Effect of a patented combination of plant extracts on piglets performance

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Context of the study

- To look for alternatives to antibiotics
- To evaluate one of the new alternatives
- To determine the impact of sows’ diet on piglets performances:
  - Before weaning
  - After weaning
Fragile weaning management: mother & litter separation, building change, feed transition, ...

Difficulties amplified by maternity management: milk quantity but also milk quality.

Recent publications on endotoxins impact on animals performances and transfer from the mother to the litter through the milk.

Endotoxins are powerful antigens responsible for inflammatory process: loss in « efficient » energy.
Material and methods

- Partnership with sows herd of an agricultural school (LE NIVOT, France)
- 3 batches of sows (77) and their piglets (624) followed
- Feed without antibiotics nor acidifier

Entry in maternity building → Farrowing → Weaning → End of post-weaning

- 12-15 days
- 21 days
- 46 days
Material and methods

- 3 plant extracts coming from 2 plants
- Selected for their:
  - Anti-inflammatory properties
  - Anti-oxidant properties
  - Properties of intestinal motility modulation

Source: Tie Cheng Yang, 2008
Zhang et al, 2005
Tsai et al, 2010
Bian et al, 2006
Experimental design

77 sows

Maternity

Control

Plant extracts

Post-weaning

Control

Plant extracts

Control in maternity

Plant extracts in post-weaning

Control in post-weaning

Plant extracts in post-weaning

624 piglets

Sows: plant extracts 15d before farrowing and during lactation
Piglets: plant extracts from 21 to 67d – Feed without antibiotics nor acidifiers
Measures

- Maternity: prolificity data, feed intake, sow body condition, mortality,…

- Post-weaning: average daily gain (ADG), feed intake, feed conversion ratio (FCR), mortality,…
Results - Maternity

- Positive result on mortality between 48h after birth and weaning

<table>
<thead>
<tr>
<th>Without plant extracts</th>
<th>With plant extracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.46 dead piglet</td>
<td>0.17 dead piglet</td>
</tr>
<tr>
<td>- 0.29 dead piglet with plant extracts</td>
<td></td>
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</tbody>
</table>

- No impact of plant extracts on other parameters
ADG of piglets from sows fed with or without plant extracts

Results – Post-weaning
### Results – Post-weaning

<table>
<thead>
<tr>
<th></th>
<th>Without plant extracts (no mater. no PW)</th>
<th>With plant extracts (mater.+ PW)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live weight 67d (kg)</td>
<td>27.29</td>
<td>29.44</td>
<td>+ 2.15 kg per piglet</td>
</tr>
<tr>
<td>Daily feed intake (g/d)</td>
<td>687</td>
<td>735</td>
<td>+ 7 %</td>
</tr>
<tr>
<td>Feed conversion ratio</td>
<td>1.62</td>
<td>1.55</td>
<td>- 4.3 %</td>
</tr>
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</table>

**Control in maternity**
- Plant extracts in maternity

**Control in post-weaning**
- Plant extracts in post-weaning
Discussion

- Distribution of plant extracts improved performance:

  - Plant extracts in Maternity + Post-weaning
  - Plant extracts in Maternity
  - Plant extracts in post-weaning
  - No plant extracts

- Great impact of sows supplementation

- But, even when only used in post-weaning, plant extracts can improve performance compared to control
Discussion

- Strong impact of sows supplementation on piglets performance → interest to avoid metabolic stress for better performance

- Management of inflammatory process in sows → less endotoxins transferred to piglets → more energy available for growth + better feed conversion (hypothesis)

- Interest of plant extracts in maternity: milk quality → less mortality before weaning
Conclusion and perspectives

- Combination of plant extracts evaluated as valuable (3 batches):
  - To reduce piglets mortality before weaning
  - To improve performance after weaning

- Plant extracts can be part of a demedication approach, beginning from maternity period

- In the future, test the interest of such a combination on the whole gestation? To find blood markers to make the link between zootechnical results and described properties of the product.
Thank you for your attention!