

# Humane Handling at the Processing Plant



**NICHE MEAT PROCESSOR**  
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**ASSISTANCE NETWORK**



June 17, 2015

[www.nichemeatprocessing.org](http://www.nichemeatprocessing.org)

# Today's speakers:

## Animal Welfare Approved

- ❖ Tim Holmes: Director of Compliance
- ❖ Anna Bassett: Lead Technical Advisor



# What will be covered

- Background to the AWA program
- AWA slaughter standards
- AWA training
- Handling and meat quality
- Avoiding problems at the plant
- Methods of stunning
- Why stun – the science
- Recommendations for stunning



# Animal Welfare Approved – about us

- ❑ Independent, non-profit, farm certification program
- ❑ Established 2006
- ❑ Audits, certifies and supports family farmers
- ❑ Free audits and certification
- ❑ Currently operates in the US and Canada
- ❑ Requires pasture-based production for all species
- ❑ Birth to slaughter accreditation required



# AWA Slaughter standards

- ❑ AWA has standards for the slaughter of red meat species (cattle, sheep, goats and pigs) and separate standards for the slaughter of poultry
- ❑ There must be a successful review of each species at the plant before AWA animals can be slaughtered
- ❑ Regular re-reviews of the plant (around a year to 18 months interval) are required to maintain AWA status



# Slaughter standards

- ❑ Standards cover the following:
  - ❑ General condition of the plant – holding pens, stunning area, flooring etc.
  - ❑ Handling methods
  - ❑ Stunning methods
  - ❑ Staff and training
- ❑ It is a key requirement of the AWA standards that the animal is stunned before it is bled



# AWA Training

- ❑ All Slaughter Specialist are required to complete Animal Welfare Officer or Poultry Welfare Officer Training courses
- ❑ The program works with the University of Bristol in the United Kingdom to conduct this training
- ❑ The courses cover the slaughter process from transport from farm to slaughter
- ❑ Each plant in the European Union is required to have a trained AWO or PWO depending on species slaughtered at plant and plant size



# AWA Training

- ❑ The courses were designed to train these officers
- ❑ Successful completion of the course is good for a period of three years
- ❑ The AWA conducted its latest training in November of 2013 in Raleigh North Carolina
- ❑ Plants participating in the program were invited to send representative to take the courses
- ❑ The courses provide a comprehensive understanding of Animal Welfare handling and slaughter practices





# Handling

- ❑ Good handling practices benefit not only animal welfare but also the bottom line of both farms and plants
- ❑ Design of handling facilities at farm and plant have an impact of stress levels of animals
- ❑ Stress starts the moment animals are removed from their normal surroundings
- ❑ The goal is to eliminate as much stress as possible



# Handling

- ❑ Understand that animals do not see things or react as we do
- ❑ The lack of depth perception of animals causes issues
- ❑ Movement in their peripheral vision as well as sudden noise and high frequency sounds cause balking
- ❑ If cattle perceive a gap they will balk or attempt to jump it



# Handling

- ❑ Animals will stop at contrasts, dark drain covers, hoses, shadows, different surfaces and heights
- ❑ Pigs when stressed will attempt to return from way they came
- ❑ Animals can react to smells which lead to balking
- ❑ Calm animals are easier to handle than excited animals
- ❑ The goal is once you get an animal moving to keep it moving



# How to avoid issues

- ❑ Steep ramp angles should be avoided
- ❑ If ramps are steeper than  $10^\circ$  cleats should be used
- ❑ Gaps or differences in height of surfaces should be avoided
- ❑ Keep hoses and other objects out of alleys
- ❑ Provide even lighting to avoid shadows
- ❑ Wash down animal movement areas regularly



# How to avoid issues

- ❑ Avoid activities that cause unnecessary noises when moving animals such as using high pressure hoses for washing
- ❑ Make sure water and air lines do not have leaks, animals hear at different frequencies than humans and this causes balking
- ❑ Keep flooring consistent and paint drain covers to match surface
- ❑ Understand and use animals flight zones when moving them



# How to avoid issues

- ❑ Move animals in small groups to stun area
- ❑ Avoid yelling, banging on walls when moving animals
- ❑ Keep people from line of sight in areas you are moving animals to
- ❑ Electric prods should only be used in very specific instances and should not be carried by employee
- ❑ Alleys need to be designed for animals being handled



# Stun Box

- ❑ Stun box cannot be perceived as dead end
- ❑ Use lighting and painted surfaces to improve movement
- ❑ Avoid shadows and contrast in flooring of box
- ❑ Use curtains to eliminate shadows
- ❑ Static head restraints and rump pushers work well for cattle to allow accurate stunning
- ❑ The goal is to make the areas you are moving animals through as boring as possible



# Why is this important

- ❑ Acute stress minutes and seconds before slaughter causes carcass issues that not only affect animal welfare but the bottom line of farmer and plant
- ❑ It leads to PSE in pigs
- ❑ Chronic stress from fighting due to mixing unfamiliar animals or from improper handling and heat stress cannot generally be overcome during time at plant
- ❑ Causes dark cutters in beef and Dark Firm Dry pork
- ❑ Bruising on carcasses from these practices leads to downgrades





# Bottom Line

- ❑ Good handling practices not only benefit the animal but also farmer and plant
- ❑ Farmer receives high quality meat with less waste and loss leading to higher customer satisfaction
- ❑ Improves plant throughput which equals higher profitability and higher customer retention
- ❑ Reduces employee turnover and improves job satisfaction
- ❑ It just makes good business sense



# Stunning methods – red meat

- ❑ Electric stunning (pigs/goats/sheep)
  - ❑ Head only
  - ❑ Head and heart
- ❑ Free bullet
- ❑ Captive bolt
- ❑ Controlled atmosphere stunning (pigs)
  - ❑ CO<sub>2</sub>
  - ❑ Anoxic gases



# Recommended stunning methods – red meat

- ❑ Head and heart electric stunning (pigs, sheep, goats)
  - ❑ Reduces risk of return to consciousness
  - ❑ Can be carried out using same equipment as head only stun
- ❑ Controlled atmosphere stunning using anoxic gases (pigs)
  - ❑ Pigs cannot detect anoxic gases such as argon and nitrogen.



# Stunning methods – not recommended for red meat

- ❑ Captive bolt for pigs. This is commonly used BUT
  - ❑ The target area (the brain) is relatively small
  - ❑ The brain lies deep in the head with a mass of sinuses between the frontal bone and the brain
  - ❑ Older pigs can have a ridge of bone running down the center of their forehead
- ❑ All these things make it difficult to deliver an effective stun.



# Stunning methods – poultry

- ❑ Electric stunning
  - ❑ Stun knife
  - ❑ Hand held head only stunner
  - ❑ Water bath stunning
- ❑ Captive bolt
- ❑ Controlled atmosphere
  - ❑ CO<sub>2</sub>
  - ❑ Anoxic gases



# Recommended stunning methods – poultry

- ❑ Electric stun with hand held head stunner rather than stun knife
  - ❑ Electrodes span the brain of the bird
  - ❑ Delivers a more effective stun
- ❑ Controlled atmosphere stunning using anoxic gases
  - ❑ Bird cannot detect anoxic gases such as argon and nitrogen.



# Stunning methods – not recommended for poultry

- ❑ Controlled atmosphere stunning with CO2 for waterfowl
  - ❑ Water fowl highly aversive to CO2
  - ❑ Water fowl can regulate their breathing (for diving underwater) and some studies show them regaining consciousness after 6 minutes in CO2
- ❑ Low atmospheric pressure stunning (not acceptable to AWA)
  - ❑ Not legal in Europe
  - ❑ Science is not clear whether the rate of decompression used in LAPS induces unconsciousness and death without causing pain and suffering.



# Why is stunning required?

- ❑ Death is when the vital functions of an animal stop
- ❑ In order to make death as stress-free and painless as possible, this point must be reached either instantaneously or after the animal has first been rendered unconscious by another means.
- ❑ An example of instantaneous death would include a beef animal shot using a free bullet to the brain. (AWA calls this “stun-to-kill”)





# Why is stunning required?

- ❑ Examples of techniques for rendering an animal unconscious include the use of an electric stun, a captive bolt gun, or anoxic gases such as argon.
- ❑ Electric stunning and use of captive bolts meet the requirement of an immediate (measured in milliseconds) loss of consciousness.
- ❑ Gases such as argon can be used to provide a non-immediate loss of consciousness that is non-aversive and does not cause distress to the animal.



# What happens when you don't stun cattle?

Adult cattle and calves lose consciousness relatively slowly after throat cutting or sticking.

Research shows that, after neck cutting without pre-stunning, the animal may not lose consciousness until anywhere from 19 to 113 seconds later, with an average of 75 seconds.

In calves, one study identified brain activity in one calf 680 seconds after the cut was made.

The concern is that while unconsciousness might start at 19 seconds after the neck cut in some animals, in a significant proportion of others it could be delayed well beyond this time if stunning is not carried out first.



# What happens when you don't stun poultry

Several studies have examined how long a chicken will remain conscious if it is not stunned and its neck is cut. For example:

Barnett *et al* (2007) showed that birds lost consciousness on average between 12 and 15 seconds after the throat cut, while one bird remained conscious for up to 26 seconds.

Other work from Gregory (2004) showed that birds generally lost consciousness within 15 seconds from having their necks cut, but some birds remained conscious for up to 30 seconds.

McNeal (2003) showed that decapitation rather than neck cut still showed brain activity for around 15 seconds.



# What happens when you don't stun?

From the evidence, If birds and animals are *not* stunned, they might not lose consciousness—and could still have brain activity—for anywhere from 12 to 30 seconds (birds) or 19 to 113 seconds (cattle).

All birds and animals have pain systems that have evolved to protect them from harm. When a very large cut is made across the neck a number of vital tissues are severed, including skin, muscle, trachea, esophagus, carotid arteries, jugular veins, major nerves plus numerous minor nerves.

A bird or animal that is conscious when this cut is carried out will be in considerable pain



# What happens when you stun?

The aim of stunning is to obliterate the waking or aware state.

In this unconscious state the bird or animal cannot experience pain.

Effective stunning will disrupt the neurotransmitters in the brain, causing a state that renders animals unconscious and insensible in less than a second from when the stun is applied, so removing any risk that the bird or animal will experience pain and distress at slaughter and subsequent bleeding.



# What about bleeding out after stun?

Some people think that if you stun poultry pre-slaughter they don't bleed out properly. However, research shows this is not the case.

McNeal et al (2003) compared birds that were stunned with birds that were not stunned. They found no difference in bird weight after killing, NY dressed weight or NY dressed meat yields

Older papers are similar. Davis and Cole (1954) compared bleed out rates between different methods of slaughter. They found that "throat cut no stun" and "stunned and throat cut" gave equal and maximum amount of bleeding.



# What about bleeding out after stun?

Kotula and Helbacka (1966) compared bleeding between: Electrical stunning, De-braining, Captive bolt and CO2 stun all followed by a standard bleed cut and two options where the bird was not stunned before being bled.

They found that birds slaughtered without being stunned method lost the most blood in the first 30 seconds. However, at end of 300 seconds stunned birds had lost the most blood.

They also found that the groups of birds that were stunned had the least amount of blood retained in the offal while the non-stunned birds had significantly greater amounts.

Stunning therefore has no adverse effect on blood loss meat quality.



# Key points for good welfare (and good meat quality) at slaughter

- ☐ Good handling of live animals – from loading at the farm through to point of slaughter
- ☐ Selection of appropriate stunning method for the animal
- ☐ Correct use and placement of stunning equipment
  - ☐ Right caliber gun/ammunition
  - ☐ Right current/power electric stun
  - ☐ Right concentration of gas
- ☐ Quick bleed after stunning
- ☐ Good training for staff





# Additional resources

- ❑ AWA standards
- ❑ Technical advice fact sheets
  - ❑ Why pre-slaughter stunning is important (red meat)
  - ❑ Why pre-slaughter stunning is important (poultry)
- ❑ All at <http://animalwelfareapproved.org>
- ❑ Email [info@animalwelfareapproved.org](mailto:info@animalwelfareapproved.org) if you have further questions about the program



# Questions?



Learn more and sign up for our mailing list at:  
**[www.AnimalWelfareApproved.org](http://www.AnimalWelfareApproved.org)**

