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**Monitoring anticoccidial performance of several products in broiler chicken farms over a period of five years.**

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**Rating:**

**Author:** J Xavier1*, MG Sigal Escalada1, P Kohler1, MF Iglesias2 - 1Vetanco S.A. Chille 33. Vicente Lópeu- Provincia de Buenos Aires; 2Cátedra de Parasitología. Chorroarín 280. Ciudad de Buenos Aires. FCV. UBA

**Summary**

Failure in Avian coccidiosis control effectiveness is often mentioned in the poultry production field. It is therefore important to perform periodic monitoring of coccidiostats’ effectiveness under field conditions. Results show that the use of high quality products, supervised by veterinary professionals, maintains their effectiveness over the years and through different periods. This study consists on the field evaluation of anticoccidial efficacy of Diclazuril 0.5% (Vetribac D®), Robenidine 6% (Vetancox® R60), Maduramycin 0.75% + Nicarbazine 8% (Lonomicin MN®), Maduramycin 1% (Lonomicin M®), Salinomycin 12% (Lonomicin® S), Monensin 20% (Coccivet 200), Nicarbazine 25% (Nicarvet® 250) y Clopidol 25% (Vetancox® C 250) in different broiler farms in the provinces of Entre Ríos, Buenos Aires and Santa Fe. The survey was conducted on 1.800.000 chickens sampled out of a total of 6.380.000 chickens on 188 farms during the period between December 2006 and April 2010, in establishments that use these products routinely for prophylaxis of coccidiosis. The objective of this research was to detect subclinical coccidiosis through OPG (Oocytes per gram) in litter and feces and SSM (Serial Scraping Method of the Intestinal Mucosa) of duodenum, jejunum, ileum and cecum. Results show a very good effectiveness for the evaluated coccidiostats, given that the low litter and feces OPG greatly surpass the high counts as is the case with negative and positive SSM. It is very important to continue using these diagnostic tools to monitor coccidiostat plans to ensure the sustainability of their usage.

**Key Words:** Broilers, Coccidiosis, Control program.

**Introduction**

Avian coccidiosis is caused by protozoa of the genus *Eimeria*. Given that it is one of the most prevalent diseases in poultry meat production, several efforts have been undertaken in the veterinary medicine field in order to control this disease.

Several *Eimeria* species, parasitic of the digestive tract of chickens, are known. However, 3 of them are the most common in Argentina: *E. tenella*, *E. maxima* and *E. acervulina* (González et al., 2005). Of the above mentioned eimeria, *E. tenella* can lead to dramatic coccidiosis outbreaks, with cecal bleeding and high mortality. Losses are not only due to the high mortality, but also to the inadequate food processing, growth retardation and decreased animal quality (Jordan & Pattison, 1998).
Along with the important growth in the poultry industry in recent years, there has been a continuous proliferation of products used to fight coccidiosis. Anticoccidials are used almost universally in feed for intensively bred chickens, with the objective of obtaining continuous coccidiosis prevention (Conway et al., 2001; El-Banna et al., 2005; Matsuno, 1996). Accordingly, coccidiostats are administered as a prophylactic, continuously throughout the chicken's growth period.

The incidence of clinical coccidiosis in the farms of a poultry company is always preceded by a much larger proportion of farms with subclinical coccidiosis, which can only be detected by OPG and SSM counts. The objective of this study was to apply this methodology as an early diagnostic tool and thus avoid the enormous economic losses provoked by clinical coccidiosis.

Materials and Methods

The anticoccidial efficacy of Diclazuril 0.5 % (Vetribac® D), Robenidine 6% (Vetancox® R60), Maduramycin 0.75% + Nicarbazine 8% (Lonomicin® MN), Maduramycin 1% (Lonomicin® M), Salinomycin 12% (Lonomicin® S), Monensin 20% (Coccivet® 200), Nicarbazine 25% (Nicarvet®250) and Clopidol 25% (Vetancox® C 250) was tested in 188 broiler farms in the provinces of Entre Ríos, Buenos Aires y Santa Fe. The survey was conducted from December, 2006 to April, 2010 in facilities that routinely use these products as coccidiosis prophylaxis. OPG pools of litter and feces from each house, using the method described by MAFF (1986) and SSMIM of duodenum, jejunum, ileum and cecum of 5 birds out of 10,000 (Mattiello et al., 1990) were among the different parameters evaluated.

Results and Discussion:

Results are shown on Table 1 and Graphs 1 and 2.

Table 1. Results for each evaluated coccidiostat

<table>
<thead>
<tr>
<th>Coccidiostat</th>
<th>Litter and Feces OPG</th>
<th>SSM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Maduramycin/Nicarbazine</td>
<td>128</td>
<td>14</td>
</tr>
<tr>
<td>Maduramycin</td>
<td>87</td>
<td>25</td>
</tr>
<tr>
<td>Salinomycin</td>
<td>48</td>
<td>19</td>
</tr>
<tr>
<td>Diclazuril</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>Monensin</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Nicarbazine</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Robenidine</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Clopidol</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
The amount of samples with a low litter and feces OPG greatly surpasses the high counts, as is the case with negative and positive SSM. Considering SSMIM as a validated technique for subclinical coccidiosis diagnosis (Mattiello et al., 1990), the prevalence in this study was of 14.5%. These results are considerably lower relative to those obtained by Reza Razmi y Ali Kalideri (2000) in Iran, using an identical methodology. Haug et al. (2008) conducted a study in two different annual periods and considering a threshold of
50,000 OPG per gram of feces to consider a farm to be at risk of clinical coccidiosis. Considering this limit, the prevalence of subclinical coccidiosis was of 11% and 15% for the 2000-2001 and 2003-2004 periods, respectively. However, in our opinion, this threshold is too high. Should we apply our threshold to that study, prevalence would be of 21% and 30% for the mentioned time periods.

These results indicate that a permanent subclinical coccidiosis monitoring program is capable of providing an early detection of the incidence of this condition and allows the correction of the anticoccidial programs, minimizing the economic loss produced by this disease.

Conclusions

Results indicate a very good effectiveness for the evaluated coccidiostats. The importance of constant monitoring of the efficacy of the anticoccidial plans through subclinical coccidiosis detection must be emphasized, in order to define a correct combination and rotation of said plans, with the objective of ensuring proper use of the medicaments and thus avoid the emergence of parasite resistance.

References


