STUDY ON THE RELATIONSHIP BETWEEN SEROPREVALENCE OF ASCARIS SUUM IN FATTENERS, FARM MANAGEMENT FACTORS AND PRODUCTION PARAMETERS

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Introduction

Infections with the intestinal parasitic nematode Ascaris suum are still a big problem in pig production systems all over the world. Although the majority of infections with A. suum are subclinical, the impact of ascariosis on pig growth and productivity can be substantial. Nevertheless, due to the subclinical nature of the disease, farmers are most often unaware of the magnitude of worm infections on their farm.

Aim of the study

The general objective of this research project was to use a recently developed serological test to assess Ascaris infection levels in fatteners in several European countries and subsequently correlate infection levels with farm management factors and production parameters.

Materials & Methods

- 10 blood samples were collected on 1838 different farms in Europe from fattening pigs at the end of their fattening period (>100kg).
- The blood samples were centrifuged and the sera individually analyzed on the SERASCA®-test (www.serasca.com) which is based on the recognition of a hemoglobin molecule of the parasite by antibodies of an infected animal. The average test result of the 10 animals was calculated to determine infection intensity for each farm. An average test result lower than 0.5 indicates none/low infection intensity, whereas a result higher than 0.5 is an indication of an Ascaris infection (Vlamink et al., 2012).
- The samples collected via MSD France and MSD Belgium came with a questionnaire form containing data such as feed conversion, average daily weight gain, deworming strategy and housing (type of floor) of the farms investigated. Associations between the serology and the data from the questionnaires were analysed using the Spearman’s rank correlation test and the two-tailed Mann-Whitney test (nonparametric). Probability (P) values <0.05 were considered to indicate significance.

Results

<table>
<thead>
<tr>
<th>Country</th>
<th>Nr. of farms</th>
<th>Ascaris Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>265</td>
<td>141 (53 %) &amp; 124 (47 %)</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>102</td>
<td>60 (58.8 %) &amp; 42 (41.2 %)</td>
</tr>
<tr>
<td>France</td>
<td>1197</td>
<td>600 (50.1 %) &amp; 597 (49.9 %)</td>
</tr>
<tr>
<td>Poland</td>
<td>8</td>
<td>5 (62.5 %) &amp; 3 (37.5 %)</td>
</tr>
<tr>
<td>Denmark</td>
<td>198</td>
<td>123 (62 %) &amp; 75 (38 %)</td>
</tr>
<tr>
<td>Germany</td>
<td>22</td>
<td>10 (45 %) &amp; 12 (55 %)</td>
</tr>
<tr>
<td>Italy</td>
<td>46</td>
<td>7 (15 %) &amp; 39 (85 %)</td>
</tr>
<tr>
<td>Total</td>
<td>1838</td>
<td>946 (51,5 %) &amp; 892 (48,5 %)</td>
</tr>
</tbody>
</table>

Table 1: Serological data for A. suum infections in fatteners in 7 European countries.

• Data Analysis of questionnaires: deworming programmes

Belgium

France

Analysis of the information provided in the questionnaires concerning the deworming strategies showed that the majority of the farms investigated in France treated the animals only once during the fattening period, whereas in Belgium the animals were mostly treated twice. The products most frequently used in both countries were levamisole and flubendazole. (Data shown are from the years 2013-2014)

References & Acknowledgements

• www.serasca.com
• This study was partly supported by MSD.

Conclusions

• The outcome of the serological analysis indicates that A. suum is still highly prevalent in fattening farms across Europe, with nearly 50 % of the farms analyzed testing positive.
• A significant association was found in the Belgian dataset between A. suum serology and the presence of semi-slatted floors, suggesting that this could form a risk factor for Ascaris infections. An association was also found between serology and average daily growth. Whether A. suum is directly responsible for this reduced growth requires further research.