Pig handling from farm gate to plants – Management considerations to optimize biosecurity and pig comfort

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Overview of the Marketing Process

• The marketing process
  – Movement of pigs from barn pen to stunning at the plant
  – Involves growers, loading crews, drivers, and handlers at the plant

• Three main goals of the marketing process are to:
  – Provide optimal care and comfort for the pigs (animal welfare)
  – Minimize the spread of disease and pathogens (biosecurity)
  – Ensure worker safety
How do we accomplish these goals?

• Implement training programs

• Develop SOPs for handling and transportation

• Conduct internal audits – check for compliance

• Re-train employees on areas of non-compliance
Implement Training Programs

• National Pork Board’s TQA™ program

• Production system’s SOPs for:
  – Loading and transporting market hogs
  – Biosecurity

• Elanco pig handling/transportation training DVD
  – Coming in August 2008

(Photo courtesy of the National Pork Board TQA Handbook)
Develop Standard Operating Procedures for Handling/Transport

• SOPs for handling/transportation are developed to:
  – Set the expectations and standards for your production system
  – Establish best practices for animal welfare and biosecurity
  – Ensure consistency across loading crews and drivers

• Elanco has developed an electronic template for creating SOPs for pig handling and transportation
Conduct Internal Audits and Re-Train Employees as Needed

Load Site Assessment Report

<table>
<thead>
<tr>
<th>Site Name:</th>
<th>Date:</th>
<th>Assessor Name:</th>
<th>Crew Leader Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Truck:</td>
<td>Outside Temperature:</td>
<td>Arrive Time of Truck:</td>
<td>Arrive Time of Plant:</td>
</tr>
<tr>
<td>Time First Pig Loaded:</td>
<td>Time Last Pig Loaded:</td>
<td>Departure Time of Truck:</td>
<td>Departure Time of Plant:</td>
</tr>
<tr>
<td>Number of Loads to be Loaded by Crew Today:</td>
<td>This is Load # Today:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Load Crew

<table>
<thead>
<tr>
<th>Weight of Pig</th>
<th>Timelessness</th>
<th>Ready</th>
<th>No</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Head</td>
<td>Number of People in Crew</td>
<td>Clute</td>
<td>2-3</td>
<td>4 or more</td>
</tr>
<tr>
<td>Comments:</td>
<td>Feed Withdrawal Comments:</td>
<td>Ramp Angles:</td>
<td>90° or more</td>
<td>90° or less</td>
</tr>
</tbody>
</table>

Building

<table>
<thead>
<tr>
<th>Exit Angles</th>
<th>Building Equalization</th>
<th>Columns Lowered</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>45°</td>
<td>30°</td>
<td>15°</td>
<td>0°</td>
</tr>
<tr>
<td>Light</td>
<td>Adequate Lighting</td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Lighting:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airplane Width (ft)</td>
<td>Bar Length (ft)</td>
<td>Solid Panels at Exit</td>
<td></td>
</tr>
</tbody>
</table>

Tools and Vocalization

<table>
<thead>
<tr>
<th>Hot Shot Evaluation</th>
<th>Vocalization of Pigs</th>
<th>Ready</th>
<th>Sometimes</th>
<th>Often</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth</td>
<td>Moderate</td>
<td>booming</td>
<td>comments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location in Dam (Average # echoed [pig])</td>
<td>Tools in Use</td>
<td>Sand Baskets</td>
<td>Rake</td>
<td>Shovels</td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Pumps</td>
<td>Hoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Loading

<table>
<thead>
<tr>
<th>Time to Load</th>
<th>Employee Vocalization</th>
<th>Quiet/Calls</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig Loading Order</td>
<td>Employee Accountability</td>
<td>Start</td>
<td>Finish</td>
</tr>
<tr>
<td>Pig Closest to Door</td>
<td>Start</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Pig Farthest from Door</td>
<td>Start</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Number of Head Moved per Group</td>
<td>Start</td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Stress Pigs</td>
<td>Start</td>
<td>Good</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Areas to Discuss

• Biosecurity considerations for loading and transporting market hogs

• Management strategies to reduce transport losses in market weight pigs
Considerations to Optimize Biosecurity During the Marketing Process

(Photo courtesy of the National Pork Board TQA Handbook)
Loading Crew Expectations

• 72 h down-time if exposed to pigs outside of the production system

• Shower in / shower out before and after loading

• Wear clean clothes and boots provided by the site

• Use clean sorting boards, paddles, and electric prods
Driver Expectations

• Shower before arriving at the site

• Have clean boots, coveralls, and handling equipment

• Have a clean trailer for every load (if feasible)

• If a clean trailer is not feasible, manage your risk!
  – All market hog trailers are washed over the weekend
  – Prioritize your sites (farrow-to-finish > finishing site)
  – Schedule high priority sites to load-out on Monday morning to ensure that these sites will have a clean trailer
Driver/Loading Crew Communication

• Prior to loading, establish the clean / dirty line
  – The driver and trailer are considered “dirty”
  – The barn and the pigs are considered “clean”

• The clean / dirty line designates:
  – Where the driver can and cannot stand
  – Where the loading crew’s responsibilities end
  – The point of no return for pigs
Management strategies to reduce transport losses in market weight pigs
Transport Losses: Definitions

• Dead on arrival (DOA):
  – A pig that died during transport

• Dead in Yard (DIY) or Dead in Pen (DIP)
  – A pig that died after unloading (usually in the lairage pen)

• Non-ambulatory pig:
  – A pig unable to move or keep up with contemporaries
  – Downers, subjects, slows, suspects, cripples, stressors, fatigued, injured

• Transport losses:
  – The sum of dead and non-ambulatory pigs at the plant
Classifying Non-ambulatory Pigs

Why are transport losses important?

• Transport losses represent many growing concerns to the U.S. swine industry:
  
  – Animal welfare

  – Increased regulations

  – Economic

Multi-factorial Problem

Growers, loading crews, truck drivers, and handlers at the plant can impact transport losses!

Overview of Transport Losses

• It is well established that transport losses are increased by:
  – Aggressive handling with electric prods
  – Porcine stress syndrome (stress gene)
  – Crowding pigs during transport
  – Extreme weather conditions

• Transport losses can be reduced by:
  – Better preparing pigs for transport
  – Minimizing stress throughout the marketing process
Prepare Pigs for Transport
Prepare Pigs for Transport

- Walk pens daily
- Routinely move pigs prior to loading
- Pre-sort pigs prior to loading (if feasible)
- Remove feed prior to loading (if feasible)
Minimize Stress

- Aggressive handling, crowded transport floor space, and long distance moved treatments had **additive effects** on rectal temperature, blood acid-base balance, and loin muscle lactate values (Ritter et al., 2007)

\[
Y = 1.40 + 3.25X \quad (R^2 = 0.35)
\]

**Removing just one stressor will improve the pig’s well-being!**
Prepare Facilities for Loading

• Make sure there is adequate lighting
• Replace broken cleats on loading chutes
• Spread an absorbent material on the floor
• Drop curtains and turn fans down prior to loading
• Have a hose ready to shower pigs in the summer
Driver/Loading Crew Communication

- Establish the clean/dirty line
  - Where the driver can and cannot stand

- Discuss load size
  - Adjust load size for pig weight, trailer length, and weather

- Discuss loading strategy
  - Front of barn loaded onto top deck
  - Back of barn loaded onto bottom deck

- Develop a plan for handling fatigued/injured pigs
  - Designate a recovery pen/area
  - Use a sled to move non-ambulatory pigs
Handling Recommendations

• Use paddles and sorting boards to sort pigs from pens
  – Do not use electric prods in the pen

• Move pigs in groups of 4 to 6 at a slow/calm pace
  – Optimal group size is dependent upon pig weight and aisle width
  – Rule of thumb: you need to be able to reach the first pig

• Minimize the use of electric prods during loading
  – Goal: ≤ 2 shocks/pig from barn pen to trailer compartment
  – Only the person by the barn door should have a hot shot
Proper Use of Electric Prods

• Electric prods should **only** be used as a last resort to move pigs.

• Try the following handling methods before using an electric prod:
  – Tap the pigs with the wand of the electric prod
  – Shock the gates and/or ceiling with the electric prod
  – Gently tap the pigs with your hand
  – Calmly push the pigs

• If electric prods are used, use the following guidelines:
  – **Never** use an electric prod in the pen during loading
  – **Never** shock a pig in a sensitive area (i.e., eyes, nose, anus, genitals, etc.)
  – The pig should be shocked on the back behind the point of balance
  – The duration of the shock should not exceed 1 second
  – Count to 5 before administering any additional taps or shocks
  – Do not exceed 2 shocks per pig during loading
Minimize Stress at the Farm

• If pigs are showing signs of stress or having difficulties walking, place them in a recovery pen and allow them to rest and recover.

• Use a sled to move non-ambulatory pigs to the rest pen (NPB, 2004).

(Photos courtesy of the National Pork Board’s TQA Handbook, 2004)

• If pigs have not recovered after 2 to 3 hours of rest, these pigs should be euthanized to prevent distress.
Minimize Stress during Transport

• Do not mix unfamiliar pigs (if feasible)

• Load market weight pigs at densities of 55 to 58 lbs/ft²
  – See Elanco Loading Density Calculator

• Optimize the environment inside the trailer
  – Summer: shower pigs immediately prior to transport
  – Winter: provide adequate bedding and board up the trailer

• Keep the truck moving and avoid unnecessary stops
Optimize the Environment
Inside the Trailer

<table>
<thead>
<tr>
<th>Temperature, °F</th>
<th>Bags of Shavings, #</th>
<th>Boarding, %</th>
<th>Sprinkler Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>4 bags/deck</td>
<td>90</td>
<td>None</td>
</tr>
<tr>
<td>10 - 20</td>
<td>3 bags/deck</td>
<td>75</td>
<td>None</td>
</tr>
<tr>
<td>20 - 40</td>
<td>3 bags/deck</td>
<td>50</td>
<td>None</td>
</tr>
<tr>
<td>40 - 50</td>
<td>2 bags/deck</td>
<td>25</td>
<td>None</td>
</tr>
<tr>
<td>50 - 70</td>
<td>2 bags/deck</td>
<td>0</td>
<td>Wet the bedding before loading</td>
</tr>
<tr>
<td>70 - 80</td>
<td>2 bags/deck</td>
<td>0</td>
<td>Wet the bedding before loading</td>
</tr>
<tr>
<td>&gt; 80</td>
<td>2 bags/deck</td>
<td>0</td>
<td>Wet the bedding before loading, shower pigs for 5 min after loading</td>
</tr>
</tbody>
</table>

(Adapted from NPB TQA Handbook)

¹Note: this is a guide, not the end all be all (use your judgment)
²Bedding and showering recommendations developed by Ritter & Klassen

Summary

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