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# Recent developments in sheep breeding in Morocco: The crucial role of *Aïd El Adha* and its implications for the value chain of this activity

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**Abstract.** Recent developments in sheep breeding in demonstrate the significant decrease of mutton's contribution to the supply of meat to the population and the emergence of the *Aïd El Adha* as the main market opportunity for this activity. These findings induce that more interest should be devoted to the specific requirements of such a market for the whole sheep breeding activity as well as the value distribution throughout the operators of this supply chain. Moreover, because of the localization of sheep systems mainly in pastoral marginal areas, they contribute to crucial roles of job opportunities and wealth creation as well as the valorization of local resources, implying less regional disparities in the country. Altogether, it appears that more research/development means are needed to settle the conditions of sustainable sheep breeding chains in Morocco, in order to ensure a fair payment to all the operators.

**Keywords.** *Aïd El Adha* – Morocco – Pastoral areas – Sheep – Supply chain.

**Les évolutions récentes de l'élevage ovin au Maroc : Le rôle crucial de l'*Aïd El Adha* et ses implications pour la chaîne de valeur de cette activité**

**Résumé.** Les évolutions récentes de l'élevage ovin au Maroc démontrent le recul relatif marqué de cette viande dans les approvisionnements en produits carnés et l'émergence de la fête de l'*Aïd El Adha* comme opportunité de marché stratégique pour cette activité. Ces constats induisent la nécessité d'accorder davantage d'intérêt aux canons spécifiques véhiculés par le marché de l'*Aïd El Adha* pour l'élevage ovin ainsi que la répartition de la valeur entre les différents opérateurs actifs dans cette chaîne d'approvisionnement. En outre, du fait de la localisation des systèmes d'élevage ovin surtout dans des espaces pastoraux marginaux, ils y assument des rôles cruciaux de création d'emplois et de richesses ainsi que de valorisation des ressources locales qui contribuent à amoindrir les disparités régionales à l'échelle du pays. Aussi, davantage de moyens de recherche/développement sont-ils nécessaires pour asseoir les conditions de filières d'élevage ovin durables et pour rémunérer équitablement tous ceux qui s'y activent.

**Mots-clés.** *Aïd El Adha* – Chaîne d'approvisionnement – Espace pastoral – Maroc – Ovin.

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## I – Introduction

Marocco is mainly a semi arid to arid country located in the area. Water scarcity has already generated significant challenges to ensure the supply of food to the population, and the country has become a net importer: for example, more than 2.8 million tons of wheat in 2013, representing net expenses of 990 million US \$ (Office of Currency Change, 2013). In the field of animal products, has mainly encouraged poultry and dairy chains since the (Sraïri, 2011). The country presents a wide diversity of agricultural ecosystems: Atlantic plains, the Atlas mountainous zones, Mediterranean coasts, large scale irrigation schemes, oasis, etc. These have allowed the emergence of various endogenous sheep breeds: the Sardi and the Boujaad in the rain fed cereal areas of the Centre, the Béni Ahsen in the Northern Atlantic plains, the Timahdit in the Middle Atlas mountains, the Béni Guil in the Eastern arid plateaus and the prolific D'man in the Eastern and Southern oa-

sis. In addition, many local sheep populations adapted to harsh conditions still need to be precisely characterized. Sheep breeding in has recently faced significant changes, due to the socio economic evolutions of the country. The demographic expansion (from 1956 to 2014, the population has increased from 15.3 to 34.3 million) coupled to a marked urbanization trend has induced a shift in consumption habits. Moreover, it soon appeared that sheep productivity increases would not be suited for the satisfaction of the rapidly growing demand for animal products. Therefore, sheep breeding is adapting itself to a context in which its main product (i.e. meat) has become associated to festal events. The aim of this paper is to draw light on the recent evolutions that have affected sheep breeding in Morocco. It will therefore emphasize on the emergence of the *Aid El Adha* as the main market opportunity for this activity, implying a series of adaptation measures to fulfill the needs for this specific occasion. Finally, the paper will try to discuss the perspectives of sheep breeding in Morocco, given the ongoing social and economic evolutions.

## II – The evolutions of the context of sheep breeding in Morocco

The animal wealth has traditionally assumed various vital roles in Morocco: control of rangeland territories, supply of products like meat, milk, wool, leather and hides, etc. In fact, as a human society which used to have a strong tribal structure, livestock has always represented a privileged way of using natural resources and administering large pastoral areas. During the colonisation era, animal products such as mutton and leather were intensively coveted by the occupying forces. The country is also the cradle of the Merino sheep breed, which was originally exported to neighbouring during the Merinids' dynasty, in power from 1269 to 1465, as it has evolved to become a global producer of high quality wool (Flamant, 2002). At the end of the colonial episode (from 1912 to 1956), it became obvious that the rapid expansion of the human population coupled to its changing standards of living would constitute a real challenge to secure the supply of animal proteins. Sound policies devoted to livestock production had to be designed and implemented. These mainly meant the rapid emergence of poultry units and the implementation of intensive dairying in large scale irrigation schemes. Therefore, sheep breeding has become more located in pastoral areas, mainly characterized by an arid climate. Moreover, in such regions, a growing climate uncertainty constitutes a threat to the profitability and sustainability of sheep systems. Although the productive traits of the vast majority of endogenous sheep breeds have been characterized in research stations, it appears that their actual performances in conventional farms still need to be assessed. The existing references emphasize the significant gap between potential meat production and the real performances achieved. As a consequence, mutton contribution has been relatively decreasing in comparison to the rapid growth of the consumption of meat from other species, particularly poultry, cattle and fish (Table 1).

**Table 1. Evolution of meat consumption (kg per capita and year) in (1969-2009)**

Year	1969	1979	1989	1999	2009
Sheep and goat meat (2)	4.6	3.6	5.2	5.1	4.9
Fish	2.0	6.9	5.6	6.5	8.7
Poultry	2.0	3.1	5.7	9.8	17.3
Cattle meat	6.2	5.4	6.4	4.8	6.4
All kind of meat (1)	13.1	12.4	18.3	19.3	25.0
(1)/(2) (%)	35.1	29.0	28.4	26.4	19.6

Adapted from FAOSTAT (2011).

In fact, sheep meat does not prove adapted to the urbanization trend affecting the Moroccan society, as meals have become taken individually outside home. Therefore, the traditional dishes with mutton (i.e. the *tajine*, mainly made of vegetables, olive oil and limited meat) are nowadays sel-

dom consumed and have been substituted by fast food preparations like pizzas, sandwiches, etc. These are not suited for the incorporation of sheep meat, as this product is too expensive. Moreover, many consumers have become arguing that sheep meat is cholesterol rich and some of them also declare that its taste is too strong. Altogether, such developments have reinforced the strategic role of festal occasions as the main market for the sheep breeding activity. In fact, the annual religious ceremony of *Aïd El Adha* is concentrating more than 50% of total sheep slaughtered annually. During this religious event, each adult Muslim should sacrifice a well conformed male lamb. Therefore, sheep farmers have to adapt themselves to this specific market. Purchases of sheep destined to this ceremony obey to strict religious precepts. In fact, a key element in families' choices is the exterior appearance of the lamb, which should show a well developed pair of horns. Therefore, all the strategies for the genetic improvement of sheep should take into account these requirements. This implies more interest to be attached to the standards of breeds, particularly by avoiding crossbreeding with hornless animals, as their products won't be accepted for that specific market. This is particularly obvious for the numerous crossbreeding programs which have been implemented by the use of the prolific trait of the D'man breed, but which may be useless to appeal consumers' choice as their products are often hornless as is the D'man breed.

### III – The perspectives of sheep breeding in Morocco

The previous remarks show that sheep production in Morocco is facing increasing challenges. On the one hand, it is progressively losing its “natural” status, as growing numbers of flocks rely on off farm feed resources, particularly imported cereal grains. This has also induced a growing animal load on rangeland resources, particularly in arid areas, which may precipitate their degradation. On another hand, sheep products' demand is falling, as it is not competitive anymore with poultry products, fish and beef. This trend is clearly illustrated by the projections of the demand of animal products by year 2025, which have been presented by the agricultural authorities (ADA, 2008). These figures clearly demonstrate that the *per capita* mutton's levels of consumption are expected to remain constant, at a time where most of the increases of the animal products should come from poultry, dairy products and also beef (Table 2).

**Table 2. Animal products' projected levels of consumption by year 2025 in Morocco**

Year	Consumption levels by year 2025 (by comparison to 2005)
Milk	Increase by 200 to 300%
Meat (all species)	Increase by 130%
Beef	Increase by 100%
Mutton and goat	Same level
Poultry	Increase by 150%

Adapted from ADA (2008).

Such evolutions have already been reported by previous research which has pointed out the significant changes impacting the whole sheep breeding activity in the North African countries (Alary and Boutonnet, 2005). Given the growing vulnerability induced by climate change and the demand for higher wages in the agricultural sector, the sheep breeding activity is facing acute challenges. It has to adapt itself to a specific market in which consumers' choices are more determined by strict religious precepts. Moreover, it has also to reach profitability with the constraint of climate hazards, which may hinder its sustainable growth. Downstream, the sheep breeding activity has to adapt to growing concerns by consumers about mutton taste and its cholesterol content. Therefore, mutton supply chains will have to make additional efforts to appeal to consumers' desire, by promoting good practices and exploring niche markets. Another significant point would be the implication of all the stake-

holders in sheep breeding supply chains, with the help of public authorities to try to define label qualities referring to specific production systems: breeds, territories, feed resources involved, human know-how, etc. This seems to be a major condition to enhance the image of sheep meat for a majority of consumers which may accept to pay for quality. In addition, such a condition may add value to quality sheep meat, particularly the one originating from pastoral areas and produced in organic breeding systems, contributing to a better reward to all the operators involved in the supply chain.

## IV – Conclusion

Sheep breeding has witnessed marked changes during the last five decades in Morocco. From an original situation where it represented the main meat consumed, it has become more associated to festal events, particularly the religious ceremony of *Aïd El Adha*. Such an evolution has meant that breeders have to adapt themselves to the needs implied by this status. In fact, at the occasion of this religious event, more than 50% of the sheep slaughtered annually are sacrificed. Moreover, the religious precepts specific to this ceremony impose that the animals should be with an apparent pair of horns. The breeders have become aware of such a shift in sheep market and try to adapt themselves. However, growing climate uncertainty is certainly affecting sheep breeding, as well as increasing demands for a better payment for the operators active in sheep breeding chains. Altogether, these evolutions affect the profitability and sustainability of sheep breeding activities. Given their importance, particularly for income generation in remote areas, sound policies have to be promoted. The encouragement of endogenous breed conservation to appeal to consumers' desire in festal events and the labeling of sheep products (mainly meat but also wool and leather) according to strict criteria (breed, territory, feed resources, craftsmanship, etc.) would be key interventions to establish a sustainable development of the sector. Such interventions have to gather all the stakeholders in the sheep breeding chains (from breeder associations to public authorities with the assistance of research institutions) in order to achieve a good governance of the sector's affairs. This has to be a high priority item on the agricultural authorities' agenda, given the importance of sheep breeding in the country's history and its implications on decreasing regional disparities.

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