Prevalence of *Eimeria* spp. in South African broiler farms

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Introduction

- Avian coccidiosis is one of the most important diseases affecting the intensive poultry industry worldwide.
- There are seven species of *Eimeria* that are known to parasitize chickens (*Gallus gallus*) (Williams, 1998): *Eimeria acervulina, Eimeria brunetti, Eimeria maxima, Eimeria mitis, Eimeria necatrix, Eimeria praecox* and *Eimeria tenella*.
- All seven *Eimeria* species were detected in surveys of commercial poultry farms in many countries.
- To date, no studies have been reported in the literature about the prevalence of *Eimeria spp.* in chickens in South Africa.
In this study, litter samples were evaluated for the presence of *Eimeria* species using a polymerase chain reaction (PCR) developed at the Institute for Animal Health (Compton, UK) to specifically detect *E. acervulina*, *E. maxima*, *E. mitis*, *E. praecox* and *E. tenella*.

Together with this molecular tool for detecting *Eimeria* species in litter samples, oocyst counts and the evaluation of the percentage of species by using a morphometry test were also performed to further evaluate the samples.
### Table. Summary of data collected from litter samples from South African broiler farms using PCR

<table>
<thead>
<tr>
<th>Year in which samples were collected</th>
<th>Number of houses included in the study</th>
<th>% <em>E. acervulina</em></th>
<th>% <em>E. maxima</em></th>
<th>% <em>E. mitis</em></th>
<th>% <em>E. praecox</em></th>
<th>% <em>E. tenella</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>42</td>
<td>40.5</td>
<td>21.4</td>
<td>7.1</td>
<td>9.5</td>
<td>19.0</td>
</tr>
</tbody>
</table>
Conclusion/ Discussion

• Analysing the 3 species of *Eimeria* of known and high pathogenic potential (*E. acervulina*, *E. maxima* and *Eimeria tenella*) *Eimeria acervulina* has shown to be the most widespread in South Africa (40.5%).

• Regarding the 2 species that cause subclinical problems and affect flock productivity: *E. mitis* is less prevalent (7.1%) then *E. praecox* (9.5%).

• Combinations of 2 species together were the most common especially: *E. acervulina + E. tenella* and *E. acervulina + E. maxima*. 