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Creep Feeder Designs.pdf
Creep Feeding duration.pdf
Lactation feed intake.pdf
Creep feed flavor.pdf

Introduction

Evidence on the benefits of creep feeding has been limiting and inconsistent, especially for weaning ages < 4 weeks.
However, recent studies where piglets were categorized into eaters and non-eaters of creep feed have provided some new insights on the value of creep feeding.

Objective

To determine the effects of varying durations of creep feeding on the rate of creating creep feed eaters and pre-weaning sow and litter performance.

Presentation Outline

- How long does creep feed need to be offered?
- Does creep feeding effect sow and litter performance?
- Does creep feeding improve performance in the nursery?
- Does creep feeder type effect creep feeding success?
Materials and Methods

- Experimental treatments:
  - Feeding durations of 13, 6, and 2 d (Treatments 1, 2, and 3)
  - Creep feeding was initiated at d 7, 14, and 18 after birth (weaned at d 20)
  - A creep diet (1,585 kcal ME/lb, 1.56% TID Lys) with 1.0% chromic oxide was offered ad libitum until weaning using a rotary creep feeder with a hopper.
  - Sows were allowed free access to a single lactation diet (1,589 kcal ME/lb, 0.97% TID Lys) during lactation.

- Fecal samples from all piglets were taken using sterile swabs:
  - Treatment 1 – at d 14, 18, and 20 (weaning)
  - Treatment 2 – at d 18 and 20 (weaning)
  - Treatment 3 – at d 20 (weaning)
  - Fecal sampling was performed twice per sampling day; piglets that tested negative on the first sampling were re-sampled after 9 to 12 h.
  - Piglets were categorized as ‘eaters’ when fecal color was green at least once on any of the sampling days.

Effects of Varying Creep Feeding Durations on Sow Weights and Weight Change

<table>
<thead>
<tr>
<th>Creep Feeding Duration, d</th>
<th>Lactation weight loss (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>35.3</td>
</tr>
<tr>
<td>6</td>
<td>33.1</td>
</tr>
<tr>
<td>2</td>
<td>28.7</td>
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</tbody>
</table>

Sulabo et al., 2007

Effects of Varying Creep Feeding Durations on Litter Size at Weaning and Mortality

<table>
<thead>
<tr>
<th>Creep Feeding Duration, d</th>
<th>Average litter size (no.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>12.2</td>
</tr>
<tr>
<td>6</td>
<td>12.3</td>
</tr>
<tr>
<td>2</td>
<td>12.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Creep Feeding Duration, d</th>
<th>Pre-weaning mortality (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>7.7</td>
</tr>
<tr>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>2</td>
<td>8.6</td>
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</tbody>
</table>

Sulabo et al., 2007

Effects of Varying Creep Feeding Durations on Litter Weights

<table>
<thead>
<tr>
<th>Day of Lactation</th>
<th>Litter weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>34.0</td>
</tr>
<tr>
<td>7</td>
<td>34.2</td>
</tr>
<tr>
<td>14</td>
<td>33.9</td>
</tr>
<tr>
<td>15</td>
<td>60.4</td>
</tr>
<tr>
<td>18</td>
<td>60.8</td>
</tr>
<tr>
<td>20</td>
<td>61.8</td>
</tr>
</tbody>
</table>

Sulabo et al., 2007

Effects of Varying Creep Feeding Durations on Litter Creep Feed Intake

<table>
<thead>
<tr>
<th>Period pre-weaning</th>
<th>Litter creep feed intake (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>d 8 - 14</td>
<td>0.36</td>
</tr>
<tr>
<td>d 15 - 20</td>
<td>0.78</td>
</tr>
<tr>
<td>d 19 - 20</td>
<td>0.77</td>
</tr>
<tr>
<td>d 20</td>
<td>0.77</td>
</tr>
</tbody>
</table>

Sulabo et al., 2007
Effect of Varying Creep Feeding Durations on Proportion of Piglets Consuming Creep Feed

- The availability of creep feed for longer durations did not improve weaning weights and weight gains of both pigs and litters or influence sow performance.
- The relatively small creep feed intake during the first week of creep feeding may not be sufficient to generate any differences in growth performance.

Discussion

- Initiating creep feeding at a later age does not detrimentally affect creep intake.
  - Older piglets readily accept creep feed and consume the same or more feed (on a daily basis) than piglets started on creep feed at an earlier age.
  - Litter creep feed intake may be more related to the maturity of piglets rather than the period of induction of creep feeding.

- Longer availability of creep feed to litters helps stimulate more piglets to consume creep feed and improves the average creep consumption of piglets categorized as eaters.
  - However, additional 7 to 11 d of creep feeding generated only 1 more eater per litter (10% increase).
  - The benefit of longer durations of creep feeding should be weighed based on the economic value of creating more eaters in whole litters.

Conclusions

- Longer durations of creep feeding do not affect pre-weaning gain and weaning weights but can increase the proportion of eaters in whole litters.

- The adoption of longer creep feeding durations should be evaluated based on practicality and the economic benefits of improved piglet performance attributed to eaters post-weaning.

Creating Eaters and Subsequent Nursery Performance

- Goal of this research was to:
  1) Determine when “eaters” begin consuming creep feed when offered starting at d 3 post-farrowing.
  2) Determine nursery performance of pigs classified as “eaters”, “noneaters” or weaned pigs not offered creep feed.
Creating Eaters and Subsequent Nursery Performance

- Creep-fed treatments:
  - A creep diet (1,585 kcal ME/lb, 1.56% TID Lys) with 1.0% chromic oxide was offered ad libitum at d 3 until weaning (d 21).
  - The creep diet was in pellet form (2-mm pellets)
  - Fed using a rotary creep feeder with a hopper (Rotecna® Mini Hopper Pan)

Fecal samples from all creep-fed pigs were taken using sterile swabs once per sampling day on d 7, 14, and 21.

Fecal color was assessed to categorize piglets as eaters or non-eaters of creep feed.

- **Eaters** - fecal sample was colored green at least once on any of the three sampling days.
- **Non-eaters** - creep-fed piglets that never showed green-colored feces.
- **No creep pigs** - pigs that were not provided with creep feed

Characterization of Piglets Provided with Creep Feed Based on Consumption Category

<table>
<thead>
<tr>
<th>Consumption Category</th>
<th>Percent of suckling pigs</th>
<th>Percent eaters by creep feeding period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaters</td>
<td>173, 41%</td>
<td>58, 23%</td>
</tr>
<tr>
<td>Non-eaters</td>
<td>254, 59%</td>
<td>51, 20%</td>
</tr>
</tbody>
</table>

Day 7: 145, 57%
Day 14: 61, 20%
Day 21: 85, 23%

Influence of creep feed on post-weaning ADG and Total Gain (d 0 to 28)

<table>
<thead>
<tr>
<th>Consumption Category</th>
<th>Overall ADG, lb</th>
<th>Total Gain, lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaters</td>
<td>24.3</td>
<td>0.87</td>
</tr>
<tr>
<td>Non-eaters</td>
<td>23.2</td>
<td>0.83</td>
</tr>
<tr>
<td>No Creep</td>
<td>23.3</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Overall ADG, lb
Total gain, lb

Sulabo et al., 2007

Creating Eaters and Subsequent Nursery Performance Conclusions

- Creep feeding tended to improve litter weaning weights due to higher survivability (2.9 vs 7.3%), but had no effects on pre-weaning gain and sow performance.
- Eaters had greater post-weaning gains and weights than non-eaters and non-creep fed pigs.
- Creating more eaters may be beneficial in improving post-weaning performance.

Creep Feeder Design

- **Objective:**
  - To determine the effects of different creep feeder designs and feed accessibility on the proportion of piglets consuming creep feed and pre-weaning performance.
Creep Feeder Design

- A creep diet was offered ad libitum at d 18 until weaning on d 21.
- For Treatment 1, sufficient amounts of creep feed were placed in the hopper to ensure that feed was always available. The adjustment of the hopper was checked daily to allow ad lib feeding and control feed wastage.
- For Treatments 2 and 3, small amounts of creep feed were placed on the feeder whenever the feeder was empty. The feeders were checked every 2 h for 12 h each day.

Creep Feeder Design Conclusions

- The rotary feeder with the hopper achieved a lower creep feed disappearance, but created the most eaters.
- The proper choice of creep feeder is essential to manage creep feeding and to maximize the proportion of piglets consuming creep feed in whole litters.

Overall Conclusions

- Creep feeding has no effect on pre-weaning gains or weaning weights, regardless of creep feeding duration for pigs weaned at 20 d of age.
- Generally, 60% to 70% of weanling pigs will become “eaters”, regardless of creep feeding duration over 3 d.
- Majority of creep feed intake occurs during the last few days prior to weaning.
Overall Conclusions

- Piglets designated as eaters had better post-weaning gains and d 28 nursery weight compared to non-eaters and non-creep fed pigs.
- Feeder design impacts success of creep feeding program.

Thank you!

K-State Research and Extension