Euthanasia & Mortality Management

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Department of Animal Science
Michigan State University

Pig Transition from Sow to Nursery
MSUE Pork Team Roadshow 2013

Wednesday, January 16
Allegan County MSU Extension Office
Human Services Building
3255 122nd Ave., Allegan

Thursday, January 17
Isabella County MSU Extension Office
200 N. Main St., Mt. Pleasant

Wednesday, January 30
Dearth Community Center
Branch County Fairgrounds
262 Sprague Street, Coldwater

Thursday, January 31
Cass County MSU Extension Office
120 N. Broadway, Suite 209, Cassopolis
Previous Presentations on Euthanasia

• Becoming a Better Decision Maker About Euthanasia
  • 2011 Pork Team Winter Program
• Guidelines for On-Farm Euthanasia of Swine
  • 2012 MPPA-MSUE State-Wide Meetings
## AVMA Approved Methods of Euthanasia

<table>
<thead>
<tr>
<th>Method</th>
<th>Suckling Pig (to 12 lb)</th>
<th>Nursery Pig (to 70 lb)</th>
<th>Grow-Finish (to market wgt)</th>
<th>Adult (Sow or Boar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Dioxide (CO2)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes, not practical</td>
<td>Yes, not practical</td>
</tr>
<tr>
<td>Gunshut</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Penetrating Captive Bolt</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Non-penetrating Captive Bolt</td>
<td>Yes</td>
<td>Yes with 2ndary step</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Electrocution</td>
<td>&gt;10 lb</td>
<td>Yes with 2ndary step</td>
<td>Yes with 2ndary step</td>
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</tr>
<tr>
<td>Bluejuice Overdose (Vet)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Blunt Trauma</td>
<td>Yes</td>
<td>No</td>
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</table>
Quality Assurance Programs

- Pork Quality Assurance (PQA)
  - Created in 1989
- Pork Quality Assurance Plus (PQA Plus)
  - Revamped PQA Program in 2007
  - Added animal care & well-being guidelines
- Site Assessments
  - Accompanies the PQA Plus program
  - On farm assessment of animal care
What is Pork Quality Assurance?

• Continuous improvement program that focuses on good production practices for pork production
• Focus areas of the program include:
  • Food safety – minimizing physical, biological and chemical hazards
  • Animal well-being – proper handling, treatment and care of animals
• Program gives producers tools to help them track, measure and improve animal care
• Training tool for swine farm employees
Site Assessments Completed

- 16,727 sites with valid site status
- 75.19% of US swine inventory represented
% of Sites Marked as Acceptable (16,727)

- VCPR: 97.9%
- Med & Trt Records: 73.7%
- Caretaker Training: 85.32%
- Emergency Action Plan: 77.24%
- Emergency Backup: 93.5%
- Daily Records: 89.03%
- Euthanasia Plan: 93.54%
- Timely Euthanasia: 80%
- Facilities: 94.1%
- Air Temperature: 97.39%
- Air Quality: 98.43%
- BCS - breeding: 92.43%
- BCS - non-breeding: 96.31%
- Space - breeding: 95.85%
- Space - non-breeding: 95.48%
- No Acts of Abuse: 99.84%
Euthanasia Action Plans

• Should be developed by all swine production units
• Need to reflect the phase of production, size/age of pig
• Alternative methods should be discussed and developed if any issues or malfunctions arise
• Action plan should include the training of all caretakers and clarification of their role in the euthanasia process
Euthanasia Action Plan

Farm Name: XYZ Farm

Date: January 7, 2009

Drafted by: Joe Smith, producer
Dr. John Doe, veterinarian

Employees responsible for euthanasia: Sally Smith, Dave Jones, John Doe

<table>
<thead>
<tr>
<th>Phase of production / Size of pig</th>
<th>Euthanasia method of choice</th>
<th>Alternative method of euthanasia</th>
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<tr>
<td>Suckling pigs, up to 12 pounds</td>
<td>Carbon dioxide CO₂</td>
<td>Non-Penetrating Captive Bolt</td>
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<tr>
<td>Nursery pigs, up to 70 pounds</td>
<td>Penetrating captive bolt</td>
<td>Gunshot</td>
</tr>
<tr>
<td>Grower - Finisher pigs, up to market weight</td>
<td>Penetrating captive bolt</td>
<td>Gunshot</td>
</tr>
<tr>
<td>Mature pigs, sows and boars</td>
<td>Penetrating captive bolt</td>
<td>Gunshot</td>
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Employees responsible for euthanasia who have been trained in methods of euthanasia, confirming insensibility and confirmation of death.

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<thead>
<tr>
<th>Employee name</th>
<th>Date of method training</th>
<th>Date of confirming insensibility training</th>
<th>Date of death confirmation training</th>
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<tbody>
<tr>
<td>John Doe</td>
<td>October 14, 2008</td>
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# Euthanasia Action Plan

**Farm Name:** ____________________________________________________________

**Date:** ________________________________________________________________

**Drafted by:** ___________________________________________________________

**Employees responsible for euthanasia:** __________________________________

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- Emergency Contact
- Connect with Mortality Management Plan
How do you confirm a successful euthanasia event?

- **Insensibility**
  - Checked within 30 seconds after euthanasia method was completed
    - Rhythmic breathing
    - Constricted pupils
    - Attempts to rise
    - Reflex action when running finger across eyelash
    - Response to pain

- **Death**
  - Checked after 3 minutes following euthanasia process
    - No breathing
    - No heart beat
    - No movement
    - No response pain
    - Eye does not blink when touched
Failure of Proper Euthanasia Process

• Typically is a result of the following
  • Hesitation by employee preforming the procedure
  • Poor placement of euthanasia tool
    • Specifically in regards to firearm/gunshot and captive bolt methods
  • Maintenance of equipment
  • Failure to recognize animals that need to be euthanatized

• Protocols for back up methods of euthanasia should be present at each swine facility and written in the euthanasia action plan
The Importance of Mortality Management
Goals

• Routine Mortality Management
  • Be able to evaluate suitability of method to production system
    • Economics, flow, impact on environment

• MDARD Mass Carcass Management
  • Options
  • Documentation forthcoming
Mortality – planning to manage

- Right-to-Farm
- MAEAP
- NPDES
- NI_190_304, CNMP Technical Criteria
  - Section 2 – Manure and Wastewater Handling and Storage
    - (v) 2.5 Normal Mortality Management
  - Section 3 – Farmstead Safety and Security
    - (iii) 3.3 Catastrophic Mortality Management
Normal & natural mortality

• Intrinsic to an operation under common ownership or management
  • CAFO Permit Status

• Report increases in mortality to veterinarian and state department of agriculture
All Routine Mortality

• Must be disposed of within 24 - 72 hours of death (varies by state)
  • Except:
    • Secured storage
      – At $\leq 40^\circ$ F for maximum 7 days
      – At $\leq 0^\circ$ F for maximum 30 days
    • Road kill
    • Restaurant grease
    • Specimens from educational institutions
    • Mortality from Animal Control
Most popular management methods

- Burial
- Incineration
- Rendering
- Land-fill
- Composting
Protect MI Groundwater

- Michigan touches four of the five Great Lakes
- 40 of Michigan's 83 counties touch at least one of the Great Lakes.
- Michigan has more than 11,000 inland lakes and more than 36,000 miles of streams.
- You are never more than six miles from an inland lake or stream

Source: [http://www.michigan.gov/mdot](http://www.michigan.gov/mdot) and [http://www.egr.msu.edu](http://www.egr.msu.edu)
Burial – Web soil survey
Composting
Challenge - Batching

- Initial additions, or loading of new carcasses and bulking agent
  - Limited to a planned time period
  - Rate of mortality
  - An appropriately sized composting facility.

- Batches provide for appropriately timed temperature monitoring, aerating, and utilization
Challenge - Batching

• Initial additions, or loading of new carcasses and bulking agent
• Limited to a planned time period
• Rate of mortality
• An appropriately sized composting facility.

Batches provide for appropriately timed temperature monitoring, aerating, and utilization.
Challenge – Monitoring Temperature

- Recorded once per week for each batch
- Minimum of 3 heat cycles before considered finished
Challenge - Records

- Start date of each new batch
- Quantity of tissue
- Temperature once per week each batch
- Turning dates
  - Aerating speeds process, increases heat, controls flies and vermin
  - Three heat cycles required
- Final disposition (method, location, date, estimated volume/wt., sale)
- Nutrient analysis one batch per year
Thank You!