Auditing Animal Welfare: Practical Improvements in Slaughter Plants

Temple Grandin
Colorado State University
<table>
<thead>
<tr>
<th>Condition</th>
<th>Acceptable Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunned with one captive bolt or gun shot</td>
<td>95%</td>
</tr>
<tr>
<td>Insensible</td>
<td>100%</td>
</tr>
<tr>
<td>Electric prod – Acceptable (Max %)</td>
<td>25%</td>
</tr>
<tr>
<td>Electric Prod – Excellent (Max %)</td>
<td>5%</td>
</tr>
<tr>
<td>Falling down</td>
<td>1%</td>
</tr>
<tr>
<td>Vocalizing</td>
<td>3%</td>
</tr>
<tr>
<td>Vocalizing with head holder</td>
<td>5%</td>
</tr>
<tr>
<td>Numerical Scoring System for Pigs</td>
<td>Minimum Acceptable Percentage of Animals</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Correct electric stunner placement</td>
<td>99%</td>
</tr>
<tr>
<td>No hot wanding with electric stunner</td>
<td>99%</td>
</tr>
<tr>
<td>Insensible</td>
<td>100%</td>
</tr>
<tr>
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<td>25%</td>
</tr>
<tr>
<td>Electric Prod – Excellent (Max %)</td>
<td>5%</td>
</tr>
<tr>
<td>Vocalization in the restrainer or in CO₂ gondata</td>
<td>5%</td>
</tr>
<tr>
<td>Falling down</td>
<td>1%</td>
</tr>
<tr>
<td>CO₂ – Omit stun scores</td>
<td></td>
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</table>
Percentage of Beef Plants That Stunned 95% or More Cattle with the First Shot

- USDA survey prior to industry wide auditing
- McDonald’s Audits started
- Continued auditing by major customers
- Continuous auditing maintains good performance
2010 Percentage of Animals Falling Scores

32 Beef Plants

22 Pork Plants

• In all 54 plants, worst falling score 2% of the animals

• 0% falls in 94% of beef plants and 86% of pork plants

• Score a fall if the body touches the floor during handling. Includes stun box and unloading area.
## 2010 Percentage of Cattle Vocalizing Scores in 32 plants

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>2010</td>
<td>Worst plant 5% of the cattle vocalizing in the stun box or ritual slaughter restrainer</td>
</tr>
<tr>
<td>1996</td>
<td>Worst plants 7.7% and 32%</td>
</tr>
</tbody>
</table>
Common Distractions That Cause Animals to Refuse to Move

- Air blowing towards animals – Very common problem
- Reflections on wet floors or shiny metal
- Visible people – In front of the animals
- Change in flooring – such as concrete to metal
- Dark chute entrance
- Visible moving equipment up ahead
- Hose on the floor
Steps in Troubleshooting

- People Training Issue
- Problem with the Equipment
Animals going into the slaughter plant are afraid of little things people do not notice
Reflections on the floor make animals balk
The yellow tape and shadows may stop cattle movement.
Pig stopping at a change in flooring. Make flooring all the same
Animals will enter a restrainer more easily if the entrance is lighted.
Cardboard to prevent cattle from seeing through cracks
Case Study Beef Plant
They had to fix all 5 of the problems to improve cattle movement

- Blocked sunbeams with tarps
- Blocked view of people near the crowd pen with cardboard
- Blocked view of people walking in front of the restrainer with a curtain
- Illuminated the restrainer entrance with a portable light
- Stopped overloading of the crowd pen – Move smaller groups and fill half full
A simple fix in this facility would be?
Cattle movement improved after solid sides were installed.
Shadows may impede movement. Animals may refuse to walk on them.

Sunny days are the worst due to shadows.
Stunning with a pneumatic powered captive bolt

Note curtain to block the vision of the next animal. This improves cattle entry into the restrainer.
The crowd pen should be filled half full with cattle or pigs.

A full half circle crowd pen is recommended.
An Animal’s Eye View
Through a Restrainer

Animals will refuse to move if they see people
### Balking Scores

<table>
<thead>
<tr>
<th>Low Balking Plant (well-trained handlers)</th>
<th>High Balking Plant (facility problem)</th>
</tr>
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<tbody>
<tr>
<td><strong>% Cattle Backing Up in the Chute</strong></td>
<td><strong>% Cattle Backing Up in the Chute</strong></td>
</tr>
<tr>
<td><strong>% Vocalizing</strong></td>
<td><strong>% Vocalizing</strong></td>
</tr>
<tr>
<td>0%</td>
<td>38%</td>
</tr>
<tr>
<td>1%</td>
<td>8%</td>
</tr>
<tr>
<td>3%</td>
<td>25%</td>
</tr>
<tr>
<td>2%</td>
<td>8%</td>
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Vocalization Score Increase Due to Increased Electric Prod Use.
Use Scoring to Show How Changes Made in Your Operation Improved Handling

Effect of Air Blowing into the Faces of Cattle at the Restrainer Entrance on Vocalization Score

- % Cattle Vocalizing Due to Balking & Increased Electric Prod Use
  - Air Blowing Out Through Restrainer Entrance: 4.5
  - No Air Movement Towards the Cattle: 0

Approaching Cattle
Reduction in Cattle Vocalizations After Equipment Modifications

<table>
<thead>
<tr>
<th>Action</th>
<th>% Cattle Vocalizing Before</th>
<th>% Cattle Vocalizing After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install Light on Restrainer Entrance</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Install False Floor to Reduce Balking</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Reduce Pressure of Neck Restraint</td>
<td>23</td>
<td>0</td>
</tr>
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</table>
Electric Prod Use on Pigs Was Reduced By Adding Lighting at the Restrainer Entrance

All handlers were well trained and only pigs that balked or backed up were prodded.

- Dark Entrance: 38% pigs electric prodded
- Well Lit Entrance: 4% pigs electric prodded
Cartridge Fired Stunner
Must Keep Cartridges Dry
Store them in the Office
Common Stunning Problems

Cartridge Fired Captive Bolt

- Poor maintenance and cleaning
- Damp cartridges
- Using undersized gun or cartridges
- Slick, slippery stun box floor causes the animal to get agitated
- Agitated animals
Correcting Stunning Problems

**Pneumatic Captive Bolt**

- Poor maintenance and cleaning
- Low air pressure – Compressor is too small
- Ergonomic problems on heavy pneumatic stunners
- Agitated animals
- Slick stun box floor – Diamond plate steel floor wears out quickly and the animal keeps slipping
A Non-Slip Floor in the Stun Box is Essential

Rods should be welded to the floor in a stun box with a steel floor
After head only electric stunning, apply electrode to the heart to prevent return to sensibility

Vogel et al., 2010
Correct Placement
Head to Body
Cardiac Arrest Stunner
Major Causes of Return to Sensibility After Electric Stunning

- Wrong placement – Brain not in current path
- Low amperage
- Dehydrated animals – Applies to all species
- Stun to bleed interval too short (head only)
- Poor bleeding methods – Correct by using a large knife to create a larger blood stream
Sensible bovine with righting reflex. This is a serious welfare problem.

- Stiff neck
- Head raised
Righting Reflex in a Fully Sensible Pig. This is a Serious Animal Welfare Problem

Sensible pig has an arched back
www.grandin.com