Neopigg RescueCare - Liquid feeding for suckling piglets

Effects on performance until slaughter

Trial report summary – SIC Sterksel 2015

Elke van Gelderen
Annamaria Marangoni
March 2015
Introduction

- Increasing need for solutions to fully replace or complement sow’s milk for raising surplus piglets
- Provimi developed the Neopigg RescueCare system, including
  → a milk replacer: Neopigg RescueMilk
  → followed by a liquid prestarter: Neopigg Smooth
  → distributed to suckling piglets through Neopigg RescueCups
- Benefit: to support piglets growth and health until delivery by maximizing their dry matter intake pre-weaning
The objective of this trial, carried out at SIC Sterksel in the Netherlands, was to determine the effect of feeding Neopigg RescueCare nutritional solution when compared to feeding a dry prestarter feed on:

→ Piglet’s performances from birth till delivery to the slaughterhouse

→ Weight and backfat loss of the sows in the farrowing unit
Trial design and experimental treatments

- Per treatment: 20 sows (parity 1 to 4) and their litters.
- Litters were standardized at 14 piglets within 48 hours after birth. Piglets left are evenly allocated over treatments.
- Prestarter, weaner feed and water were provided *ad libitum*.
- Neopigg RescueMilk and Neopigg Smooth were provided *ad libitum* through the RescueCup system.

Note: for this trial Neopigg RescueMilk and Neopigg Smooth were used, NOT the new versions Neopigg RescueMilk 2.0 and Neopigg Smooth 2.0
Providing Neopigg Smooth enhances the dry matter intake

Cumulative Dry Matter Intake per piglet

Source: SIC Sterksel, 2014
Contribution to dry matter intake by type of feed

Neopigg RescueCare
1832 g

- Neopigg RescueMilk: 370 g
- Neopigg Smooth: 212 g
- Weaner Feed: 1250 g

Control
515 g

- Creep Feed: 133 g
- Creep - Weaner Feed: 181 g
- Weaner Feed: 201 g

Source: SIC Sterksel, 2014
Feeding Neopigg RescueMilk showed positive effects on piglet and litter weight

- Neopigg RescueMilk numerically increased individual piglet weight at day 12 of age with 6% (P=0.18) and significantly increased total litter weaning weight with 9% (P=0.09).

Source: SIC Sterksel, 2014
Providing RescueMilk until day 12 of age increases ADG with 26 gram

Piglet ADG from day 2 of age until day 12 of age

<table>
<thead>
<tr>
<th>Treatment</th>
<th>ADG (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>212</td>
</tr>
<tr>
<td>Neopigg RescueCare</td>
<td>238</td>
</tr>
</tbody>
</table>

* P=0.02

+12%

Source: SIC Sterksel, 2014
RescueCare increases ADG with 32 gram from day 2 of age until weaning

Piglet ADG from day 2 of age until weaning

<table>
<thead>
<tr>
<th>Treatment</th>
<th>ADG (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>224</td>
</tr>
<tr>
<td>Neopigg RescueCare</td>
<td>256</td>
</tr>
</tbody>
</table>

* P=0.0004

Source: SIC Sterksel, 2014
Neopigg RescueCare significantly improved piglet and litter weaning weight

- Neopigg RescueCare significantly increased individual piglet weight at weaning with 0.8 kg and total litter weaning weight with 13.24 kg as shown in the figures below.

**Source:** SIC Sterksel, 2014

**Piglet Weaning Weight (kg)**

- Control: 7.15 kg
- Neopigg RescueCare: 7.95 kg
- +11%

**Litter Weaning Weight (kg)**

- Control: 95.43 kg
- Neopigg RescueCare: 108.67 kg
- +14%

*P=0.005

*P=0.001
Neopigg RescueCare increased the number of sows weaning 13 piglets or more

Litter size distribution at weaning

Source: SIC Sterksel, 2014
The Neopigg RescueCare group ended up at weaning with 30% less small piglets.

Source: SIC Sterksel, 2014
Neopigg RescueCare also results in 30% less small pigs at 62 days of age.

Weight distribution at delivery (62 days of age)

Source: SIC Sterksel, 2014
Neopigg RescueCare mortality till weaning
→ suggests a positive effect on piglet survival pre-weaning

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>Difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of piglets at day 2</td>
<td>282</td>
<td>278</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of culled piglets till weaning</td>
<td>12 (4.3%)</td>
<td>6 (2.2%)</td>
<td>-6 (-2.1%)</td>
<td>0.16</td>
</tr>
</tbody>
</table>

- Mortality rate was very low in both groups and no significant difference found like shown in the figure.

Source: SIC Sterksel, 2014
# Feed intake sows

<table>
<thead>
<tr>
<th>Period</th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before farrowing in farrowing room (kg/day)</td>
<td>2.55</td>
<td>2.49</td>
<td>0.40</td>
</tr>
<tr>
<td>From farrowing till day 12 post farrowing (kg/day)</td>
<td>3.95</td>
<td>4.05</td>
<td>0.54</td>
</tr>
<tr>
<td>From day 12 post farrowing till weaning (kg/day)</td>
<td>6.46</td>
<td>6.24</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Sow’s performance was similar between the two treatments

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of sows</td>
<td>20</td>
<td>20</td>
<td>/</td>
</tr>
<tr>
<td>Sow weight at farrowing (kg)*</td>
<td>220.5</td>
<td>221.0</td>
<td>0.95</td>
</tr>
<tr>
<td>Sow weight at day 12 post farrowing (kg)</td>
<td>215.4</td>
<td>217.5</td>
<td>0.72</td>
</tr>
<tr>
<td>Sow weight at weaning (kg)</td>
<td>199.9</td>
<td>196.5</td>
<td>0.56</td>
</tr>
<tr>
<td>Weight loss (kg) from farrowing till weaning</td>
<td>19.2 (7.7%)</td>
<td>23.9 (9.6%)</td>
<td>0.35</td>
</tr>
<tr>
<td>Backfat thickness (mm) at placement in farrowing room</td>
<td>15.3</td>
<td>15.9</td>
<td>0.63</td>
</tr>
<tr>
<td>Backfat thickness (mm) at day 12 post farrowing</td>
<td>13.9</td>
<td>13.8</td>
<td>0.89</td>
</tr>
<tr>
<td>Backfat thickness (mm) at weaning</td>
<td>11.7</td>
<td>12.3</td>
<td>0.51</td>
</tr>
<tr>
<td>Backfat loss (mm) from placement in farrowing room till weaning</td>
<td>3.9</td>
<td>3.6</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Source: SIC Sterksel, 2014
Feeding Neopigg RescueCare before weaning stimulates the feed intake in the first week after weaning

- In the first week after weaning the piglets in the Neopigg RescueCare group had a feed intake of 1.8 kg/piglet vs 1.5 kg/piglet in the control group

Source: SIC Sterksel, 2014
Feeding Neopigg RescueCare before weaning leads to a 7% higher feed intake until day 35 after weaning.

Piglet ADFI from weaning till day 35 post weaning

<table>
<thead>
<tr>
<th>Days after weaning</th>
<th>Control</th>
<th>Neopigg RescueCare</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7</td>
<td>210</td>
<td>260</td>
</tr>
<tr>
<td>7-14</td>
<td>350</td>
<td>390</td>
</tr>
<tr>
<td>14-35</td>
<td>720</td>
<td>780</td>
</tr>
<tr>
<td>0-35</td>
<td>550</td>
<td>590</td>
</tr>
</tbody>
</table>

* Means significant difference (P<0.05)
** Means tendency (P<0.10)

Source: SIC Sterksel, 2014
Piglets have a 8% higher growth after weaning when fed with Neopigg RescueCare before weaning

Piglet ADG from weaning till 35 days after weaning

* Means significant difference (P<0.05)
** Means tendency (P<0.10)

Source: SIC Sterksel, 2014
Neopigg RescueCare increases the weight by 2.0 kg at the end of the nursery period → 2.5 x carry-over effect from weaning to delivery (62 days of age)

Weight development from day 2 till day 62 of age

Source: SIC Sterksel, 2014
Neopigg RescueCare increases the weight of low birth weight piglets by 2.3 kg at the end of the nursery period (62 days of age)

Weight development from day 2 till day 62 of age: LBW

Tendency or significant (P<0.10 or P<0.05) different from weaning (i.e. day 27) onwards

Low birth weight (LBW) piglet when birth weight is 1 kg or lower

Source: SIC Sterksel, 2014
Providing Neopigg RescueCare before weaning increases live weight at delivery to the slaughterhouse and decreases slaughter age.

Source: SIC Sterksel, 2014
Neopigg RescueCare increases the slaughter weight by 4 kg!
→ 5 x carry-over effect from weaning to slaughter

**Weight development from day 2 till +/- day 171 (slaughter)**

- Control
- Neopigg RescueCare

Significant (P<0.05) different from weaning (i.e. day 27) onwards

Source: SIC Sterksel, 2014
The higher live weight of Neopigg RescueCare pigs at the end of the grower-finisher phase is due to an improved gain and feed intake

<table>
<thead>
<tr>
<th>Grower-finisher phase</th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>Difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry weight (kg)</td>
<td>21.4</td>
<td>23.4</td>
<td>+2.0</td>
<td>0.01</td>
</tr>
<tr>
<td>Exit weight (kg)</td>
<td>120.3</td>
<td>124.2</td>
<td>+3.9</td>
<td>0.008</td>
</tr>
<tr>
<td>ADG (g/d)</td>
<td>890</td>
<td>926</td>
<td>+36</td>
<td>0.003</td>
</tr>
<tr>
<td>ADFI (kg/pig/d)</td>
<td>2.20</td>
<td>2.31</td>
<td>+0.11</td>
<td>0.002</td>
</tr>
<tr>
<td>FCR</td>
<td>2.47</td>
<td>2.49</td>
<td>+0.02</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Source: SIC Sterksel, 2014
Neopigg RescueCare showed significant less veterinary treated pigs in the grower-finisher phase

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>Difference</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of piglets at start grower-finisher phase</td>
<td>231</td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of veterinary treated pigs in the grower-finisher phase</td>
<td>26 (11.4%)</td>
<td>13 (5.8%)</td>
<td>-13 (-5.6%)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

- Pigs in the control group have been significant (P = 0.02) more treated for leg problems.
- Veterinary treatments for S. suis were similar between treatments.

Source: SIC Sterksel, 2014
Neopigg RescueCare results in significant heavier pigs at slaughter

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Neopigg RescueCare</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcass weight (kg)</td>
<td>92.7</td>
<td>95.9</td>
<td>0.01</td>
</tr>
<tr>
<td>Slaughter age (days)</td>
<td>172.9</td>
<td>170.4</td>
<td>/</td>
</tr>
<tr>
<td>Muscle thickness (mm)</td>
<td>61.6</td>
<td>61.6</td>
<td>0.97</td>
</tr>
<tr>
<td>Backfat thickness (mm)</td>
<td>13.9</td>
<td>14.9</td>
<td>0.02</td>
</tr>
<tr>
<td>Dressing percentage</td>
<td>76.9</td>
<td>77.2</td>
<td>0.34</td>
</tr>
<tr>
<td>Meat percentage</td>
<td>59.0</td>
<td>58.4</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Source: SIC Sterksel, 2014
Providing Neopigg RescueCare before weaning showed also beneficial effects after weaning until slaughter

• The positive effects of Neopigg RescueCare on growth, intake and piglet weight before weaning are carried over the nursery period and the grower-finisher phase

• Despite of being 2 kg heavier at the end of the nursery period, the piglets from the Neopigg RescueCare group have a similar FCR when compared to the control group
Take-away
SIC Sterksel trial on Neopigg RescueCare

- Maximized cumulative piglet’s DM intake (1.8 kg) in the group fed with Neopigg RescueCare resulted in:
  - + 0.8 kg in piglet’s weight at weaning, + 2 kg in weight at 62 days
  - 30% less low weight class piglets at weaning and at 62 days
  - + 32 g/day significant extra ADG from birth till weaning
  - + 34 g/days significant extra ADG from weaning till 35 days after weaning
  - Similar sow performance in both groups
  - + 36 g/day significant extra ADG in the grower-finisher period
  - Increased pig weight significant by 3.9 kg at delivery to the slaughter house with a younger age at slaughter
  - Increased ADG pre-weaning and increased weights at weaning, 7 days post weaning, 14 days post-weaning and 35 days post-weaning for low birth weight piglets
  - + 0.8 kg at weaning = + 2.0 kg at delivery = + 3.9 kg at slaughter