A new method of environmental enrichment in piglet rearing: elevated platform with different enrichment materials

F. Lüthje, Dr. M. Fels, Prof. Dr. N. Kemper

Institute for Animal Hygiene, Animal Welfare and Farm Animal Behaviour

Warsaw, 02.09.2015
Introduction

- increasing demands on animal welfare
- needs of weaned piglets: social contact, activity, resting, play...
- i. E. space allowance and enrichment
- problem: existing barns with restricted structures, low investment possibilities

Is an elevated platform with enrichment materials in the pen a practical contribution to improve animal welfare of weaned piglets?
Material and Methods

Platform in combination with enrichment material

⇒ more space per animal

⇒ enriched environment

⇒ enabling functional areas for sleeping, elimination, activity
Material and Methods

Six rounds on the TiHo research farm

- group of 40 piglets (test), 4x10 piglets (control)
- housing in with 35 days of age, ca. 10 kg
- 33 days in pen
Material and Methods

- Classical rearing pen (4x10 piglets) and aisle
  - Fully slatted floor: 2.8 m²
  - 0.28 m²

- Modified pen with elevated platform (40 piglets)
  - Fully slatted floor on platform: 23.8 m²
  - 0.60 m²

Note: The images illustrate the different types of rearing pens and their floor space dimensions.
Material and Methods

Nine different enrichment materials, for instance:

- canister bucket
- pipe swing
- playing rail
- lifting pipe
- Mik-toy®
Material and Methods

Methods

⇒ video analysis: recording of 2 days/week, standing and lying piglets in four areas, playing piglets (morning, afternoon, night)

⇒ examination and lesion bonitur/scoring: cumulative index

more knowledge on
⇒ use of different functional areas
⇒ behaviour in the different areas
⇒ use of enrichment materials
⇒ possible effects

practical method for improved animal welfare?
Results
Results

28. day
Results

**Video analysis** (3 observation periods in 24 h)

**Behaviour in four different functional areas**

- **Standing**
- **Lying**

<table>
<thead>
<tr>
<th>Area</th>
<th>Standing</th>
<th>Lying</th>
</tr>
</thead>
<tbody>
<tr>
<td>On platform</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Beneath platform</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Walking area</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Feeding area</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
## Results

### Use of platform in the course of the day

<table>
<thead>
<tr>
<th>number of piglets...</th>
<th>morning</th>
<th>afternoon</th>
<th>night</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>...on platform</td>
<td>4.9</td>
<td>7.2</td>
<td>0.6</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>...under platform</td>
<td>18.5</td>
<td>12.6</td>
<td>21.6</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>...using enrichment material</td>
<td>1.5</td>
<td>0.7</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Results

Bonitur of lesions (integument)

<table>
<thead>
<tr>
<th></th>
<th>on day 6</th>
<th></th>
<th>on day 33</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 194</td>
<td></td>
<td>n = 22</td>
<td>n = 22</td>
<td></td>
</tr>
<tr>
<td>n = 22</td>
<td></td>
<td>n = 194</td>
<td>n = 22</td>
<td>n = 31</td>
</tr>
<tr>
<td>n = 200</td>
<td></td>
<td>n = 239</td>
<td>n = 31</td>
<td>n = 31</td>
</tr>
<tr>
<td>n = 239</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **test group: sum total**
- **control group: sum total**
- **test group: sum ears and tail**
- **control group: sum ears and tail**

Bonitur of lesions (integument) on day 6 and day 33.
Conclusions

<table>
<thead>
<tr>
<th>criterion</th>
<th>conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>video analyses</td>
<td>different areas were used over whole rearing period</td>
</tr>
<tr>
<td></td>
<td>- practical method to increase space allowance and to create different functional areas</td>
</tr>
<tr>
<td></td>
<td>- next steps: tests on farm, assisted by scientific monitoring</td>
</tr>
<tr>
<td>weight gain</td>
<td>daily gain of appr. 570 g over 33 days, no significant difference between test and control group</td>
</tr>
<tr>
<td>climate</td>
<td>- platform without negative effects on ammonia and other parameters</td>
</tr>
</tbody>
</table>
Thanks for your attention!

Financed by
Arbeitskreis Tierwohl