**Introduction**

The genus *Cryptosporidium* has been recognized as a significant enteropathogen of humans and livestock. Cryptosporidial infection of livestock may have an important economic impact to farmers because of high morbidity and sometimes mortality rates among farm animals (Casemore *et al.*, 1997). *Cryptosporidium* oocysts excreted with faeces from infected farm animals can be a source of human infection having great influence on public health (Lee *et al.*, 2001). There is few information regarding the occurrence of *Cryptosporidium* in sheep (Casemore *et al.*, 1997). The State of Mexico is an important non-technified (rustic) sheep production zone in which the existence of gastrointestinal and respiratory syndromes are known as well as high morbidity and mortality regarding these problems.

The aim of the study was to determine the prevalence of *Cryptosporidium* in sheep (lambs and ewes) in the Northern region in the State of Mexico.

**Material and Methods.**

20 flocks from the Northern region in the State of Mexico (Jiquipilco and San Felipe del Progreso) were chosen at random. 502 faeces samples were taken directly from the anus by using a plastic bag to identify *Cryptosporidium*. They were properly identified and were taken in a refrigerated box (4ºC) to the laboratory until processed. Smears were stained by the modified Ziehl-Neelsen technique. A positive control was run in each smear to compare the samples. Faeces were observed under proper biosafety conditions at the laboratory by using immersion oil objective (100X). All the processes were performed under the light microscope. Smears were observed in central Chile found a 6.4% prevalence in sheep; Santos da Silva *et al.* (1990) found in Brasil 10% prevalence in lambs; Villacorta *et al.* (1991) found in Spain (Galicia) a 1.45% prevalence in lambs; Olson *et al.* (1997) found in Canada a 23% prevalence in sheep; Ozer *et al.* (1990) found in Turkey a 12% prevalence in diarrhoeic lambs with less than one month of age; Minas *et al.* (1993) in Greece (Larissa) found a 4.6% prevalence in diarrhoeic lambs; Kambarage *et al.* (1996) found in Tanzania (Morogoro region) no animals infected with the parasite; Nouri and Karami (1991) found in Iran a 17.2% prevalence in sheep. In contrast, Muñoz *et al.* (1996) in Spain found a 45% prevalence in lambs, Causapé *et al.* (2002) found 59% prevalence in Spain too and Fatimah *et al.* (1990) found in Brasil 10% prevalence in lambs; Villacorta *et al.* (1991) found in Spain (Galicia) a 1.45% prevalence in lambs; Olson *et al.* (1997) found in Canada a 23% prevalence in sheep; Ozer *et al.* (1990) found in Turkey a 12% prevalence in diarrhoeic lambs with less than one month of age; Minas *et al.* (1993) in Greece (Larissa) found a 4.6% prevalence in diarrhoeic lambs; Kambarage *et al.* (1996) found in Tanzania (Morogoro region) no animals infected with the parasite; Nouri and Karami (1991) found in Iran a 17.2% prevalence in sheep. In contrast, Muñoz *et al.* (1996) in Spain found a 45% prevalence in lambs, Causapé *et al.* (2002) found 59% prevalence in Spain too and Fatimah *et al.* (1995) found in Malaysia a 36% prevalence in diarrhoeic and non-diarrhoeic lambs. According to Ortega Mora (1999) ewes can represent a risk factor for lambs because of an increase in the secretion of oocysts during their passage through the intestinal tract of the dam.

**Results.**

Table 1 shows the sample distribution according to the number of exposed population and production stage.

**Discussion**

Our results demonstrate that there is a high prevalence of *Cryptosporidium* in the region in comparison to other studies. Majewska *et al.* (2000) in Poland found a 10.1% prevalence in sheep; Valenzuela *et al.* (1991) in Chile found a 7.7% prevalence in lambs; Gorman *et al.* (1990) in central Chile found a 6.4% prevalence in sheep; Santos da Silva *et al.* (1990) found in Brasil 10% prevalence in lambs; Villacorta *et al.* (1991) found in Spain (Galicia) a 1.45% prevalence in lambs; Olson *et al.* (1997) found in Canada a 23% prevalence in sheep; Ozer *et al.* (1990) found in Turkey a 12% prevalence in diarrhoeic lambs with less than one month of age; Minas *et al.* (1993) in Greece (Larissa) found a 4.6% prevalence in diarrhoeic lambs; Kambarage *et al.* (1996) found in Trinidad and Tobago a 20% prevalence in diarrhoeic and non-diarrhoeic lambs; Abou Eisha (1994) in Egypt (Ismailia Governorate) found a 24% prevalence in lambs and a 2.4% prevalence in ewes; Nagy (1995) found in Hungary a 22.6% prevalence in diarrhoeic lambs aging 1 to 5 weeks old; Kambarage *et al.* (1996) found in Tanzania (Morogoro region) no animals infected with the parasite; Nouri and Karami (1991) found in Iran a 17.2% prevalence in sheep. In contrast, Muñoz *et al.* (1996) in Spain found a 45% prevalence in lambs, Causapé *et al.* (2002) found 59% prevalence in Spain too and Fatimah *et al.* (1995) found in Malaysia a 36% prevalence in diarrhoeic and non-diarrhoeic lambs. According to Ortega Mora (1999) ewes can represent a risk factor for lambs because of an increase in the secretion of oocysts during their passage through the intestinal tract of the dam.

**TABLE 1.- SAMPLE DISTRIBUTION PER PRODUCTION STAGE.**

<table>
<thead>
<tr>
<th>TABLE 1-</th>
<th>SAMPLE DISTRIBUTION PER PRODUCTION STAGE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPOSED POPULATION</td>
<td>NUMBER OF SAMPLES PER PRODUCTION STAGE (%)</td>
</tr>
<tr>
<td>LAMBS</td>
<td>EWES</td>
</tr>
<tr>
<td>522</td>
<td>927</td>
</tr>
</tbody>
</table>

In table 2, prevalence distribution of the sampled population is shown, according to the flock size and age group.

**TABLE 2.- *Cryptosporidium* spp. PREVALENCE BY FLOCK SIZE, GROUP AND PRODUCTION STAGE.**

<table>
<thead>
<tr>
<th>PREVALENCE</th>
<th>Flock size (heads)</th>
<th>SAMPLED ANIMALS</th>
<th>Positive Samples</th>
<th>GROUP</th>
<th>LAMBS</th>
<th>EWES</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 100</td>
<td>307</td>
<td>91</td>
<td>29.64%</td>
<td>29.85%</td>
<td>29.58%</td>
<td></td>
</tr>
<tr>
<td>&gt; 101</td>
<td>195</td>
<td>38</td>
<td>19.48%</td>
<td>15.64%</td>
<td>31.25%</td>
<td></td>
</tr>
</tbody>
</table>

We found a higher prevalence in lambs than in ewes (p>0.05) in flocks with less than 100 animals. In the ones in which there were more than 101 animals, ewes had a higher prevalence than lambs (p<0.05).
the perinatal period. In our study, ewes presented a higher prevalence than lambs, which may be related to the phenomena described by Ortega Mora (1999).

**Conclusion**

We conclude that there is a high prevalence in sheep mainly in flocks with a high number of animals.

**Acknowledgements**

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**References**


