

HUMANE HANDLING: Consciousness and Stunning

This training covers establishment and Inspection Program Personnel (IPP) Humane Handling (HH) responsibilities related to animal consciousness and stunning, including relevant scenarios. It is mandatory for all IPP in livestock establishments.



WELCOME!

After completing this course, you will be able to:

- Differentiate between unconscious and conscious animals
- Identify when to take regulatory actions

LESSON 1: DETERMINING CONSCIOUSNESS

Definitions

Before you continue in the course, it's important to make sure you understand exactly what we mean when we say the following words/phrases.

Unconscious

Not awake or aware; not able to respond to stimuli; not able to respond to environment.
Unconscious = Insensible.

Conscious

Awake or aware; able to respond to stimuli; able to respond to environment. Conscious = Sensible.

Stunning

The action of causing unconsciousness in an animal; performed by one of the four approved methods: 1. Chemical - Carbon Dioxide (9 CFR 313.5), 2. Mechanical - Captive Bolt (9 CFR 313.15), 3. Gunshot (9 CFR 313.16), 4. Electrical - Electric current (9 CFR 313.30)

Notes:

Stunning only religious exemption applies to establishments operating under a IF they utilize stunning as part of their process.

Stunning effectiveness isn't just dependent on the number of attempts. Rather, it depends on the animal remaining unconscious throughout shackling, sticking, and bleeding.

For example: If the animal is stunned but does not remain unconscious through shackling/sticking/bleeding, and a second stun is required to make the animal unconscious, this is an egregious event even though it was only one additional stun. This is egregious inhumane treatment under the definition of "stunning of animals and then allowing them to regain consciousness."

Effective Stun

Successfully making and keeping an animal unconscious throughout shackling, sticking, and bleeding. Effective stunning results in an unconscious animal.

Ineffective Stun Attempt

A stunning attempt that contacts the animal but does not make the animal unconscious.

Missed Stun

Missing the animal by not making contact (also referred to as a miss) although not considered a stunning attempt it may be considered in the event of an ineffective stun followed by a missed attempt when determining egregious status.

Security Stun

Also sometimes called a Safety Stun, Assurance Stun, or Double Stun. This is an extra stun on an animal that was already rendered insensible by the first stun attempt. It is applied at the discretion of the establishment (can be applied at any time). If the animal remains conscious after the first stun, the next attempt is NOT a security stun (it is a follow-up stun attempt)! By definition, any stun applied to a conscious animal cannot be a Security Stun.

Immediate, Effective Corrective Action

A plant employee instantly makes an ineffectively stunned animal unconscious without hesitation or being instructed by IPP, with an immediately available back-up stunning device. This is not defined by a specific elapsed time. The corrective action must be timely and effective in rendering the animal unconscious. Consider access to the animal, animal movement, and adequate placement of stunning device.

Humane Handling

Handling and slaughter practices that cause a minimum of excitement, pain, injury, or discomfort to livestock.

Hoisting

The process whereby an animal after it is shackled, is raised, usually from a lying position, and suspended by a leg or legs.

Regulatory Control Action (RCA)

The retention of product, rejection of equipment or facilities, slowing or stopping of lines, or refusal to allow the processing of specifically identified product (9 CFR 500.1(a)).

Shackling

Livestock are shackled when a device (e.g., rope, chain) used to hoist the animal has been placed around the animal's leg, even if the device has not been drawn tight.

Suitable Restraint

Establishment-provided restraints, in the opinion of IPP, capable of effectively restraining livestock (including disabled livestock when necessary) and preventing injuries to Agency personnel when performing ante-mortem inspection and stunning procedures. This includes inspections when conducted on a transport vehicle.

Menace Response

The reflex blinking that occurs at the rapid approach of an object

Helpful Acronyms:	
AC – Alternating Current	IPP – Inspection Program Personnel
AMS – Animal Welfare Requirements	IPPS – In-Plant Performance System
APHIS – Animal and Plant Health Inspection Service	MOI – Memorandum of Interview
AVIC – Area Veterinarian-In-Charge	NAD – Non-Ambulatory Disabled
BSE – Bovine Spongiform Encephalopathy	NC – Noncompliance
CFR – Code of Federal Regulations	NOIE – Notice of Intended Enforcement
CO₂ – Carbon Dioxide	NOS – Notice of Suspension
DDM – Deputy District Manager	NR – Noncompliance Record
DM – District Manager	NSLP – National School Lunch Program
DO – District Office	OFO – Office of Field Operations
DOS – Denial of Service	PHIS – Public Health Information System
DVMS – District Veterinary Medical Specialist	PHV – Public Health Veterinarian
FLS – Frontline Supervisor	RCA – Regulatory Control Action
FMIA – Federal Meat Inspection Act	RSA – Robust Systematic Approach
FRN – Federal Register Notice	SA – Systematic Approach
FSIS – Food Safety and Inspection Service	SPHV – Supervisory Public Health Veterinarian
HATS – Humane Handling Activities Tracking System	USC – United States Code
HIKE – Humane Interactive Knowledge Exchanges	USDA – United States Department of Agriculture
HMSA – Humane Methods of Slaughter Act	VS – Veterinary Services
IIC – Inspector-In-Charge	

Egregious Inhumane Treatment Definition

Egregious inhumane treatment: An egregious situation is an act or condition that results in severe harm to animals, for example:

1. Making cuts on or skinning conscious animals;
2. Excessive beating or prodding of ambulatory or nonambulatory disabled animals or dragging of conscious animals;
3. Driving animals off semi-trailers over a drop off without providing adequate unloading facilities (animals are falling to the ground);
4. Running equipment over conscious animals;
5. Stunning of animals and then allowing them to regain consciousness;
6. Failing to immediately (or promptly) render an animal unconscious after a failed initial stunning attempt (i.e., no planned corrective actions);
7. Multiple ineffective stun attempts (2 or more) that are due to one or more of the following establishment failures to properly handle or stun the animal:
 - a. Failure to immediately (or promptly) apply the corrective actions that demonstrates a blatant disregard for animal discomfort and excitement;
 - b. Failure to adequately restrain an animal;
 - c. Failure to use adequate stunning methods (e.g., inadequate air pressure, inadequate caliber, insufficient electric current) for the animal being stunned (e.g., species of animal, size of animal, etc.);
 - d. Poorly trained/untrained operator or inexperienced operator; or
 - e. Prolonged discomfort and excitement of the animal due to the inability to render it insensible/unconscious after the application of the immediate (or prompt) corrective actions.
8. Dismembering conscious animals, for example, cutting off ears or removing feet;
9. Leaving disabled livestock exposed to adverse climate conditions while awaiting disposition;
or
10. Otherwise causing unnecessary pain and suffering to animals, including situations on trucks.

Signs of Consciousness

After an animal is stunned, look to see whether the stun was *effective* or *ineffective*.

In other words, look to see whether the stunning resulted in an unconscious animal or a conscious animal.

What are the
hallmark signs of
a conscious
animal?

Signs of a conscious animal

- Stands intentionally or remains standing after a stunning attempt
- Eye tracking and/or reacting to surroundings
- Righting reflex
- +/- Vocalization

Signs of an unconscious animal

- Collapses or falls after being stunned
- No eye tracking/ reactions to surroundings
- Floppy ears, head, and neck
- Limp tail
- No menace response

What are the
hallmark signs of
an unconscious
animal?

Note: Some properly stunned animals may make some noises such as snoring type breaths or groans due to being relaxed, having stomach gas escape, or the last dying breaths etc. and these noises may be mistaken as vocalizations. The tail may reflexively move from side to side, but movement isn't controlled.

Also, side to side movement of the head is not the same as a true righting reflex.

Watch long enough to determine if the animal actually has become conscious.

What About These Other Signs?

What do these signs indicate?

- Rhythmic breathing
- Eye reflex in response to mechanical (touch) stimulus
- Spontaneous natural eye blinks without touching the eye or eye area (in isolated cases)

*Check your answers on the **next** page.*

What About These Signs? Answer

Rhythmic breathing, eye reflex in response to mechanical (touch) stimulus, and spontaneous natural eye blinks without touching the eye or eye area (in isolated cases) are signs that tell you to pay close attention.

Observation of these signs should not automatically result in taking a regulatory control action.

These signs trigger further evaluation to determine if the animal is conscious.

However, they are not, in and of themselves, a definitive determination that the animal is conscious and able to feel pain. Look for the presence of the hallmark signs of consciousness as well.

What else should you consider?

Remember to assess all signs of consciousness!

If an animal shows one or more of the following signs, while lacking one or more of the 3 hallmark signs of a conscious animal, it is NOT conscious:

- Involuntary and rapid back and forth eye motion
- Brief irregular, normal or rapid breathing (rib cage moves in-and-out without significant pause)

The establishment should make the determination whether an animal exhibiting these signs after a stun should receive a security stun from an establishment operator to stop the basic brain function, eliminate signs, and prevent any return to sensibility. FSIS should monitor to ensure the animal does not return to consciousness.

Note: IPP do not instruct the establishment operator to take any specific action. We should notify them of our observations but let them determine how to address the situation.

If the animals return to sensibility, by FSIS definition, that is an egregious event.

Scenario 1

Read the scenario, then consider the questions below using the information you have.

You observe a cow on the rail with no righting reflex (i.e., no attempt for it to arch its back and lift its head), no eye tracking, and with floppy ears, head, and neck.

Is this animal conscious?
What evidence supports your determination?

*Check your answers **below**.*

Scenario 1 Answers

Is this animal conscious?

- No. This animal is unconscious.

What evidence supports your determination?

- The animal has floppy ears, head, and neck, and a hanging tongue. There are no signs of consciousness such as a righting reflex, vocalization, or eye tracking.
- Note: A hanging tongue helps to determine if the animal is unconscious but if it is not present it does not indicate the animal is conscious but rather the tongue may be stuck in the mouth.

Scenario 1 Takeaway

Key point: You need to watch long enough to determine whether an animal is:

- Unconscious, or
- Conscious.

Why?

- You should only take a regulatory control action when an animal is **conscious** after a stun attempt.

Knowledge Check Questions

- 1) Which of the following signs should trigger further evaluation, but does not, in and of itself, indicate the animal is conscious?
 - a. Righting reflex
 - b. Spontaneous natural eye blinks
 - c. Eye tracking
 - d. Vocalization

- 2) Which of the following signs indicates a pig that was stunned with CO₂ is conscious?
 - a. Eye tracking
 - b. Rhythmic breathing
 - c. Agonal gasping
 - d. Floppy head, neck and tail

- 3) Which of the following is one of the possible signs that may indicate an animal is unconscious?
 - a. Vocalization
 - b. Righting reflex
 - c. Eye tracking
 - d. Floppy head

*Check your answers in **Appendix A**.*

Overview

Now that you've reviewed how to determine consciousness, let's discuss what actions you should take!

(If possible) Review the resources before continuing:

Humane Slaughter of Livestock Regulations (9 CFR 313):

https://usda.courseavenue.com/ClientAssets/Shared/MediaLibrary/Lib_1022/00061383.PDF

FSIS Directive 6900.2 Revision 2: https://www.fsis.usda.gov/sites/default/files/media_file/2021-03/6900.2.pdf

When Do You Take Action?

Use the Humane Handling Stun Algorithm flowchart (on the next two pages or [here](#)) to determine what should happen in the following scenarios:

- **Scenario 1:** The first stun renders the animal insensible to pain.
- **Scenario 2:** The first stun does not render the animal insensible and the establishment takes immediate and effective correction action to render the animal insensible to pain.
- **Scenario 3:** The first stun does not render the animal insensible to pain, the establishment's corrective actions are not effective and/or immediate.

*Check your answers on **page 12**.*

Humane Handling Stunning Infographic

Is the first stun attempt effective at rendering the animal unconscious?

Yes
Compliant (no action needed)

No
Noncompliant

Does the establishment immediately and effectively render the animal unconscious on the second attempt?

Yes
Non-egregious noncompliance
Issue HH NR
Follow District and/or Supervisory guidance on notification and issuance of HH NR.

No
Stop and call the District Office (DO) through your supervisory chain. Be prepared to discuss the following questions.

If you can answer "yes" to any of the questions below, it would be an egregious noncompliance which would result in an HH NR and further enforcement action (NOS/NOIE) issued by the DO.

- Does the failure to immediately (or promptly) apply corrective actions demonstrate a blatant disregard for animal discomfort and excitement?
- Did the establishment fail to adequately restrain the animal?
- Did the establishment fail to use adequate stunning methods (e.g., inadequate air pressure on a pneumatic captive bolt device, inadequate caliber of firearm or captive bolt device, insufficient electric current through an electrical stunning device, inadequate CO₂ concentration) for the animal species or size being stunned?
- Are establishment employees/operators poorly trained, untrained, or inexperienced at stunning/ slaughter?
- Did the animal experience prolonged discomfort and excitement due to the inability of the establishment to render it unconscious after the application of the ineffective immediate (or prompt) corrective actions?

While answering yes to the following questions may not result in egregious noncompliance, they are still important to consider:

- Does the establishment have planned corrective actions?
- Did the establishment do all they could when attempting to stun the animal and the final result is an effectively stunned animal?

Yes
For egregious noncompliance, contact the DO through your supervisory chain for guidance on enforcement action (NOS/NOIE) and issuance of an HH NR.
More information is on the following page.

No
Non-egregious noncompliance
Issue HH NR
Follow District and/or Supervisory guidance on notification and issuance of HH NR.

NOS (Notice of Suspension) = Immediate suspension without prior notification

NOIE (Notice of Intended Enforcement) = Withholding action or suspension with prior notification

The decision to issue a NOIE for establishments demonstrating a robust systematic approach to humane handling is not automatic but determined by the DO after discussion with the IIC, PHV, FLS, and DVMS. The following questions help guide the enforcement action decision:

- Is the establishment operating under a robust systematic approach for humane handling of animals as determined by the IIC and DVMS?
- Is the establishment demonstrating the robustness of the program to IPP by effectively and consistently implementing all aspects of its program?
- Does the establishment have a good history of compliance with the humane handling regulations?
- Does the establishment have recent humane handling enforcement actions?
- Is a suspension warranted to prevent inhumane handling from continuing?
- Does the egregious noncompliance represent a rare finding or an anomaly in an otherwise well-functioning system?

Discuss delayed suspension with the DO (i.e., District Manager) through your supervisory chain of command if the answer to the following question is yes:

- Will an immediate suspension action result in inhumane treatment of additional animals (e.g., line stoppage that may result in animals having to stay on a truck during an extremely hot day)? For more information, review page 18 of FSIS Direction 6900.2 Revision 3.

Remember to consult with your supervisory chain of command or DVMS for further instruction and guidance when you have a situation that falls under this section!

When Do You Take Action? Answers

Scenario 1: The first stun renders the animal insensible to pain.

- This is compliant. No action taken.

Scenario 2: The first stun does not render the animal insensible and the establishment takes immediate and effective correction action to render the animal insensible to pain.

- This is a non-egregious noncompliance.
- Issue a Humane Handling NR.

Scenario 3: The first stun does not render the animal insensible to pain, the establishment's corrective actions are not effective and/or immediate.

- This is an egregious noncompliance
- Issue a Humane Handling NR and further enforcement action (NOS/NOIE) issued by the District Office.

When Do You Take Action? "What If..."

What if a missed stunning attempt causes excessive excitement and discomfort to the animal?

Do you take any action even though the stunning attempt missed the animal?

- Yes, a missed stunning attempt resulting in excessive excitement, discomfort, or injury is noncompliant with regulation 9 CFR 313.2 and the appropriate stunning regulation.
- 9 CFR 313.5(a)(1) – The animals shall be exposed to the carbon dioxide gas in a way that will accomplish the anesthesia quickly and calmly, with a minimum of excitement and discomfort to the animals.
- 9 CFR 313.15(a)(1) – The animals shall be stunned in such a manner that they will be rendered unconscious with a minimum of excitement and discomfort.
- 9 CFR 313.16(a)(1) – The animal shall be shot in such a manner that they will be rendered unconscious with a minimum of excitement and discomfort.
- 9 CFR 313.30(a)(1) – They shall be exposed to the electric current in a way that will accomplish the desired result quickly and effectively, with a minimum of excitement and discomfort.

What if the first stunning attempt is successful and the animal is unconscious, but then the animal regains consciousness and the establishment administers an additional stun successfully?

Do you need to take action in this situation?

- Yes, you need to take action. This is egregious, even with only one additional stun. In this situation, follow the steps in FSIS Directive 6900.2 Revision 3, Chapter V, Section III – Inhumane Slaughter or Handling of An Egregious Nature.

Scenario 2

Read the scenario, then consider the questions below using the information you have.

You observe a hog that has been hoisted and stuck. You observe it has conscious eye movement (eye tracking), a natural blink, and appears to be tossing its head. The hog is vocalizing.

Is this animal conscious? What evidence supports your determination? Can you take an action?

*Check your answers **below**.*

Scenario 2 Answers

Is this animal conscious? What evidence supports your determination?

- Yes, this animal shows conscious eye movement (eye tracking) and vocalization which are hallmark signs of consciousness. In addition, it appears to be tossing its head in a controlled manner and reacting to its environment.

Can you take an action?

- This is egregious because the animal is conscious after it has been shackled, hoisted, and stuck for bleeding.
- Notify the establishment employee that the animal is conscious so that he/she can take appropriate action.
- You need to take an RCA, inform the DVMS/DO following the appropriate chain of command, and document the incident in an NR. It is important that your response is timely and follows the directions in FSIS Directive 6900.2.

Scenario 2 Takeaway

Key point: In cases of egregious violations:

- Take an RCA,
- Immediately notify the DO through the appropriate chain of command,
- Follow the directions in FSIS Directive 6900.2, and
- Document the incident in an NR and send to the DVMS/DO.

The DM will determine what enforcement action is needed. The following are to be considered in the correlation:

- Whether the establishment is operating under a robust systematic approach for humane handling of animals as determined by the IIC and the DVMS, per Chapter IV, II, F and G;
- Whether the establishment has demonstrated the robustness of the program to IPP by effectively and consistently implementing all aspects of its program;
- The establishment's history of compliance as indicated by the number of NRs or noncompliance reports related to humane handling regulatory requirements;
- Whether the establishment has recent humane handling enforcement actions;
- Whether a suspension action is necessary to prevent inhumane handling from continuing; and
- Whether the egregious noncompliance represents a rare finding or an anomaly in an otherwise well-functioning system.

Scenario 3

Read the scenario, then consider the questions below using the information you have.

You observe a hog that has been stunned once. It is blinking. An establishment employee administers a second stun and then the animal kicks/thrashes.

What signs do you see in this scenario?

Can you take a regulatory action?

*Check your answers on the **next** page.*

Scenario 3 Answers

What signs do you see in this scenario?

- This animal shows signs, such as blinking and gasping, that should prompt you to pay close attention for the hallmark signs of consciousness.
- **Note:** Verify unconsciousness until death through the processes of hoisting, shackling, sticking, and bleeding.

Can you take a regulatory action?

- Based on the information you have; you cannot take a regulatory control action. However, this may be a good situation to discuss with establishment management during a weekly meeting.
- **Note:** IPP do not instruct the establishment operator to take any specific action. We should notify them of our observations but let them determine how to address the situation.

Scenario 3 Takeaway

Key point: Based on the limited information you have, you should not take a regulatory action in this scenario.

- However, this may be a good situation to discuss with establishment management during a weekly meeting.
- Discuss what was seen, actions taken by the establishment (did they find the animal or did we), and what they did to determine if there was an issue with stunning effectiveness (e.g., maybe it was CO₂ stunned and the concentration of gas was low).
- Document observations and discussion with establishment management in a HH MOI for a non-regulatory concern.

Knowledge Check Questions

- 1) In which of the following situations should you take a regulatory action?
 - a. A stunned animal shows some signs of returning to consciousness, but does not become conscious, and is re-stunned by the establishment.
 - b. An animal is stunned with minimum of excitement and discomfort.
 - c. A stunned animal shows signs of returning to consciousness, then regains consciousness and one additional stun is performed by establishment employees.
 - d. In all of the above situations.

- 2) What action should you take when an animal shows signs of concern but is not conscious?
 - a. Watch for the hallmark signs of consciousness through hoisting, shackling, sticking, and bleeding
 - b. Take an enforcement action
 - c. No action is required
 - d. Administer a second stun yourself

*Check your answers in **Appendix A**.*

Watch long enough to determine whether an animal is unconscious or conscious.

Only take a regulatory control action when:

- An animal remains consciousness after an ineffective stun.
- An animal returns to consciousness after an effective stun.

Resources

For more information on Humane Handling, please visit the Humane Handling site:
<https://www.fsis.usda.gov/inspection/compliance-guidance/humane-handling>

For more information or assistance on Humane Handling, please visit the Humane Handling Ombudsman site:
<https://www.fsis.usda.gov/inspection/inspection-programs/inspection-meat-products/humane-handling-ombudsman>

To review nationwide enforcement actions, please visit the Humane Handling Enforcement site:
<https://www.fsis.usda.gov/inspection/regulatory-enforcement/human-handling-enforcement>

To review the FSIS Directive 6900.2:
https://www.fsis.usda.gov/sites/default/files/media_file/2020-07/6900.2.pdf



Congratulations!

**You have completed the
Humane Handling: Consciousness
and Stunning course!**

APPENDIX A: ANSWERS TO KNOWLEDGE CHECK QUESTIONS

Lesson One:

- 1) **A - Righting reflex:** Righting reflex, eye tracking, and conscious vocalization are all signs of consciousness. Spontaneous natural eye blinking should trigger further evaluation of the animal. You need to watch long enough to determine if the animal regains consciousness.
- 2) **A - Eye tracking:** A Floppy head, neck, and tail are not signs of consciousness. Rhythmic breathing may be a sign that prompts you to pay close attention, but does not necessarily mean the animal is conscious. If you see this, you should evaluate further for signs of consciousness. Agonal gasping may occur in unconscious pigs that have been stunned with CO₂ (or electrical stunning). Conscious eye movement is a sign of consciousness. However, you should also look for the other hallmark signs of consciousness when making your determination (i.e., righting reflex, reaction to surroundings, stands intentionally).
- 3) **D - Floppy Head:** When determining sensibility, look for the absence of the 3 hallmark signs that an animal is conscious. The animal should not stand intentionally after the stunning attempt, show a righting reflex, vocalize, exhibit eye tracking, or react to its surrounding. Floppy ears, neck, and head indicate the animal is unconscious and is not one of the hallmark signs of consciousness.

Lesson Two:

- 1) **C - A stunned animal shows signs of returning to consciousness, then regains consciousness and one additional stun is performed by establishment employees:** This would be considered egregious and IPP should follow directions of FSIS Directive 6900.2 Rev. 3.
- 2) **A - Watch for the hallmark signs of consciousness through hoisting, shackling, sticking, and bleeding:** IPP do not instruct the establishment operator to take any specific action. We should notify them of our observations, but let them determine how to address the situation.