The effect of supplementing dry feed with a nutritional gel additive at the time of vaccination on nursery pig behavior

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Introduction

- Novel stimuli infrequently occur during the nursery phase (Grandin, 1997)
- Some novel stimuli
  - Caretaker entering into their pen (Geverink et al., 1998; Curtis and McGlone, 2006; Grandin, 2006)
  - Vaccination procedures (Hemsworth et al., 1996a; Hemsworth et al., 1996b)

Nursery pigs receive vaccinations for Circovirus, Mycoplasma, Erysipelas and Ileitis

- Noted by swine practitioners approximately 6 h after vaccination;
  - Lie down,
  - Become more lethargic
  - Reduce the amount of feed consumption
- Termed the “buzz” response

The objectives of this study were to determine if the addition of gel at the time of vaccination provided benefits to the nursery pigs’ maintenance behaviors and postures

Materials and Methods

- Institutional Animal Care and Use Committee
- 64 crossbred gilts and barrows
  - Starting age 21 ± 4 d
  - Starting weight 4.2 kg
- Research was conducted in the Spring of 2007
- Double L® confinement nursery buildings
- Lights were turned on at 6:00 AM and off at 6:00 PM
- Caretakers observed all pigs twice daily, at 6:00 AM and 4:00 PM

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**Materials and Methods**

- Two buildings on site
- Each building held two rooms
  - 16 pens used for the experiment
- Four pigs per pen
  - Two barrows
  - Two gilts
  - 0.38 m² / pig

**Pigs had ad libitum access to a commercially available pelleted feed**

- 3399 kcal / kg
- 1.55 % Lysine

**Indoor environmental measurements**

- Data loggers (HOBO Pro series)
- Two data loggers were suspended centrally in the nursery room
- Height of 1 m from the floor
- 10-minute intervals
  - Ambient temperature 27.5 °C
  - Relative humidity 47.3 %

**Treatments**

<table>
<thead>
<tr>
<th>GEL</th>
<th>NO GEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACCINATED</td>
<td>TRT 3 (n = 4)</td>
</tr>
<tr>
<td>NON-VACCINATED</td>
<td>TRT 1 (n = 4)</td>
</tr>
</tbody>
</table>

**Ultra care Gel-C pre started supplement for swine**

- Ultra care Gel-C pre started supplement for swine
- 1.6 % crude fat
- 3 % crude protein
- Max moisture 80 %
- Plastic, circular removable feeder (Kane Manufacturing Company, Inc., Des Moines, IA)
  - 19.8 cm in diameter x 10 cm height

**Ultra care Gel-C pre started supplement for swine**

- Gel Mixed with dry pelleted starter ration
- 1:1 (0.45 kg ration: 0.45 kg gel)
- Groups received gel treatments;
  - Day before
  - Day of and,
  - Day after vaccination
- All gel-feed mix was removed if there was any evidence of desiccation or fecal contamination
**Vaccination Schedule**

- One dose (2 cc) of Mycoplasma hyopneumoniae killed bacterin (Pfizer Animal Health)
- Administered intramuscularly (18 gauge x 2.1 cm needle) Given to pigs at 10 days post weaning

**Behavioral Acquisition**

- Scoring of video began at 10:00 am on day 9 and ended at 10:00 am on day 11
- One day prior to visual recording
  - Pigs were identified with an individual number
- One 12 v black and white CCTV camera was affixed onto the back wall of the nursery
- Video was captured onto a DVR at 10 frames per second in black and white mode

**Behavioral Acquisition**

- Two postures
  - Active
  - Inactive
- Two behaviors
  - Drinker
  - Feeding station

**Experimental Design & Analysis**

- Experimental unit = nursery pen
- Behavioral data were expressed as percentages and were subjected to arcsine square root transformation process
- Behavioral data analyzed using the PROC MIXED procedure of SAS
- Model main plot;
  - Parameter of interest
  - Day
  - Treatments
  - Day * Treatments
- Pen nested within treatment was included as a random effect
- Repeated measure statement of day nested within pen
- P < 0.05 was considered significant and PDIF was used to separate the means

**Results**

- There were no day or day by treatment interactions for any behaviors or postures of interest (P > 0.05)
## Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Control</th>
<th>TRT 1</th>
<th>TRT 2</th>
<th>TRT 3</th>
<th>P-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>12.1 ± 1.3</td>
<td>10.5 ± 1.3</td>
<td>12.8 ± 1.3</td>
<td>10.97 ± 1.3</td>
<td>0.60</td>
</tr>
<tr>
<td>Inactive</td>
<td>79.9 ± 1.2</td>
<td>80.2 ± 1.2</td>
<td>80.1 ± 1.2</td>
<td>79.6 ± 1.2</td>
<td>0.99</td>
</tr>
<tr>
<td>Behavior, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeding</td>
<td>7.7 ± 0.4</td>
<td>9.1 ± 0.4</td>
<td>6.9 ± 0.4</td>
<td>9.1 ± 0.4</td>
<td>0.009</td>
</tr>
<tr>
<td>Drinker</td>
<td>0.3 ± 0.1</td>
<td>0.2 ± 0.1</td>
<td>0.2 ± 0.1</td>
<td>0.4 ± 0.1</td>
<td>0.37</td>
</tr>
</tbody>
</table>

## Conclusions

- Time spent at the feeding stations increased compared to pigs that did not have access to the gel.

## Acknowledgements

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## Thank You