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Lamb feedlot production in Spain : Most relevant health issues

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ABSTRACT

The productive results in Spanish fattening lamb depend on the interaction of several factors such as management, husbandry, nutrition and health. This article highlights the main aspects related to the disease manifestation in fattening period and their effects on deaths and production results. Most of the information related here, has been collected during the daily clinical practice. The dynamic of the symptoms for coccidiosis and ovine respiratory complex (ORC) during this period is exposed and the association between them is established. ORC is the main cause of death in all situations during fattening period, although there are different clinical presentations that exhibit differences about the etiology. This pathology, closely related to situations of immunosuppression, is favored by stress and diseases such as *orf*, acute infection by border disease virus and coccidiosis, which are present in over 40% of necropsied lambs. Finally, examples of how the pathology causes a decrease of the potential production in aspects such as growth rates, condemnations or quality of the final product are presented.

1. Introduction

Lamb has been traditionally sold in Spain under two different commercial classifications: milk-fed lamb and fattened lamb. The first one is mostly fed with milk or milk replacer and they come from dairy breeds. However, in some periods during the year and depending on the market situation, this product could come from meat breeds too. Carcasses coming from these lambs are really light, below 7 kg, and the age of culling is less than 2 months.

Fattened lambs constitute the main group of the Spanish lamb production, representing over 75% of the total (see illustration in Fig. 1). Although this is a heterogeneous group, all of them receive a high nutritive concentrated diet after weaning. It permits a rapid growth during a variable period of time that depends on some aspects such as breed, sex and the final purpose. Fattened lamb group includes animals with a carcass weight higher than 7 kg as well as animals sold alive for exportation or for replacement. The last one is a controverted group; nevertheless they receive a high concentrate feeding during the first period of their productive life.

In Spain, climatological conditions, especially low precipitation and high temperature, cause difficulties in forage production. As a result of this, performing a diet based only on forage is no possible (Huyghe et al., 2014). For that reason, a lamb feeding system in housed conditions with concentrate and ad libitum forage is carried out (Cavini et al., 2015). However, it is demonstrated that similar results can be obtained with grazing but providing the animals with the suitable supplementation, and being prolonged the suckling period (Joy et al., 2009). That occurs during some periods in farms located on the south-west of the country, especially in Extremadura and Andalucía regions. Lamb produced in this way is called grass-fed lamb.

Fattening period can be carried out at the same facilities were lambs were born or in a completely separated ones. The last ones are called feedlots and lambs stay there from 1 to 3 months depending on the entrance and the culling weights. On other occasions, the feedlot only act as centers of concentration and homogenization of the offer in which the lambs remain periods of time very short, less than a month.

Feedlots are generally big enough to house animals from different farms. This has generated the development of an important market around weaning lambs. Most of the lambs carried to a feedlot come from areas with high meat-breed sheep census, and they are moved to places nearer to the final consumers such as Aragón,

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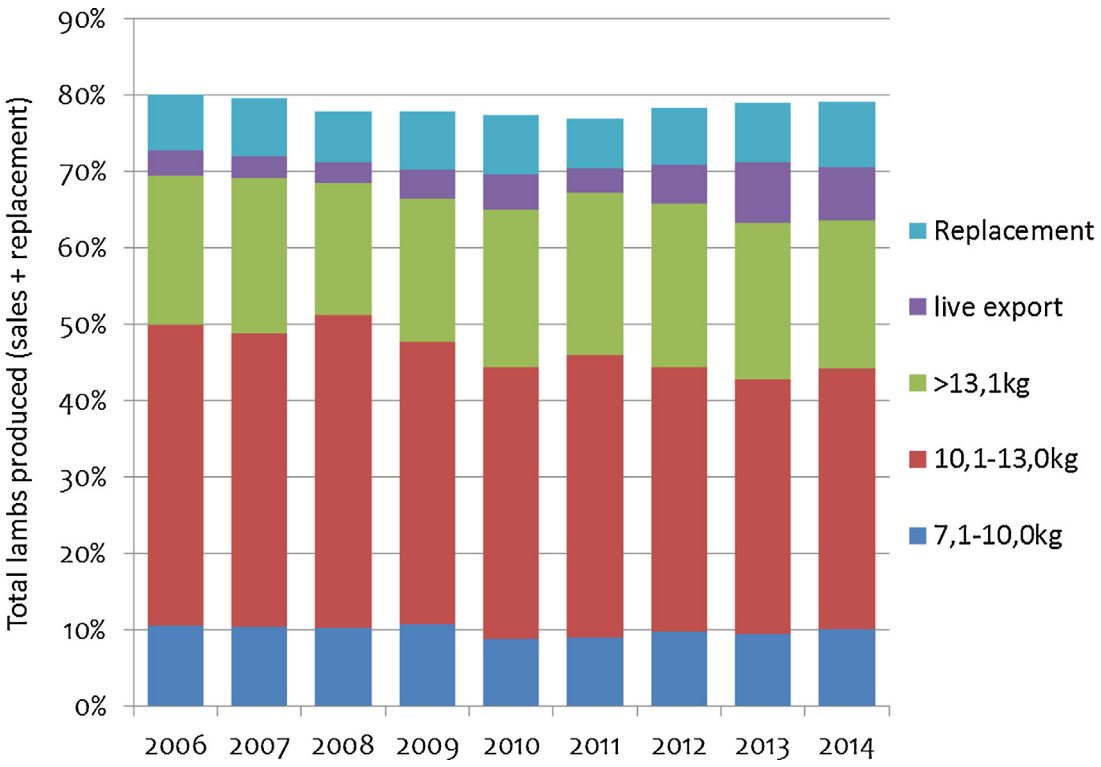

Fig. 1. Distribution of the different fattened lamb categories in Spain over the total production (sales and replacements). period 2006–2014. Source: (MAGRAMA, 2015).

Catalonia, Valencia and Madrid. Although this flow is still active, new feedlots have been built in meat breed sheep areas, decreasing the importance of those working nearer to the big cities. At the beginning of the fattening period there are many stress factors acting over lambs. Weaning processes, diet changes (i.e. milk substitution) and transport are some of the important ones, but there are also others like lambs mixture coming from different origins, with different ages, microbiota and sanitary status, that play an important role too. In addition, management and housing changes had to be considered as stress factors as well. Thus, stress and its magnitude is an important key point in order to understand the pathologies that are going to be found during the fattening process. Moreover, when some of the infectious agents, usually present in healthy animals, may generate diseases due to the induced immunosuppression. Besides, animals showing clinical symptoms of illness at the beginning of the fattening period, could suffer exacerbated symptoms. This fact has to be taken into account in order to prevent the spread of this infection to healthy animals. The importance of different diseases during the fattening period, their interactions and effects on the productions are exposed through own research results, that in some cases have not been previously published.

1.1. Main diseases in feedlots

In order to determine the main pathologies which could be present during fattening period, it was developed an observational study on 1243 lambs belonging to Rasa Aragonesa breed from five different flocks. Clinical and pathological problems, together with growth indexes, were monitored from birth. In addition, all death animals were necropsied and the cause of death determined. Relationships between different diseases were established by Chi square test and the relative risk calculated always that the result of chi square test was previously statistically significant. After weaning, 1121 lambs were moved to feedlots and mixed with the lambs from the other flocks used in our study. Once in feedlot, lambs were monitored clinically until slaughter and carcass assessment together with meat inspection were performed. Out of 1243 studied lambs, 173 (14.09%) showed clinical signs of disease before entering to feedlots, just after weaning, being the main pathologies found: diarrhea associated with coccidian (143 lambs, 12.76%) and respiratory pathology (15 lambs, 1.34%). It should be noted that five lambs showed symptoms of both diseases at the same time and this represented that 33.33% of the lambs with respiratory symptoms were also compatible with coccidiosis diarrhea. In addition, pathologies recorded from the other 20 lambs were white muscle disease, orf, fractures, keratitis, polyarthritis and omphalitis. Therefore, main pathologies present just before entering in feedlots were coccidiosis and respiratory problems.

The evolution of the most prevalent pathologies during fattening period is depicted in Fig. 2. Throughout this fattening period

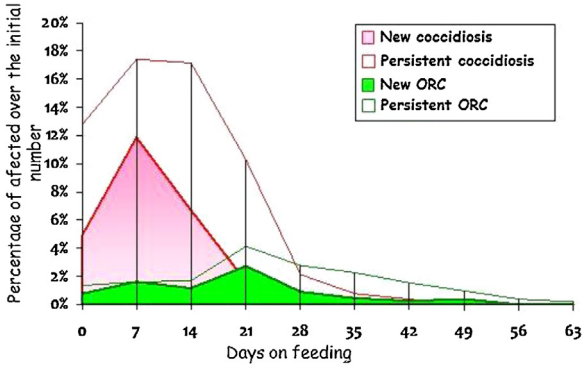

Fig. 2. Evolution of coccidosis and ORC throughout the fattening period. It was calculated according to the total numbers of lambs at arrival. One peak of coccidiosis and new case of ORC was observed at first week after the arrival, meanwhile ORC has a new increase at the third week.