Advancements in Swine Welfare

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Education

BS Biology:
Grinnell College, 2007

DVM cum Laude:
Iowa State University, 2011

PhD Animal Physiology:
Iowa State University, 2014

Diplomate:
American College of Animal Welfare, 2018
Experience

Current Position; 2014-current
Assistant Professor

- Animal Welfare and Behavior

- Animal Science Department
  65% Extension
  35% Teaching
Who cares about swine welfare?

Consumers

Market

Producers
Social license
The privilege of operation with minimal formalized restrictions (legislation, regulation, or market requirements) based on maintaining public trust by doing what’s right.
Dear Grocer:

As a frequent shopper in your store, I want to be able to purchase products that are **Certified Humane Raised and Handled®**. I know that products with this specific certification come from animals that were raised with strict humane standards from birth through the slaughter process.

The nation’s leading humane organizations back the **Certified Humane®** program and USAToday called **Certified Humane®** a gold standard.

This is a label that I trust and I would like to purchase these products in your store. I ask that you start selling products that are **Certified Humane®**.

Sincerely,

*For more information on meeting the growing demand for products that are **Certified Humane®**, please visit:*

[Certified Humane®](http://www.certifiedhumane.org)
Market

Food Company Policies on Gestation Crates
Below is a list of the 60+ major food companies with policies to eliminate gestation crates, followed by quotes from each regarding their policy.

<table>
<thead>
<tr>
<th>Companies with Gestation Crate Elimination Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>McDonald's</td>
</tr>
<tr>
<td>Wendy's</td>
</tr>
<tr>
<td>Walmart</td>
</tr>
<tr>
<td>Johnsonville Sausage</td>
</tr>
<tr>
<td>Au Bon Pain</td>
</tr>
<tr>
<td>Roundy's</td>
</tr>
<tr>
<td>Dunkin' Brands</td>
</tr>
<tr>
<td>Sonic Drive-In</td>
</tr>
<tr>
<td>Arby's</td>
</tr>
<tr>
<td>General Mills</td>
</tr>
<tr>
<td>ARAMARK</td>
</tr>
<tr>
<td>TGI Friday's</td>
</tr>
</tbody>
</table>
Producer

• Steward of land and animals
• Make a profit
• Aware of changes of consumer and political climate
Translating animal welfare science to the farm

- Assessments and audits
- Timely euthanasia
- Pain management
Assessments and audits

Voluntary programs
Audited standards
Legislation

Social License
Regulation
Voluntary programs

Program Goal: Continuous Improvement

Step 1: Individual training of Good Production Practices (GPPs)

Step 2: Arrange on-farm site assessment of animal care practices

Certification

Site Status

Implement GPPs

Improvements from assessment explained and implemented

Social license

Regulation
Social License

Regulation

Law
Social License Regulation

Audits

Assess and score key measurements based on set requirements by the packer.
What measures are recorded?

27 key aspects of swine care and pre-harvest food safety

Focus areas:
- Critical Criteria
- Animals (50%)
- Caretakers
- Records/Documentation
- Facilities
- Transportation
- Pre-harvest food safety
Impact to the industry?
<table>
<thead>
<tr>
<th>Farm</th>
<th>CSIA Audit Total Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July, 2016</td>
</tr>
<tr>
<td>A</td>
<td>79.4%</td>
</tr>
<tr>
<td>B</td>
<td>84.7%</td>
</tr>
<tr>
<td>C</td>
<td>73.7%</td>
</tr>
<tr>
<td>D</td>
<td>74.9%</td>
</tr>
<tr>
<td>E</td>
<td>75.8%</td>
</tr>
<tr>
<td>F</td>
<td>79.8%</td>
</tr>
</tbody>
</table>
# Animal based measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space (90%)</td>
<td>93.9%</td>
<td>97.5%</td>
<td>97.9%</td>
<td>99.6%</td>
<td>100%</td>
<td>99.6%</td>
</tr>
<tr>
<td>BCS 1 (1%)</td>
<td>0.00%</td>
<td>0.35%</td>
<td>1.06%</td>
<td>1.43%</td>
<td>0.40%</td>
<td>0.36%</td>
</tr>
<tr>
<td>Lameness (2%)</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.70%</td>
<td>0.36%</td>
<td>0.00%</td>
<td>0.36%</td>
</tr>
<tr>
<td>Abscesses (5%)</td>
<td>0.34%</td>
<td>1.06%</td>
<td>1.06%</td>
<td>0.36%</td>
<td>1.20%</td>
<td>0.72%</td>
</tr>
<tr>
<td>Deep Wounds (1%)</td>
<td>2.38%</td>
<td>5.63%</td>
<td>4.93%</td>
<td>1.43%</td>
<td>6.43%</td>
<td>1.80%</td>
</tr>
<tr>
<td>Scratches (10%)</td>
<td>0.00%</td>
<td>3.52%</td>
<td>0.35%</td>
<td>0.00%</td>
<td>0.80%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Shoulder Sores (5%)</td>
<td>4.42%</td>
<td>3.52%</td>
<td>4.93%</td>
<td>2.87%</td>
<td>4.02%</td>
<td>2.16%</td>
</tr>
<tr>
<td>Tail Biting (5%)</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Prolapses (1%)</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Vulva Injuries (5%)</td>
<td>1.02%</td>
<td>2.46%</td>
<td>0.70%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.72%</td>
</tr>
</tbody>
</table>
Timely euthanasia

Critical failure

Humane Euthanasia
This topic is critical to assuring good animal well-being and is an area for automatic failure.

Objective: Animals are euthanized in a timely manner, which is defined as:

- Animals that have no prospect for improvement or not responding to care and treatment after two days of intensive care must be humanely euthanized unless otherwise recommended by a veterinarian. The caretaker’s past experiences with similar conditions should be used to make informed decisions about the likelihood of recovery.
- Severely injured or non-ambulatory pigs with the inability to recover are euthanized immediately.
  - An animal is considered non-ambulatory if it cannot get up or if it can stand with support but is unable to bear weight on two of its legs.
- Any animal that is non-ambulatory with a body condition score of 1 must be euthanized immediately.
- Pigs with hernias that are perforated must be euthanized. Pigs with hernias that are ulcerated and necrotic must be euthanized. Pigs with large hernias that touch the ground while standing and cause difficulty walking and are ulcerated must be euthanized.
- Any pig with an untreated prolapse that has become necrotic must be euthanized. Uterine prolapses must be euthanized immediately.
Timely Euthanasia

• Welfare ~ Quality of animal care, including at time of death

• Goal: Use euthanasia as a tool to **eliminate** pain and suffering when recovery is prolonged or not likely\(^1\)

\(^1\)AVMA, 2013
Euthanasia equipment
## Goals

<table>
<thead>
<tr>
<th>Study 1</th>
<th>Study 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a suitable adult learning-style</td>
<td>Utilize expert opinion to identify swine euthanasia criteria and barriers to euthanasia</td>
</tr>
<tr>
<td>training program related to on-farm</td>
<td></td>
</tr>
<tr>
<td>euthanasia</td>
<td></td>
</tr>
</tbody>
</table>

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Study 1
Study 2
Materials and Methods

• Two moderated focus groups
  • \( n = 9 \) participants in each
• Members of the U.S. National Pork Board *Animal Welfare* Committee
# Focus Group Questions

1. What types of decision-making tools are currently used on farms to assist in deciding when to euthanize a pig, and how are they used?

2. What factors are considered and how are decision-making tools developed by individual farms?

3. What is the biggest factor for why euthanasia would be delayed or not performed on your farm or farms you have visited?

4. Would a standardized decision-making tool be positive or negative for the U.S. swine industry?

5. What types of euthanasia-specific training should be provided? How often should euthanasia-specific training be provided?

6. What characteristics of a decision-making tool maximize the ease of use and acceptability of the tool on farm?
# Focus Group Questions

1. What types of decision-making tools are currently used on farms to assist in deciding when to euthanize a pig, and how are they used?

2. What factors are considered and how are decision-making tools developed by individual farms?

3. **What is the biggest factor for why euthanasia would be delayed or not performed on your farm or farms you have visited?**

4. Would a standardized decision-making tool be positive or negative for the U.S. swine industry?

5. What types of euthanasia-specific training should be provided? How often should euthanasia-specific training be provided?

6. What characteristics of a decision-making tool maximize the ease of use and acceptability of the tool on farm?
Barriers to Euthanasia

- Logistical challenges
- Farm culture/Accountability
- Emotional strain
- Competing priorities
- Economics
Emotional strain

- Sense of failure
- Desire to save all pigs
“Your job is to keep pigs alive and care for them well. The end-of-life decision is not one that really flows well with that mentality. So you’re asking people to [...] essentially say, ‘I failed.’”

- G2, producer
Farm culture and Accountability

Community discipline

Maintaining a high standard
“[Euthanasia] is a highly dispersed decision occurring millions of times a day across our swine farms, and it really needs a community sense of discipline with each other to keep on doing it correctly.”

- G1, academia veterinarian
Pain management for castration
Why Castrate?

Prevent:
- Unwanted breeding
- Aggressive behaviors
- Boar taint
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

TOSU uCOM, 12/28/2015
Industry expectations

1. Increasing the number of third party sow farm audits conducted through our FarmCheck™ program
2. Urging hog producers to use video monitoring in their sow farms to increase oversight and decrease biosecurity risks
3. Encouraging hog producers to stop using manual blunt force as a primary method of euthanizing sick or injured piglets

4. Supporting the use of pain mitigation (such as anesthetic or analgesic) for tail docking and castration of piglets

5. Urging hog farmers to improve housing for pregnant sows by focusing on the quality and quantity of space provided, including urging all future sow barn construction or remodeling to allow for pregnant sows of all sizes to stand, lie down, stretch their legs and turn around.
Current challenges:
How do we implement realistic pain management in a large commercial setting?
Effects of oral meloxicam and topical lidocaine on piglet behavior during castration
Animals

- Don Scott research facility
- 235 male piglets
- 35 litters
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

tOSU uCOM, 12/28/2015
# Treatments

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>No pain management</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Meloxicam</td>
<td>1mg/kg oral meloxicam</td>
</tr>
<tr>
<td>L</td>
<td>Lidocaine</td>
<td>Spray w/ 2% lidocaine</td>
</tr>
<tr>
<td>X</td>
<td>Combo</td>
<td>1mg/kg oral meloxicam &amp; Spray w/ 2% lidocaine</td>
</tr>
</tbody>
</table>
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.
Castration

- 3-7 days of age
- Same technician w/ same technique
- Treatment administered immediately after castration
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.
Behavioral Observation

- Observers blind
- Live instantaneous scan sampling
- 5 minute intervals, (12 observations/hour)
- Hours 0-4, 24-28, and 48-52
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

TOSU uCOM, 12/28/2015
# Pain

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tail Wag</td>
<td>Tail movements side to side or up and down.</td>
</tr>
<tr>
<td>Tremble</td>
<td>Body is shivering. Piglet may be lying, standing or sitting.</td>
</tr>
<tr>
<td>Prostrate</td>
<td>Piglet is standing in an upright position with head held below shoulder height.</td>
</tr>
<tr>
<td>Scratch</td>
<td>Piglet is rubbing rump against the floor or sides of farrowing pen</td>
</tr>
</tbody>
</table>
1. Add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

TOSU uCOM, 12/28/2015
Pain

Count for Behavior Observed in Each Hour of Control Pigs

Pain behaviors: tail wag, tremble, prostrate, scratch
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

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Results

• No treatment effect on behavior categories
• Pain behavior trending at 0.07

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>±SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.1</td>
<td>0.10</td>
</tr>
<tr>
<td>L</td>
<td>2.4</td>
<td>0.11</td>
</tr>
<tr>
<td>M</td>
<td>2.1</td>
<td>0.10</td>
</tr>
<tr>
<td>X</td>
<td>2.1</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Average counts of pain behavior each hour
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

TOSU uCOM, 12/28/2015
Results

- No treatment effect on behavior categories

Current products being used on-farm to control castration pain are NOT effectively managing pain behavior each hour.

<table>
<thead>
<tr>
<th></th>
<th>Pain behavior each hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.1 ± 0.10</td>
</tr>
<tr>
<td>L</td>
<td>2.4 ± 0.11</td>
</tr>
<tr>
<td>M</td>
<td>2.1 ± 0.10</td>
</tr>
<tr>
<td>X</td>
<td>2.1 ± 0.11</td>
</tr>
</tbody>
</table>
add alt text to all graphics including photos, charts, and shapes. Right click the object, choose format shape, then edit the alt text title and description.

TOSU uCOM, 12/28/2015
Conclusions

Consumer interest in swine welfare continues to increase

Swine welfare science must collaborate with producer to:

- Identify realistic alternatives
- Prioritize on-farm education
- Prepare producers for the future
Thank you!
Any questions?