

SUMMARY RC LT 09/12: LAMBS' DIARRHOEA IN OVINE FARMS: PREVALENCE, AETIOLOGY AND ECONOMIC IMPACT BRIEF SUMMARY OF THE PROJECT

In the actual economic context, ovine farmers need to enforce their knowledge in order to address the allocation of their resources in an efficient and efficacy way. Recently the outcomes of farmers are lowered due to the stability of product price and the growth of production costs. Animal diseases have a cascade of effects on the farm productivity. Particularly lamb enteric disease outbreaks, being causative of mortality in the herd and reduced weight gain, can drastically compromise the income of the farmers. An efficient management of these outbreaks will improve animal health and welfare, prevent zoonosis outbreaks and decrease the associated economic loss. An initial step toward enhancing lamb management practice at farm level will be to understand the distribution of lamb diarrhoea causative agents and the associated economic losses.

AIM AND OBJECTIVES

The aim of the project was to evaluate the etiology of diarrhoea in lambs up to 30 days and their economic impact on the farm management. The aim was reached through the following objectives:

- investigation of lamb diarrhoea prevalence in ovine farms;
- implementation of diagnostic procedures to be used in lamb diarrhoea outbreaks;
- economic impact of lamb diarrhoea in the ovine farms;
- education of farmers and veterinarians for prevention, correct diagnosis and treatment of encountered diseases, with particular focus on zoonosis.

MATERIALS AND METHODS

The project was located in the area of Lazio and Tuscany with the highest density of ovine farms, mainly of Sarda breed. It consisted of three phases distributed along three years:

- First phase: i) development of a participative diagnostic procedure among the different diagnostic laboratories over the territory; ii) informative campaign over the topics of the project among ovine breeders; iii) development of collecting sheets for epidemiological and economic data.
- Second phase: i) laboratory procedures to diagnose the etiology of lambs diarrhoea outbreaks reported from farmers and veterinarians; ii) collection of epidemiological and economic data.
- Third phase: i) epidemiological analysis; ii) economic analysis; iii) organization of courses for veterinarians/farmers to improve current diagnosis and management of diarrhoea lambs outbreaks; iv) scientific divulgation of results.

RESULTS

The project reached its objectives through:

1. Production of a standard diagnostic procedure, involving different laboratories, to be applied during diarrhoea lamb outbreak over the territory, capable to actively intercept the needs of the territory (see Annex I).
2. Evaluation of lamb diarrhoea prevalence within the territory of study.

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The lamb diarrhoea prevalence over the territory of Grosseto was around 34,91 (19,94-49,87)%. The mortality rate within outbreaks was 20,92 (21,81-27,95)%. The prevalence of diarrhoeacausing parasites was about 20,71 (7,82-33,59)%, while for viruses was 3,06 (0-8,54)%. Among pathogen bacteria associated with their pathogen factors, the prevalence of pathogenic *E. coli* was 1,24 (0, 4,76)%, the prevalence of *Clostridium perfringens* associated with its toxins was 3,31 (0-9)%. Although in the 66% of outbreaks more than one potential pathogen was found, *Cryptosporidium parvum* seems to have a predominant role as etiologic agent of lamb diarrhoea in the examined territory.

3. Determination of economic impact of diarrhoea lamb outbreaks.

The economic impact has been calculated through an analysis of income lost from an ovine farm, measured as production lost in an average Sarda farm of the territory (n° of lambs=316) during a diarrhoea lamb outbreak. Considering an average prevalence within herd of 34,36 (19,94-

49,87)% and a mortality of 20,92 (14-28)% the economic losses such as low lamb pondered weight and lamb mortality balanced by increased sold milk production, varies between 600 Euro and 1.700 Euro for the average farm. An anticipated delivering (20 days of age) of the lambs to the slaughter house would be economically beneficial, compared to a late delivering (42 days of age) waiting for the ill lambs to gain the expected weight at 30 days of age (10 kg), due to the increased income from milk production once the lambs are slaughtered.

4. Education of farmers and veterinarians for prevention, correct diagnosis and treatment of encountered diseases, with particular focus on zoonosis.

Two courses have been organized along the project timeframe. These events have represented an important moment for the operators of the sector, both private and public, to meet. Results of the project have been presented during these courses and are going to be shared through scientific publications.

DISCUSSION AND CONCLUSIONS

The overall lambs diarrhoea prevalence over the studied territory is 34,91 (19,94-49,87)%, it confirms the importance of the diarrhoea lamb outbreaks over the territory. This prevalence is associated with a mortality from 14 to 28%. Thus the economic losses in an average farm with 316 lambs, is around between 600 and 1.700 Euro.

Among the isolated pathogens, the most frequently encountered is *Cryptosporidium parvum*. Despite its confirmed zoonotic role, drugs are not registered to be used in the ovine sector in order to control and reduce its diffusion. Some actions are required to address this problem. Furthermore, the study produced a standard diagnostic procedure, involving different laboratories, to be used in lamb outbreaks and meetings with the ovine productive systems. During the formative courses delivered by this project, different operators of both private and public sector had the possibility to meet and share knowledge, strengthening the correct approach to prevention, diagnosis and therapy for this topic. An economic approach to the animal disease would be useful to address efficiently the low resources available for the ovine sector.

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KEYWORDS

Lamb enteric diseases, diarrhoea, cost of disease, ovine

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