Present situation and future perspectives for goat production systems in Spain

J.M. Castel, a,∗, F.A. Ruiz b, Y. Mena a, M. Sánchez-Rodríguez c

a Departamento de Ciencias Agroforestales, Escuela Ingeniería Técnica Agrícola, Universidad de Sevilla, Carretera de Utrera, km 1, 41013 Seville, Spain
b IFAPA Centro “Camino de Purchil”, Junta de Andalucía, Apdo 2027, Granada, Spain
c Departamento de Producción Animal, Universidad de Córdoba, Campus de Rabanales, 14014 Córdoba, Spain

ABSTRACT

This article presents the evolution, actual situation and prospects for goat production systems in Spain, taking into account the present day changes of socio-economic, technological and agricultural policies of the European Union (EU). Spain is ranked second in goat population and third in goat milk yield within the EU, nevertheless, similar to the situation in the EU, the goat production systems in Spain are in a critical situation, basically because of the increasing production costs and the lack of a strong central structure in this sector.

To improve viability of goat farms in Spain, which, for the most part play an important social and environmental role in the less-developed rural areas, it is necessary to establish a series of strategies. These strategies include: (i) strengthening of the central structure in the sector; (ii) improvement in the training and management capacity of goat farmers and cheese makers; (iii) enhancement of promotion and recognition of goat-related products; (iv) taking advantage of the opportunities offered by the new European Union Common Agricultural Policy; (v) improvement of farmers’ quality of life, so that they can maintain their goat operations for future generations; and (vi) increasing development and research activities in this sub-sector of livestock farming.

1. Introduction

Goats play an important socio-economic role in many marginal rural areas of the world. These animals adapt easily to intensive production systems, and convert their feed into highly nutritious milk and meat very efficiently. The objective of this article is to show the evolution, actual situation and prospects for goat production systems in Spain, taking into account the present socio-economic and technological changes, as well as the changes in the agricultural policy of the European Union (EU).

More than 95% of the goat population is found in developing countries (FAO, 2006). These herds provide food, hides and fibre for the inhabitants, making the economic survival of subsistence grazing systems possible (Morand-Fehr et al., 2004). Therefore milk, and above all the meat obtained from goatherds meet the nutritional needs of the rural population in developing countries, particularly in areas with rapidly increasing human populations (Boyazoglu et al., 2005; Devendra, 2007).

In developed countries goats provide the traditional foods for their population. In recent years goat breeders have developed a wide range of products with excellent nutritional qualities linked to natural and sustainable systems. Besides, goatherds play an important environmental role (e.g. forest fire control, weed control) as well as a sociological one (e.g. permanence of the population in their territory) (Morand-Fehr et al., 2004; Castel et al., 2007).
The EU has 1.6% of the world’s goat population, but it produces 13.2% of goat milk and 2.0% of goat meat generated in the world annually (FAO, 2006). During the last 10 years this census has diminished (2.5%), although in some countries, such as France and above all Spain, the number of goats has increased (3.4% and 8.8%, respectively). The highest-ranking countries for goat production in the EU are: Greece, Spain, France and Italy, with (5.4, 2.8, 1.2 and 0.9 million head, respectively) (FAO, 2006). In general, the EU goat herds are far more specialized in milk production than those in developing countries, especially in France, Greece and Spain, where annual goat milk production is 583, 511, and 423 million l, respectively, which comprises 83% of the total goat milk produced in the EU.

From the aforementioned countries, only France and Spain have increased their production in the last 10 years (23.5% and 15.8%, respectively, due to the high productivity of their goats (Boyazoglu et al., 2005), and in Spain in particular, due to improvements in farm management and technology (Castel et al., 2003; Mena et al., 2005)). However, in general, milk production in the EU has dropped in the past 10 years (4.8%) with greater decreases in France and Spain (12.2% and 19.4%, respectively), due to the growing demand for younger animals.

In the year 2000 a reform of the Common Agricultural Policy (CAP) for the EU was initiated. One of the changes involved a new way of providing financial aid. Previously, financial aid was given to farmers for each different type of agrarian production, but now financial aid is available for farms by considering their entire activities (decoupling aids). With this reform, assignment of financial aid is contingent upon farm practices leading toward environmental conservation, the welfare of animals and the production of safe food products (Rancourt et al., 2006; Castel et al., 2007). The consequences of these normative actions are difficult to anticipate for the goat sector, although there is a risk that many goat farmers may disappear, especially those working with indigenous stock. These farmers would probably abandon their operations in the event that the EU implemented mechanisms to complete this decoupling process (Canali, 2006). Another basic aspect for the goat sector is its structural organization for marketing. Regarding this issue, France is the only European country that has made adequate progress, thanks to the existence of various national and multi-industry organizations (Dubeuf et al., 2004).

### 2. Goat production systems in Spain

Most of the goat industry in Spain is oriented towards milk production, particularly in three regions: Andalusia, The Canary Islands, and Castilla La Mancha, where 71.1% of the milk goats in the country are concentrated (Spanish Ministry for Agriculture, Food and Fisheries, 2009). On the other hand, meat-producing herds are distributed throughout the central area of the country.

There is a wide diversity of ecosystems in Spain as well as different breeds of goat. According to the Spanish Ministry of the Environment and Rural and Marine Affairs there are 22 indigenous breeds in 2009. Due to this genotype diversity, goats cohabit in traditional systems of meat and meat–milk production with intensive milk production systems. Traditionally goat production systems were focused on producing goat kids for meat with a live weight of 20–40 kg after spring grazing, and cheese manufacturing at these farms during this season. However, in recent decades these systems have revolutionized as a consequence of a series of social and legislative changes. In the 1980s the demand for kid meat shifted in favour of 1-month-old suckling goat kids (8 kg live weight). Another reason for this change was the implementation of stricter health standards which hampered small-scale cheese manufacturing and marketing, therefore the majority of farmers opted for selling whole raw milk to the commercial cheese industry, instead of producing cheese themselves. A third aspect to consider is that, after the mid-1990s, prices of feedstuffs fell while the price of milk rose, which gave way to the beginning of intensive, specialized milk production systems, which had not previously been profitable (Sánchez et al., 1995).

As a consequence of this evolution, the traditional meat production systems are decreasing, and this activity has been taken over by hunting activities or other uses established by the CAP (rural tourism or natural environmental conservation). Likewise, dairy goat farms that depend mostly on grazing are also declining (Castel et al., 2003).

There is wide diversity among dairy goat farms, which are divided into two types of systems; those in which goats are permanently confined (PC systems) and those where goats are kept on pasture with different grazing times (G systems). Table 1 includes the results of the principal technical indicators taken from various monitoring stud-

### Table 1

Average yearly values of technical indicators of Spanish goat farms obtained from monthly monitoring.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Confined systems</th>
<th>Grazing systems</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>7&lt;sup&gt;a&lt;/sup&gt; (Sánchez et al., 2006)</td>
<td>8&lt;sup&gt;a&lt;/sup&gt; (Mena et al., 2005)</td>
</tr>
<tr>
<td>Breed</td>
<td>Murciano-Granadina</td>
<td>Malagueña</td>
</tr>
<tr>
<td>Goats presents</td>
<td>179</td>
<td>382</td>
</tr>
<tr>
<td>Grazing surface per goat (ha)</td>
<td>NA</td>
<td>0.31</td>
</tr>
<tr>
<td>Labour per 100 goats (YWU&lt;sup&gt;6&lt;/sup&gt;)</td>
<td>0.74</td>
<td>0.69</td>
</tr>
<tr>
<td>Concentrate per goat (kg)</td>
<td>343</td>
<td>392</td>
</tr>
<tr>
<td>Forage supply per goat (kg)</td>
<td>288</td>
<td>199</td>
</tr>
<tr>
<td>Milk produced per goat, per year</td>
<td>487</td>
<td>440</td>
</tr>
</tbody>
</table>

NA = not available.

<sup>a</sup> Farms studied.

<sup>b</sup> YWU, year worker unit.
ies carried out in two Spanish regions (Andalusia and the Canary Islands).

The G systems use indigenous goat breeds such as Murciano-Granadina, Malageña, Florida, Payoya, Palmera, Majorera and Tinerfeña. These goat production systems are predominant in Andalusia and the Canary Islands. Among the G systems there are farms on which goats graze year-round, especially in mountainous areas, and others on which goats graze only when forage is abundant (areas where goats cohabit with agriculture; Mena et al., 2005). Basically farmers take advantage of natural pastures, although they also use cultivated forage fields and agriculture residues. Goats are supplemented indoors, basically with concentrate and forage. In Payoya goat systems, the feeding cost is around 45% of the total annual cost (Mena et al., 2007). On many of these farms goat feeding is inappropriate as the farmers do not combine grazing and feed supplements adequately (Ruiz et al., 2008) and therefore are less sustainable than those who graze their goats regularly (Nahe et al., 2006). Yearly goat milk production is 300–5001 (Table 1), where more than half of the annual yield occurs between February and June (Sánchez et al., 2002). The income for marketing suckling goats is around 15–20% of the total income for each goat and year (Ruiz et al., 2008).

The PC systems is steadily increasing in Spain. In Andalusia, the principal goat-farming region in Spain, 42% of goats and 47% of farms operate under this production system (Andalusian Department of Agriculture and Fisheries, 2006). The most productive Spanish dairy goats such as the Murciano-Granadina, Malageña, Florida and Majorera are used on these farms and can express their maximum productivity in these systems. Milk production fluctuates between 400 and 8001 per goat per year, depending on the genetic merit of goats, management and facilities. Milk production in the PC systems present less variability throughout the year than the G systems. The income from sale of suckling goats represents little more than 10% of the total income per goat (Sánchez, 2008). Most of the goat milk produced in the PC and G systems is used for industrial-scale cheese-making, using goat milk or mixtures of goat, cow and/or sheep milk.

In some Spanish regions with little tradition of goat production, a few selected foreign breeds (Saanen and Alpine) have been introduced, but due to the lower fat and protein content in the milk of these breeds the market price is lower. There are some other problems that explain the failure of these initiatives, including the adaptation of these breeds to the environment of the Spanish farms, besides the farmers’ low level of experience. Because of this, and in contrast to sheep milk production, goat operations with indigenous Spanish dairy goat breeds are competing favourably with the introduced breeds and even expanding outside their own regions.

If we compare the Spanish goat production systems with other systems of the Mediterranean basin, there are important differences. Medium-size French farms have 231 goats and consume a higher quantity of feed than the Spanish goat production systems (with 441, 195, 238 kg/goat per year of concentrate, dehydrated forage and naturally dried forage, respectively) (Bossis et al., 2008). Also, their milk production is higher, with an average of 7951/goat per year, although with less fat and protein content than Spanish goat milk (Bossis et al., 2008; Sánchez, 2008). Accordingly, Usai et al. (2006) indicate that the goat systems of Sar- dinia, the principal region of goat milk production in Italy, are normally extensive or semi-extensive, with an average size herd of 224 goats, frequently combined with the Sarda breed of sheep, and are also less specialized than the goat production systems of Spain. In Morocco (Chentouf et al., 2010) the goat production systems constitute an additional contribution to the family economy; the average herd size is 31 goats with extra feed offered indoors (147 g of concentrate/goat and no forage) as well as a low milk production (1191/goat per year). However, in Morocco kid rearing is more important than in the aforementioned countries.

3. Diagnosis and strategies to improve the Spanish goat industry

In this section a diagnosis of the Spanish goat sector was carried out with information from various sources. Within the internal analysis of the goat production systems, the main strengths were: (i) the existence of well-adapted indigenous breeds, with a high milk and meat production potential (Castel et al., 2003); (ii) the presence of well-organized associations of producers who work in organising the goat sector (Sánchez, 2008); (iii) the family characteristics of the farms (Escuder et al., 2006); and (iv) new young farmers (Mena et al., 2005). As for the weaknesses, these were: (i) low education level of farmers and limited extension services (Navarro and Fernández, 2006); (ii) inadequate sanitary conditions (e.g. brucellosis, mastitis, etc.) (Oregui and Falagán, 2006); (iii) lack of organisation in the work force and low quality of life of farmers (Castel et al., 2007); and (iv) deficient structure of the sector especially in marketing (Dubeuf et al., 2004).

Within the external analysis of the Spanish goat industry, we can see clear opportunities due to the increasing demand for high-quality goat products and the recognition of goats as valuable tools for environmental stability (Morand-Fehr et al., 2004). Because of EU quality standards, certifications such as Protected Designation of Origin (PDOs) and Protected Geographic Indications (PGIs) have been implemented. Some of them have been granted to Spanish goat cheese, such as Palermo, cheese from Ibores, Murcia cheese, and Murcia cheese in wine. Furthermore, economic aid for the organisation and marketing of goat products has been increasing recently. However, some threats have also been observed in the external analysis, such as the increase in production costs (land, feed, energy and labour) and the possible strengthening of the oligopolies that control the milk market (Dubeuf et al., 2004).

Taking this analysis into account, some strategies for the sustainability of the goat sector in Spain may be positively influenced: (i) to improve the supportive structure by creating a goat multi-industry; (ii) to improve training and management capacity of goat farmers, with the support of private and public institutions; (iii) to increase the promotion and evaluation of goat products; (iv) to take advantage of the opportunities of the new CAP of the EU to reinforce
the goat sector; (v) to improve the quality of life of farmers and ensure the continuity of the family business; and (vi) to strengthen development and research in the goat sector as well as its participation in international projects.

4. Conclusions

Goat production systems have great socio-economic importance all over the world. In developing countries they offer food and basic products for humans. In many developed countries goats provide high-quality traditional foods which are increasing in demand. Also, in developed countries goats play an important environmental and sociological role, especially in unfavourable landscapes. In Spain, as in Europe in general, most goats are primarily utilized for milk production. At the same time pastures have lost importance as a source of food for goats. One of the major strengths of the Spanish goat industry is the generalized presence of indigenous breeds that show an acceptable productivity of high-quality milk. Although the goat sector experiences difficult moments from time to time, if the farms are appropriately managed, both pen-fed and grazing systems can be economically and environmentally viable. Increasing production costs and the steady strengthening of oligopolies are the main threats to goat milk production in Spain. The main actions to be considered in the Spanish goat sector are the improvement of the core structure, especially the marketing efficiency and the appraisal of goat products, as well as the organization that guarantees the stability of the goat industry.

References


