

A QUANTITATIVE ETHOGRAM OF PLAY BEHAVIORS IN GROUPED PIGS: CONTROL VS ENRICHMENT ROPE



Kandis R. Cazenave, Kerbey Jacobs, Stephanie Soto, and
Rachel Wyant

Introduction

- Pigs confined in commercial production environments may express instinctual behaviors inappropriately when their natural impulses are blocked by artificial means (i.e. concrete or grate floors, lack of nesting substrate, commercial feed diet) (Kittawornrat & Zimmerman 2011)
- A number of research studies exist exploring:
 - different types of enrichment objects for pigs (i.e. tires, chains, rubber hoses, dog toys),
 - properties of these objects (i.e. ingestible, destructible, chewable, odorous),
 - along with various modes of presentation (suspended vs floor) and material (rope, wood, chain, metal pipe).

- A small amount of literature exists examining the effects of odor and pheromones on pig behavior

- No research currently exists which examines the relationship between enrichment items, pheromones, and their potential influence on pig play

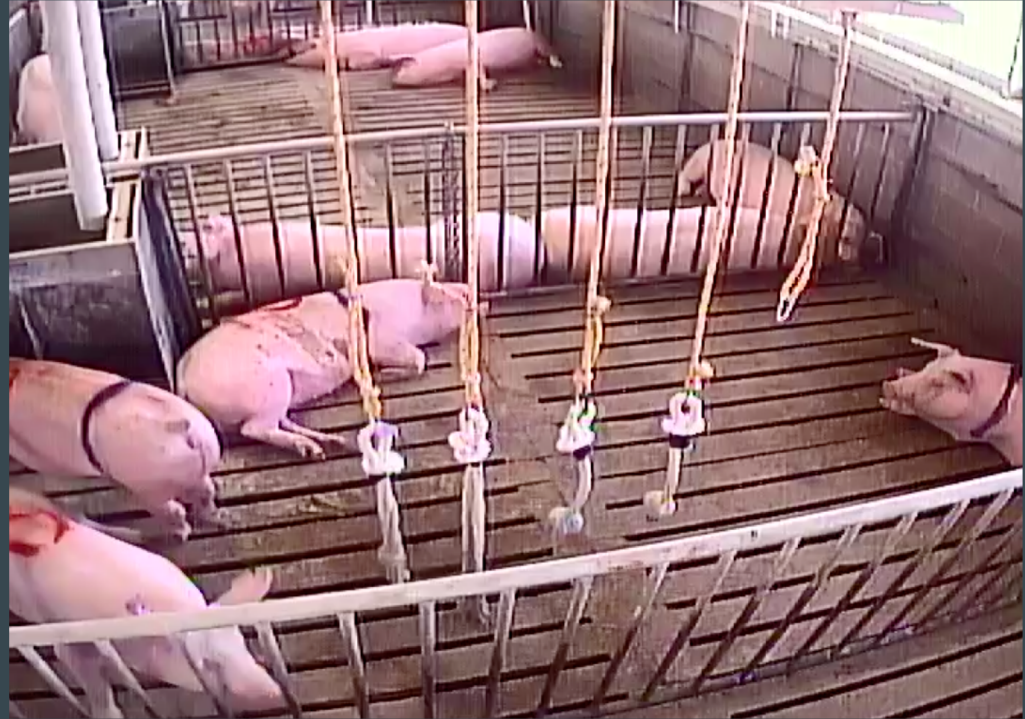
Hypothesis/ Questions

1. Does the control rope induce the same interest as the treatment rope?
 1. Does the presence of the enrichment change other behaviors?
 1. What are the control gilts doing when the others are chewing the rope?
 1. About how much time do the gilts spend touching the rope?
-

Materials & Methods

Materials & Methods

- Twelve 5-month old PIC Camborough gilts
- 4 gilts to a pen
- Pens measured 7x12 ft and had one feeder and one waterer for the group



Materials & Methods

- 3 groups of four pigs were observed and behavior recorded for 24 hours
 - Control: No Rope
 - Placebo: Rope w/ blue buffer
 - Treatment: Rope w/ BSA
 - Boar Better
 - 40 $\mu\text{g/mL}$ Androstenone
 - 40 $\mu\text{g/mL}$ Quinoline
 - 40 $\mu\text{g/L}$ Androstenol
- One video camera and recorder at each of the three home pens filmed pig behavior continuously.

Treatment Rope



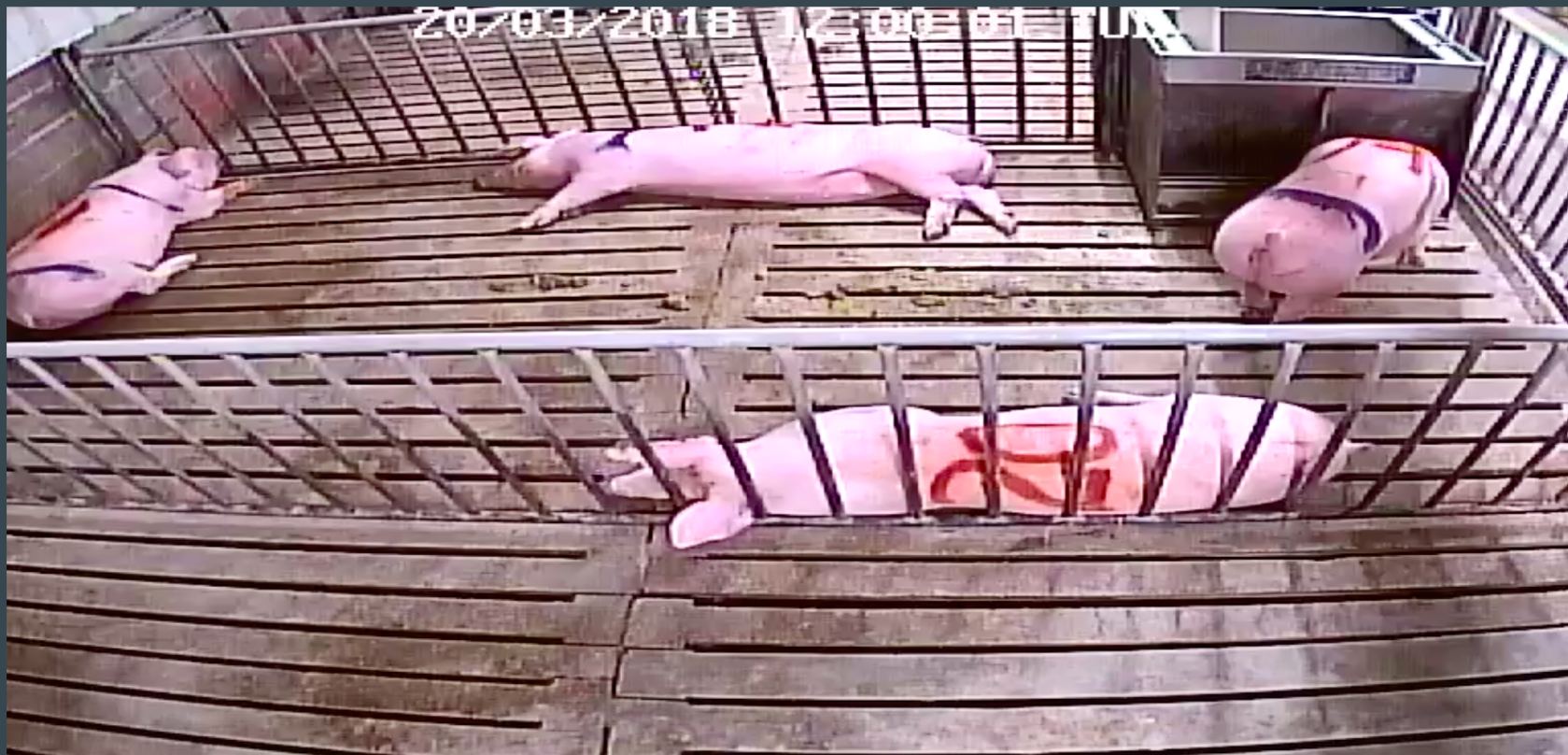
Sprayed with pheromone “Boar Better” solution

Placebo Rope



Rope w/ blue buffer solution

Control



No Rope Present

Data Collection/ Video Analysis

- Data Collection Period:
 - 8:00-8:49 AM
 - 9:00-9:49 AM
 - 10:00-10:49 AM
 - 11:00-11:49 AM
- Scan Sampling Method
 - Coded behaviors every minute/hr during a period of high activity

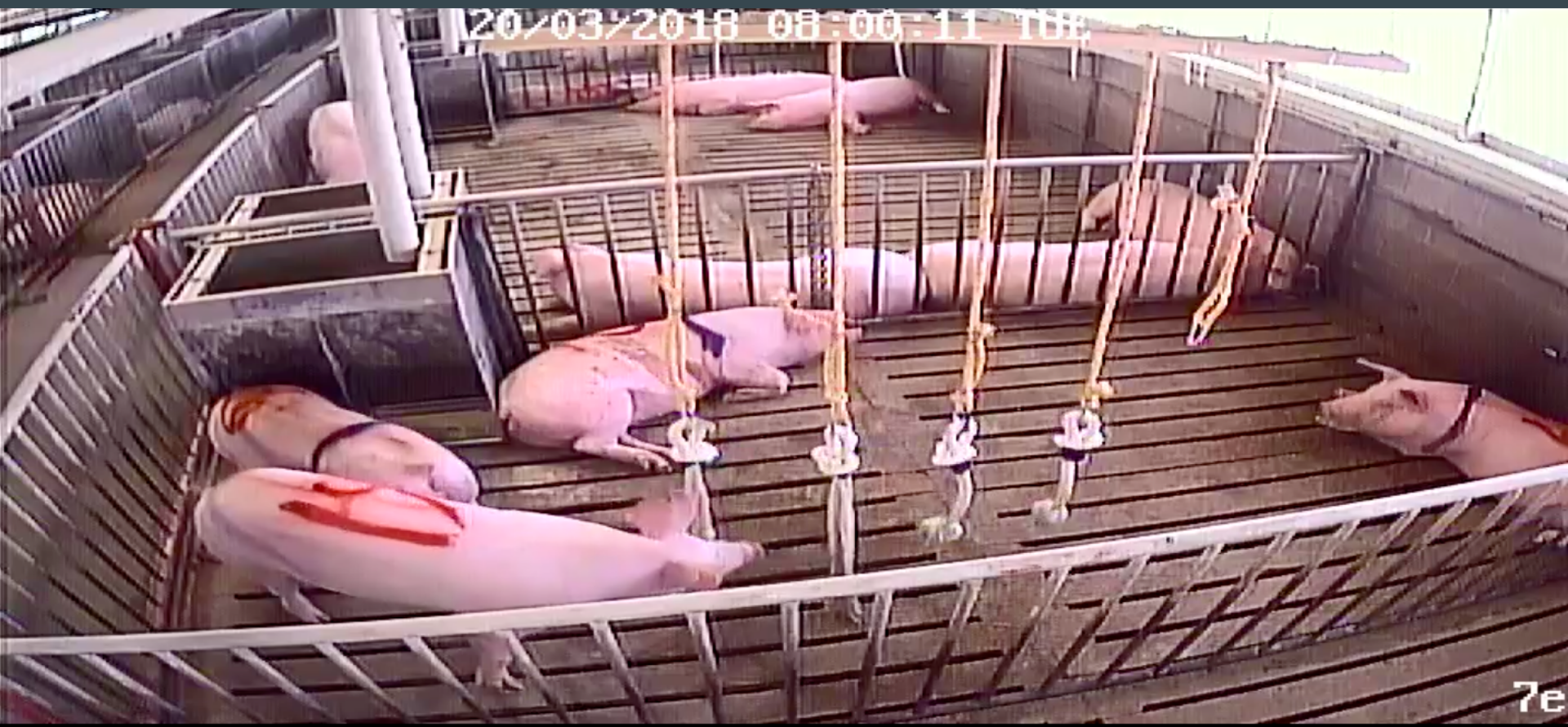
Ethogram

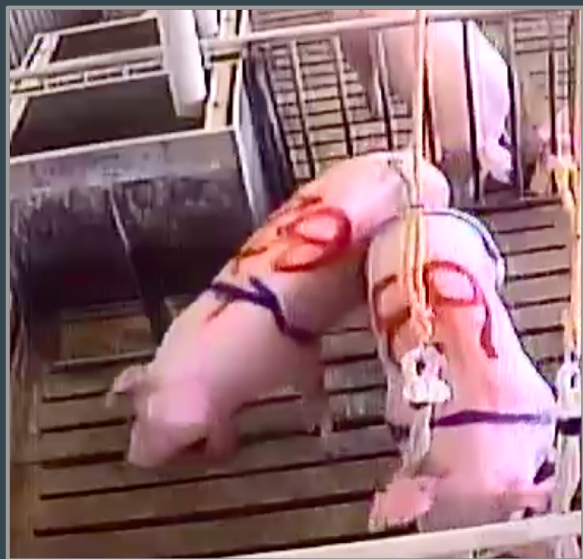
Stand	All four feet are on the ground, belly off the ground
Feed	Head down, inside feeder
Drink	Head elevated at water spout level
Move	1 second before or after interval at least 1 foot in motion, or elevated off ground
Lay	At least two legs touching ground, includes sitting
Rope Manipulation	Any manipulation or contact with rope, with mouth or body
Play	Any contact with other pigs or objects that are not the rope

Rope Manipulation



2: Lay, 1: Feed, 1: Rope Manipulation





Move



Drink



Stand

20/03/2018 09:35:18



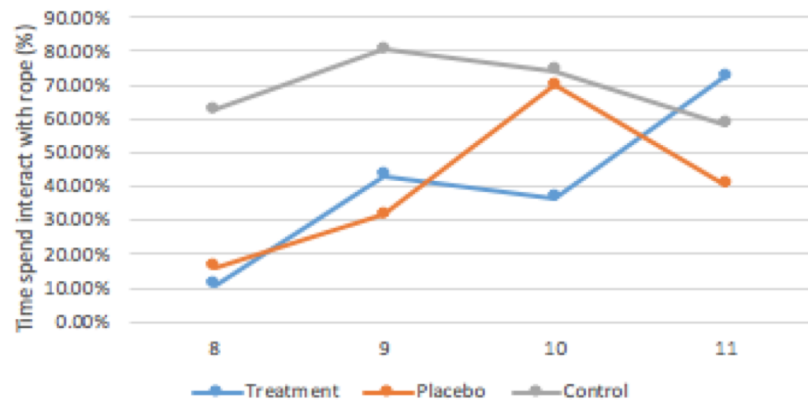
7e

Results

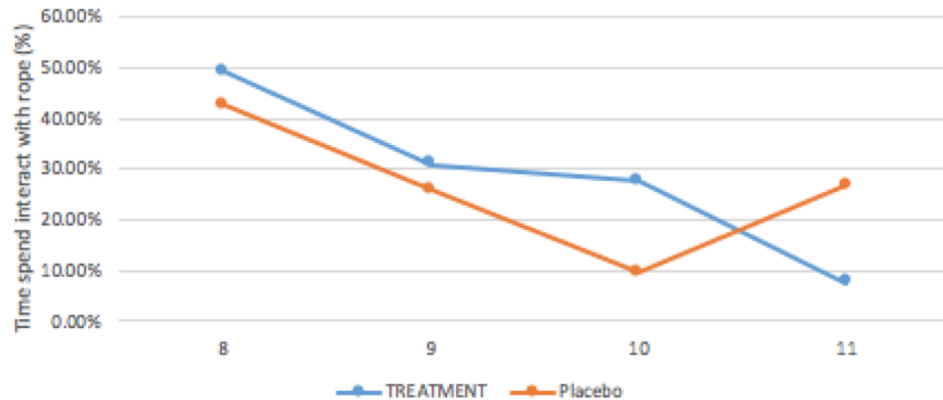
Frequencies of behaviors shown by gilts in Treatment, Placebo, and Control group

Pen	Treatment	Time	Stand	Feed	Drink	Move	Lay	Play	Rope Manipulation
7E	Treatment	8	18	31	2	4	26	1	118
7E	Treatment	9	5	10	3	1	104	0	74
7E	Treatment	10	1	41	3	1	88	0	66
7E	Treatment	11	1	7	0	0	174	0	18
	AVG		6.25	22.25	2	1.5	98	0.25	69
	% AVG		3.13%	11.13%	1.00%	0.75%	49.00%	0.13%	34.50%
13W	Placebo	8	8	49	0	2	39	0	102
13W	Placebo	9	3	54	2	3	76	0	62
13W	Placebo	10	0	6	1	1	168	1	23
13W	Placebo	11	0	30	0	4	97	5	64
	AVG		2.75	34.75	0.75	2.5	95	1.5	62.75
	% AVG		1.38%	17.38%	0.38%	1.25%	47.50%	0.75%	31.38%
9W	Control	8	14	25	1	4	150	6	.
9W	Control	9	1	4	0	1	193	1	.
9W	Control	10	5	10	4	1	178	0	.
9W	Control	11	19	16	1	6	140	18	.
	AVG		9.75	13.75	1.5	3	165.25	6.25	
	% AVG		4.88%	6.88%	0.75%	1.50%	82.63%	3.13%	

Laying behavior



Rope playing behavior



Sequential Analysis: 1 Behavior Before & After

BEFORE

MOVE	47	63.51%
LAY	16	21.62%
FEED	7	9.46%
STAND	2	2.70%
DRINK	2	2.70%

AFTER

MOVE	47	63.51%
LAY	16	21.62%
FEED	8	10.81%
STAND	3	4.05%

Sequential Analysis: 2 Behaviors Before & After

BEFORE

LAY	27	35.06%
STAND	6	7.79%
FEED	21	27.27%
DRINK	11	14.29%
PLAY	4	5.19%
ROPE MANIP.	3	3.90%
MOVE	5	6.49%

AFTER

LAY	11	17.19%
STAND	10	15.63%
FEED	19	29.69%
DRINK	13	20.31%
PLAY	3	4.69%
ROPE MANIP.	8	12.50%

Conclusions

- No correlations between play and rope manipulation in the control vs. enrichment groups were found to be statistically significant. (using a P value of $< .05$)
- Pheromone did not significantly increase or decrease rope play

- Pigs in the control group spent 82.63% of their time laying and only 6.88% of time feeding compared
- 47.50% of time laying and 17.38% feeding in the placebo group and 49.00% laying
- 11.13% feeding in the treatment group

- In a larger study with a higher volume of data, the providence of enrichment ropes may:
 - Increase both constructive (rather than destructive) play
 - Increase feeding volume in market gilts, (resulting in lower repair cost to producers and higher slaughter weight of gilts)
 - Increase profit