

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

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April 14th, 2009
Iowa Feed and Nutrition Seminar Series
Ames, IA

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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)

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Introduction

- 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

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Introduction

- Maybe tools that could facilitate the nursery pig
- Commercially available product, gel
- Designed to ease the transition from a liquid diet to dry rations is a gel-based feed (Land O Lakes Purina Feed, LLC)
- Pigs after vaccinations maybe more inclined to resume eating if they have a gel with higher water content than their regular dry pelleted ration

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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

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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

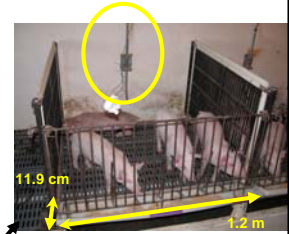
- Two buildings on site
- Each building held two rooms
 - 16 pens used for the experiment
- Four pigs per pen
 - Two barrows
 - Two gilts
 - 0.38 m² / pig



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Materials and Methods

- Pigs had ad libitum access to a commercially available pelleted feed
 - 3399 kcal / kg
 - 1.55 % Lysine



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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 %

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Treatments

	GEL	NO GEL
VACCINATED	TRT 3 (n = 4)	TRT 2 (n = 4)
NON-VACCINATED	TRT 1 (n = 4)	CONTROL (n = 4)

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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



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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

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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



http://www.pfizerah.com/product_overview.asp?drug=R1&country=US&lang=EN&species=SW

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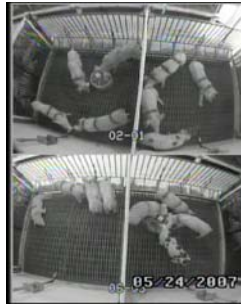
Behavioral Acquisition

- 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

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Behavioral Acquisition

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



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Behavioral Acquisition

- Behavior was collected by two experienced observers
- Viewed the DVD's using a 10 minute scan sample (Bowden et al., 2008)
- Recorded observational data using Observer software

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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

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Results

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

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Results					
	Treatment				
	Control	TRT 1	TRT 2	TRT 3	P-values
Posture, %					
Active	12.1 ± 1.3	10.5 ± 1.3	12.8 ± 1.3	10.97 ± 1.3	0.60
Inactive	79.9 ± 1.2	80.2 ± 1.2	80.1 ± 1.2	79.6 ± 1.2	0.99
Behavior, %					
Feeding	7.7 ± 0.4 ^{a,b}	9.1 ± 0.4 ^a	6.9 ± 0.4 ^b	9.1 ± 0.4 ^a	0.009
Drinker	0.3 ± 0.1	0.2 ± 0.1	0.2 ± 0.1	0.4 ± 0.1	0.37

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Conclusions

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

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Acknowledgements

- Land O' Lakes Purina Feed LLC
- Josh Bowden, Tyson Dinslage, Larry Sadler, Allison Meiszberg, Tony Uhlenkamp, and Jill Garvey
- Iowa State University Animal Science Department Hatch funds

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Thank You



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