Formulating piglet diets under restrictions in antibiotic use

Lars Sangill Andersen, HAMLET PROTEIN
Formulating piglet diets under restrictions in antibiotic use

- Defining antibiotic use
- Some facts
- Identifying the problem
- Influence on formulation
- Nutrient requirements
- Ingredient choices
Defining antibiotic use

Antibiotic Growth Promotors, AGP

Therapeutic treatment

Medicated feed, Single / Multi
Some facts
More facts

Gram antibiotics pr kg meat-all species

Norway, Sweden, Finland, Denmark, Germany, UK, Czech Republic, Switzerland, France, Netherlands, USA
Identifying the problem

Figure 4.3. Antimicrobial consumption \(^{(a)}\) in the pig production, and the distribution on age groups, Denmark

DANMAP 2014
Identifying the problem

- Foot and mouth disease 1983
- Vesicular stomatitis (never recorded)
- Swine vesicular disease (never recorded)
- African swine fever (never recorded)
- Classical swine fever (hog cholera) 1933
- Tuberculosis 1959
- Aujeszky Disease 1991
- PRRS – eradication plan from 2015

Ministry of Food, Agriculture and Fisheries
## Influence on formulation

<table>
<thead>
<tr>
<th>Product type</th>
<th>No. trials</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ADG</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>13</td>
<td>+8.6</td>
</tr>
<tr>
<td>Acids / salts</td>
<td>45</td>
<td>+6.6</td>
</tr>
<tr>
<td>Probiotics</td>
<td>13</td>
<td>+2.2</td>
</tr>
<tr>
<td>Aroma</td>
<td>23</td>
<td>+2.5</td>
</tr>
<tr>
<td>Enzymes</td>
<td>9</td>
<td>+2.0</td>
</tr>
<tr>
<td>Oligosaccharides</td>
<td>4</td>
<td>+0.9</td>
</tr>
</tbody>
</table>

Hanne Maribo, Videnscenter for Svineproduktion
Influence on formulation

Maximum feed intake by a 10kg piglet as a function of the digestibility of the feed
## Nutrient requirements

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Description</th>
<th>Crude Protein (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal formulation for piglets</td>
<td>No focus on ingredients</td>
<td>23 %</td>
</tr>
<tr>
<td>Formulation under restricted antibiotic use</td>
<td>Focus on ingredient digestibility</td>
<td>19.5 %</td>
</tr>
<tr>
<td>Formulation to avoid post weaning diarhoea</td>
<td>Less focus on ingredients</td>
<td>17.5 %</td>
</tr>
</tbody>
</table>
Nutrient requirements

23 % Crude Protein
- Amino acids as requirement
- Excess amino acids and undigestible protein

19.5 % Crude Protein
- Amino acids as requirement
- Very limited excess of amino acids and undigestible protein

17.5 % Crude Protein
- Amino acids below requirement
- Limited excess of amino acids and undigestible protein
## Ingredient choices

<table>
<thead>
<tr>
<th>Digestibility</th>
<th>Proteins</th>
<th>Cereals</th>
<th>Fat</th>
</tr>
</thead>
</table>

RESULTS – Standardised Ileal digestibility (SID) of Crude Protein

**HP 300 = 90%**

- HP 300
- Soya meal feed, dehulled
- Soya meal feed, dehulled extruded
- Soya protein concentrate
- Soya protein concentrate, extracted
- Rape seed expeller feed
- Supplementary feed containing fermented 00-rapeseed meal
Effect of feedstuff on SID CP in pigs < 20 kg

P < 0.01
Ingredient choices – Musts!

Ca
- NO limestone
- Use other Ca sources and reduced Ca content

Acids
- Minimum 0.5 % but preferably 1 %
- Bensoic acid > Lactic acid > Other organic Acids

Additives
- Consider the changes made to the diet before using additives. They may add value. But not always
HAMLET PROTEIN

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