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Comparative efficacy of Enterisol® Ileitis and Stafac® versus a Tylan® feed grade program following a Lawsonia intracellularis challenge in pigs housed under commercial settings.

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Introduction
Infection with Lawsonia intracellularis (Li) is very common in growing pig populations. Infections can cause several disease presentations, including: 1) an acute, hemorrhagic form 2) a chronic, proliferative form and 3) a subclinical form. The objective of this study was to compare an Enterisol® Ileitis/Stafac® program to a Tylan® feed grade program as a control measure for pigs challenged with Li. The primary parameter to be measured was feed efficiency (FE) at the pen level.

Materials and Methods
Three week old pigs (n=2080) were weaned and balanced by weight into a two-room wean to finish facility. Pigs were allocated randomly into 80 pens (26 pigs/pen). Treatment was randomly assigned to rooms (Table 1).

Table 1. Treatment Protocol

<table>
<thead>
<tr>
<th>Group</th>
<th>Treatment</th>
<th>N (pen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enterisol Ileitis (EI)*/Stafac 10**</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Tylan 100/Tylan 40***</td>
<td>40</td>
</tr>
</tbody>
</table>

*Boehringer Ingelheim Vetmedica, Inc, St. Joseph, MO
**Phibro, Ridgefield Park, NJ
***Elanco, Indianapolis, IN

Pigs in Group 1 were vaccinated through the drinking water with EI at 6 weeks of age. At 6 weeks post-vaccination, 50% of pens were randomly shuffled between the two rooms to allow both treatment groups to coexist in the same environment. The delay in commingling between rooms was to prevent live vaccine from indirectly immunizing non-vaccinated pens. Following pen transfer, 10% of the population (2-3 pigs/pen) was inoculated by intragastric gavage with gut homogenate containing 4.5 x 10⁹ virulent Li. Pens in treatment Group 1 received 10 g/T Stafac from day of inoculation for 80 days. Pens in treatment Group 2 received 100 g/T Tylan for 18 days post-challenge followed by Tylan at 40 g/T for an additional 62 days. Due to severity of the Li and significant Actinobacillus suis and SIV challenges, all pigs were mass treated with 60 ppm Denagard® (Novartis Animal Health, Greensboro, NC) through drinking water on d 45-49 post-challenge. Additionally, individual pigs in both groups required treatment with Tylan injectable. All pigs in both treatment groups received Paylean® (Elanco, Indianapolis, IN) after feed grade antibiotics were removed until market.

Results
The effect of treatment on performance is shown in Table 2.

Table 2. The effect of treatment protocol on pig performance; weaning to d126

<table>
<thead>
<tr>
<th>Response variable</th>
<th>Enterisol Ileitis/Stafac</th>
<th>Tylan</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial BW, lbs</td>
<td>16.84</td>
<td>16.60</td>
<td>0.52</td>
</tr>
<tr>
<td>Final BW, lbs</td>
<td>238.29</td>
<td>238.05</td>
<td>0.89</td>
</tr>
<tr>
<td>ADG, lbs</td>
<td>1.62</td>
<td>1.61</td>
<td>0.87</td>
</tr>
<tr>
<td>ADFI, lbs</td>
<td>3.85</td>
<td>3.92</td>
<td>0.11</td>
</tr>
<tr>
<td>Feed/Gain, lbs</td>
<td>2.38ab</td>
<td>2.43b</td>
<td>0.05</td>
</tr>
</tbody>
</table>

ab Different superscripts indicate difference at P≤0.05 (Student's t test)

Discussion
A significant Li challenge to both groups was proven by positive Li histopathological lesions, fecal PCRs and serum ELISAs in randomly sampled pigs. Under the conditions of this study, pigs on the Enterisol Ileitis/Stafac program had a 2.1% improvement in feed efficiency (P≤0.05) from weaning to day 126 compared to pigs on the Tylan feed medication program.