alone or in mixture, allow performing a variety of colours. Tea, saffron, Daphne, petals of broom and mimosa allow to enrich shades of bright yellow and pastel. Ochre is used in dyeing carpets as well.

According to cooperatives survey, the carpet artwork is an ancestral activity, the mother and all other women members of the family hold this knowledge and transmit it to their daughters. Women are organized in groups to work together or alone with their daughters. Weaving skills is even one of the criteria that highlight the talents of a new wife at the regional level. Through carpet work women express their emotions and have a moment to escape housework.

IV – Siroua carpet market

Marketing is rarely attributed to the weavers. It is a task of men or cooperatives. Women who work from home delegate marketing to cooperatives. The carpet of Taznakhte suffers from imitations and deficient marketing. A good quality carpet of 1.5x2.5 m requires 2-month work done by three women can be sold at 2,500 DH. A carpet of 4 m² for example requires 3-month work; it can be sold at about

1,500 DH if ordered while the price will drastically be reduced to 300-500 DH when sold in a local market. In general, the price depends on the quality of wool, patterns, and softness. Currently, four women's cooperatives are in contract with the Wool Collection Center managed by ANOC. Some weavers benefit from capacity building on designs, and how to deal with crude material from grassy wool to a carpet. They also learned how to valorize and diversify their products. About 22,000 women in Ouarzazate province are working on carpets. Today, carpet weaving in Taznakhte has become a means of social development. It is especially a source of complementary income for families. Besides, the yearly Taznakhte carpet festival is opening other market doors for this product.

V – Siroua breed meat

Based on their body weight (17-24 kg for ewes and 23 to 40 kg for rams), Siroua breed carcasses are very light. A carcass monitoring in Tazenakhte and Askaoune slaughterhouses revealed their light weight varying from 12 to 20 kg depending on age and fattening quality (Ezzahiri, 1981a). The surveyed persons indicated that meat quality is the consequence of feeding management based on grazing in good quality pastures in Ouarzazate province. According to Birouk (2009), the low altitudes of Siroua's mountains are dominated by white wormwood (*Artemisia herba alba*) and the slopes are mostly covered by red juniper (*Juniperus phoenicea*). On the high slopes (between 2,500 and 3,300 m altitude), the vegetation is of xerophytic type (*Erinacea anthyllis*, *Alyssum spinosum*, *Bupleurum spinosum*, *Astragalus ibrahimianus*) rich in species with high pastoral and ecological value (*Festuca rubra*, *Poa bulbosa*, *Nardus stricta*). Feeding on this wide range of plants contribute significantly to the Siroua sheep its typicity. However, despite its dietetic and other distinctive assets, the Siroua's meat still does not have its share in the meat market. Recently consumers from large cities in Morocco have been showing a greater interest for it. To overcome this hurdle, research might be geared toward getting deeper insights into the benefits of the Siroua's meat and subsequently establish a labeling system for this product to be more market competitive.

VI – Conclusions

The characteristics of both variants of the Siroua sheep suggest that this breed is reared for the production of both meat and wool. The profitability of Siroua rearing projects should be estimated based on its productivity in terms of these two main products. Further studies need to be undertaken to establish the "typicity" of meat. Laboratory tests need to be implemented to track down the origin of wool used in Taznakhte carpet. Healthy and well managed animals, produce good quality wool. However, the carpet value chain is not equitable towards farmers and shepherds. Carpet production activities need to be undertaken in the framework of more solidary value chain that benefits all actors for sustainable Siroua wool-made carpet production.

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