Prevalence of Subclinical Mastitis in Ewe with
Somatic Cell Count Procedure in Tabriz Area of Iran

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Abstract: Mastitis is one of the most serious health and economic problems in dairy sheep flocks. This study was designed to identify rate of subclinical mastitis of ewes in Tabriz area of Iran. For this purpose referred to sheep farms of Tabriz and selected from 20 dairy ewe flocks that was free of clinical mastitis and milk samples gained. Totally 500 milk samples gathered and using Fosomatic method, somatic cells counted. According to results the rate of subclinical mastitis was 20.2 percent. Finally it seems that by training preventive methods considering mammary glands health and rate of subclinical mastitis decreased so that economical benefit of flock and milk products market increase.

Key words: Subclinical Mastitis %Ewe %Somatic Cell Count %Iran

INTRODUCTION

In dairy cattle, the detection of subclinical intramammary infections is based upon the interpretation of milk somatic cell counts (SCC) determined monthly throughout lactation. Such a dynamic approach is widely used in field conditions, since the mid-1980s [1]. In dairy sheep, instantaneous physiological and pathological thresholds of SCC ranging from (0.25 1.0)×10^6 cells/ml, have been available since the early 1990s [2]. Bovine mastitis is the most economically important disease in dairy milk production worldwide [2-4]. This disease can have an infectious or noninfectious etiology, the infectious pathogens are the most important that frequently due to infection by one and/or the other pathogens, such as bacteria, viruses, mycoplasma and, yeasts and algae [1, 2, 5]. This work proposes in this study to identify rate of subclinical mastitis of ewes in Tabriz area of Iran.

MATERIALS AND METHODS

For this purpose referred to sheep farms of Tabriz in east Azerbaijan province of Iran and selected from 20 dairy ewe flocks that was free of clinical mastitis and milk samples gained. Containers had potassium dichromate disk. Totally 500 milk samples gathered. SCC was determined by the fluoro-optoelectronic method (Fosomatic).

RESULTS

Somatic cell counts of 498 samples to be obtained and 2 samples by Fosomatic apparatus not readied. For detect of percentage of subclinical mastitis in samples to benefit from cut-off point of 500000 cell/ml in milk. In this way, samples of lesser than it, healthy and greater than subclinical mastitis was considered. According to results, the rate of subclinical mastitis was 20.3 percent (Table1). Analysis of data was obtained in Table 1.

DISCUSSION

The strong relationship between the number of culture-positive samples throughout lactation and the mean of log SCC confirms previous results in Latxa [3] and Assaf ewes [5]. Although none of the definitions of udder halves infection status would reflect perfectly
Table 1: Results of somatic cell count of samples

<table>
<thead>
<tr>
<th>Groups</th>
<th>Frequency</th>
<th>Mean ± SE</th>
<th>SD</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>397</td>
<td>187452.03 ± 8196.897</td>
<td>103033</td>
<td>79.7</td>
<td>79.7</td>
<td>79.7</td>
</tr>
<tr>
<td>Subclinical mastitis</td>
<td>101</td>
<td>124587.00 ± 166506.322</td>
<td>1053078</td>
<td>20.3</td>
<td>20.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>498</td>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The dynamics of infections observed (1-monthly sample throughout lactation), the third one (healthy, brief and durable infections) could represent an acceptable compromise describing the diversity observed under field conditions. Thus, many halves were culture-positive only during the suckling-milking period (mainly during the first week post-partum) and never later; a strict application of the first definition could lead to consider these halves as infected. Likewise, the interpretation of the bacteriological results of samples collected at the end of lactation (close to drying-off) is difficult [6]. In the literature, the instantaneous (punctual) thresholds of SCC range from (0.200 to 2.0)×10⁶ cells/ml almost of the authors proposing values smaller than 0.500×10⁶ cells/ml [6, 7]. Two thresholds have been proposed in order to distinguish infections by “minor” versus “major "pathogens [8]; it has also been proposed to take into account the lactation stage, the iSCC of uninfected ewes increasing after the fifth month [4].

A dynamic approach of iSCC at lactation level would be supported by the observed relationship, for an udder half, between the number of bacteriological isolates and the mean of log SCC throughout lactation; it is also relevant to take into account the variable duration of infections (present study) and the fluctuations of bacterial and cellular shedding in milk [4]. Even when a punctual threshold is proposed, it is recommended to evaluate a series of iSCC, instead of a single value in cows [8], as well as in ewes [9]. However, in dairy sheep, few studies have proposed a dynamic approach at a lactation level [3]. In Latxa ewes, the geometric mean of iSCC was 0.051×10⁶ cells/ml for uninfected ewes and (0.210 and 0.543)×10⁶ cells/ml for uni-and bilaterally infected ewes, respectively [5].

The strong relationship observed between the annual geometric mean of bulk SCC and the estimated prevalence of intramammary infections can be considered as an indirect validation of our decision rule and thresholds [10]. From a practical point of view, iSCC are used, in the Roquefort area, for subclinical mastitis control; “doubtful” ewes are grouped either with “healthy” (when farmers decide to cull “infected” females) or “infected” ewes (in order to implement a selective drying-off therapy).

CONCLUSIONS

iSCC represent a useful tool for the detection of subclinical mastitis in dairy ewes. It is recommended to evaluate a series of iSCC, take into account the stage of lactation and use two thresholds allowing to distinguish three classes of ewes: healthy, doubtful (or briefly infected) and infected (or persistently infected). The decision rules must be pragmatically adapted to the different control strategies of bulk SCC.

REFERENCES

